

Asian Pacific American Heritage

Love in Disguise Chocolates

Jake Shimabukuro Fires Up the Uke

Ragya Yak Cheese

An Exploration of Islamic Art

Diva Agnes Chan

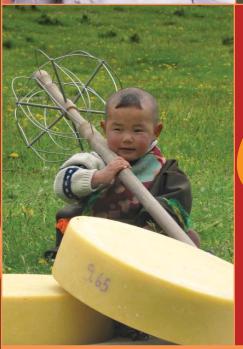
Sings One for the Kids

















Forget Yourself

This Agnes Chan story is about love. You should know first that an Agnes Chan story could be about any number of topics, such as her prodigious childhood singing career: At age 14, her first studio recording became one of the most purchased singles in Hong Kong history. An Agnes Chan story could celebrate her immense cross-cultural appeal: she has been a best-selling artist in Japan for more than three decades, and she recently cut a riveting stateside CD. The story could document her contribution to workplace equality for women: 20 years ago, she triggered a roiling debate on proper roles for women in Japan when she brought her child to work. Or, an Agnes Chan story could examine her prolific writing career: she has nearly 70 books to her credit, including cookbooks and books for children.

Love, and children, are what this story is about. Chan states it simply and emphatically. "I guess everyone has a different calling. Mine is clear to me. I want to make a difference in my own small way to make the world

Photo courtesy of UNICEF, HQ06-0033, usan Markisz

a better place," she says.
"Patience, compassion
and dedication are
things that I have
learned from working
with children. I do
dream about a world
where love lives. I do. I
really do."

Many people could say and have said those kinds of words perhaps as a publicity event or from a dream left over from life in the 1960s, but in Chan's

case, those possibilities aren't likely. Chan has advocated on behalf of impoverished children since cutting her first single nearly 40 years ago, and she has spent the past two decades tirelessly traveling the globe for UNICEF, the United Nations' organization that tries to protect the rights of children worldwide. Few people with aspirations to change the world possess a resumé to back it up. Chan does.

Since 1985, Chan has visited with famine-stricken children in Ethiopia, child soldiers in Sudan, poverty-plagued children in Cambodia, Vietnam, and the Philippines, and many more in Iraq, Moldova, Nepal, and East



Agries Crian noto courtesy of UNICEF, HQ06-0065, Susan Markisz

Timor. The collected experiences of those highly emotional trips has made a profound impact on Chan. "I have been able to go on a mission every year and have been taught a lot of things by these children," she explained at a recent news conference. "They inspired me to work hard, to be hopeful, and they always give me a lot of joy."

The riveting stateside CD she recently recorded is *Forget Yourself*, a collection of 11 newly written songs celebrating the children in Chan's life. Eight-year-old Arage, who took on the responsibility of nursing a badly malnourished three-year-old orphan back to health, inspired the song "One Step at a Time." "You Are Loved" speaks to the 12 million children in Nepal who have never gone to school and the 1.1 million Nepalese youngsters who will die before age five, most likely from malnutrition. "Thirteen" addresses a worldwide problem yielding horrific consequences, the trafficking and sexual exploitation of children.

"These songs ... are about real people, real tears, real beauty, and real horror," noted Chan on the CD jacket. "I believe that every child is born with the right to survive, the right to reach his or her potential, the right to be protected and the right to be heard. I hope these songs can inspire people to remember the smallest of voices and create a space in their hearts for children of the world." A portion of the proceeds from Forget Yourself will be donated to UNICEF.

And Then There's Jake ...

This isn't your grandfather's sweet-sounding, island-inspiring ukulele music. Jake Shimbukuro makes the little guitar rock. He is renowned for lightning-fast fingers and revolutionary playing techniques, and his sound defies labels or categories. Jazz, blues, funk, classical, bluegrass, folk, flamenco, rock — it's all in his repertoire. In fact, Shimabukuro's mission is showing everyone that the ukulele is capable of much more than traditional Hawaiian music.

Shimabukuro masterfully extracts the pure acoustic sound of the uke on his new solo album, *Gently Weeps*. The album's highlight is Shimabukuro's cover of George Harrison's "While My Guitar Gently Weeps," a passionate rendition with an amazingly full sound on such a delicate instrument. Last year, a video of him playing this song in Central Park (check out YouTube.com and search for Shimabukuro) circulated on the Internet resulting in e-mails and amazement from across the globe; France, England, Germany, Sweden, Australia and Korea. When he finally met Harrison's widow, Olivia, she described feeling George's presence with her when Jake played the song. Shimabukuro has toured and played with Jimmy Buffett, Bela Fleck & the Flecktones, and Ziggy Marley.

Shimabukuro is a household name in Japan and has served three years running as Hawaii's Tourism Ambassador to Japan. He is known for his outgoing personality and warm heart, and in his spare time he often visits schools to talk with and play music for the children of Hawaii, hopefully inspiring thousands to put their energy into learning about and playing music. It's a career he doesn't take for granted, saying, "I love what I do. I'm forever thankful for music."

Jake Shimabukuro's video on YouTube.com, featuring his rendition of George Harrison's "While My Guitar Gently Weeps," was a smash hit among cyberfiles.

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Islamic Art: Classical to Contemporary

For those unfamiliar with Muslim culture, the term Islamic art offers few clues as to what one might see, for instance, in an Islamic art gallery. Would there be statues of Muhammad or paintings of Muslims in prayer? It might be helpful to know that there is rarely such a thing as an Islamic art gallery, although online collections are growing. The observation of Islamic art does not always lend itself to the

Linda Komaroff delicately studies an ancient manuscript in the library of the Topkapi Museum in Istanbul. Books and writing, or calligraphy, are critical features of Islamic culture and art.

exhibition style popularly applied to art from other cultures. And if you were to find such a gallery, you would not be admiring statues of Muhammad or intimate paintings of religious life. What you would find, however, is a style of art that is most assuredly robust, diverse, and intensely aesthetic.

Linda Komaroff of the Los Angeles County Museum of Art (LACMA) has spent a lifetime in the study of classical Islamic art, earning her Ph.D. in the field and currently serving as the museum's curator of Islamic art. (A portion of LACMA's collection, including a primer on Islamic art history, is online at www.lacma.org).

Komaroff's journey has led her to learn Arabic, Persian, Middle East history, and travel extensively. "When we think of classical Islamic art," says Komaroff, "we are focused on the time immediately following the life of the prophet Muhammad, or the seventh century through the 18th century." Komaroff makes it clear that Islamic art is not necessarily religious art, at least in the way Westerners perceive it, and that much of the work has a practical purpose.

"Classical Islamic art, such as that collected by LACMA, is highly functional in nature — it is used for something — and it is often portable," Komaroff explains. "It was not produced to be art per se or become part of an art collection, but it is most certainly art. If there is any confusion, it comes from what we, as Westerners, are taught to regard as art."

Despite a millenium of development, a founding in a variety of artistic traditions, and a vast geographic reach — classical Islamic art

comes from Central Asia, southern Spain, northern India, and North Africa — there is an unmistakable cohesiveness to the work that is instantly recognizable. One shared characteristic is the profuse decoration of surface spaces on items such as pillows, fabrics, lamps, and books. Some of the patterns adorning those items (and architectural elements such as walls, ceilings, and landscapes) are floral or geometric in style and expand in every direction. Those patterns are sometimes termed arabesque, and they signal, even to non-Muslims, the influence of Islamic culture.

Perhaps the most critical element within Islamic art, classical or contemporary, is an intense passion for expressive writing, or calligraphy.

It is an artform pursued passionately by contemporary Islamic artist Ruh al-'Alam, who works from a studio in the United Kingdom. Al-'Alam is the force behind VisualDhikr.com, a progressive online gallery dedicated to the "visual remembrance" of the Divine through





Pictured above is "Dhikr" by Ruh al-'Alam, a contemporary Islamic artist working in a variety of mediums, including Web-friendly, digital formats. Pictured below and also by al-Alam is "Ya Rabb."

a variety of mediums, including digital art, photography, music, and videography. The site is progressive only in the sense that al-'Alam uses modern technology and digital art techniques to *expand* on the classical tenets of Islamic art, not create new ones or subvert tradition.

"A few traditional Muslim artists feel strongly that new artistic mediums reject or fail to appreciate the classical Islamic art forms and learning, but my goal as a contemporary artist is to express a respect for this rich inheritance. For example, you'll see in my work a continuation of the celebration of calligraphy as a high contemporary Islamic art form," says al-'Alam,

who further explains, "Digital art is not a common art form seen in galleries or art spaces, and many art buyers still consider the value of digital art as less than that of a hand-painted piece, regardless of the effort that may have gone into producing it. This often stems from the misunderstanding that the computer generates the art on its own rather than it merely being an artistic tool, just as a brush."

Al-'Alam believes, as do others, that a slow decline in the learning and practice of traditional Islamic art has characterized the past few hundred years, and he is part of a revival that reflects the new British, European and American Muslim identities. Such a revival is already taking place, he notes, in fashion, music and architecture.

To fully explore Ruh al-'Alam's creative energy, complete with videos and music, take time to visit visit visualdhikr.com.



"Dismal Swamp," by Nelson Gary Jenks, was created using Intaglio and watercolor.

Norfolk State University's **Double Exposure Visual Arts Initiative**

Norfolk State College was brought to life in 1935 during the midst of the Great Depression. It provided a setting in which the youth of the region could give expressions to their hopes and aspirations. Originally part of Virginia Union University, it gained independent status in 1969 and today is proud to be one of the largest, predominantly black urban institutions in the nation, offering nearly 6,000 students undergraduate- and graduate-level studies.

Norfolk State University has two equally rich opportunities for learning about and experiencing visuals arts. One lies within The Wise Gallery which is located in the Hamm Fine Arts Building. The Wise Gallery was named after James F. Wise who was instrumental in the foundation of the Fine Arts program in the late 1960s. The space is inviting, unique, very well lit, and includes an atrium and fish pond garden. This facility is used primarily for faculty exhibitions, the undergraduate students' Senior Show, graduate student thesis exhibitions, and regional art exhibitions.

The second opportunity lies within The Harrison B. Wilson Archives and Gallery, named after the university's second president. A section of the archives is devoted to collecting, preserving, and making available to scholars and students primary records detailing the experiences of African

Americans in Virginia. The gallery also features an extensive and authentic West African Art collection with representation from the Ashanti, Dan, Fanti, Igbo, Kuba, Ngende, and Nupe tribes.

The works featured on these pages come from both galleries and represent the mission of exposing students and the local community to different cultures, and challenging them to embrace international perspectives as they prepare to compete in a global economy.

Pictured right are two examples of works featured in the permanent collection of The Harrison B. Wilson Archives and Gallery. The first is "Kuba Mortar-Cup" from the Kuba Tribe in Democratic Republic of the Congo. The second is "Fanti Stool" from the Fanti Tribe in Ghana.



About the Artists

Dr. Rod Taylor

Taylor is an adjunct professor teaching sculpture who specializes in the cubistic style. He works in clay casts and in bronze. He has a Master of Fine Arts (MFA) and sits on the Virginia Board of the Commission for the Arts.

Nelson Gary Jenks

Jenks is a professor and chairman of the art department. His specialties are printmaking, graphic design, animation, and photography. His etchings are noted to "have the most marvelous light. It is as if you are in the forest and the light is breaking through the trees to the floor of the forest." Jenks holds a Master of Arts degree.

Christopher Tompkins

Tompkins is a professor of graphic design, multi-media, animation, painting, and drawing. He received an MFA in painting and drawing from Louisiana State University and also studied at Pratt Institute and Old Dominion University.

"Sacred Heart," pictured on the following page, is a mixed media sculpture created to mark the passing of his mother-in-law. It is a work in progress. It was inspired by the notable number of Sacred Heart Society induction cards received after she died. Tompkins has a fascination with Catholic icons and rituals, refecting 12 years of Catholic education.

Chinedu Okala

Professor Okala is originally from Nigeria and earned his MFA in painting and sculpture from Howard University. He is a "colorist," so noted because he has a mastery color expression. Reviews in *The Washington Post* and *Richmond Times Dispatch* have stated, "Simply amazing. One of the best modern artists with classical and modernist training." Many of Okala's paintings are abstract, but viewers can discern figures dressed in ritualistic Nigerian costumes











Pictured above, left to right: "News Pot - New York Stock Exchange" and "Feline" by Dr. Rod Taylor, "Sacred Heart" by Christopher Tompkins.

mixed with images of America. The metaphor is spirituality, but also physical transfiguration. Okala's artwork, "In Search of the Divine," is featured on the cover.

Linda Brady

Brady is the director and curator of the James F. Wise Gallery. She is also an assistant professor and holds multiple degrees, including an MFA earned at Old Dominion University and Norfolk State University. She taught studio arts beginning at TCC in Virginia Beach from 1990-1995. She has served as a part time instructor for the arts at the Govenor's Magnet School for the Arts in Norfolk, Va.

On her work "Outlets," pictured right, she describes it as a non-objective painting that uses an outlet cover for a motif. Outlets represents texture, pattern, line, and shape, and is about process. "I like to use nontraditional elements from hardware stores in my paintings," she says. "I find the tubes of latex window caulk, asphalt caulk and silicone caulks in the hardware store interesting for their neutral colors and ease of application on a large surface as well as their earthy odors. The larger the painting the less interested I am in applying paint with a brush; rather a floor trowel becomes the brush for me. I have always wanted to make a painting where I would use a cotton mop as a brush."

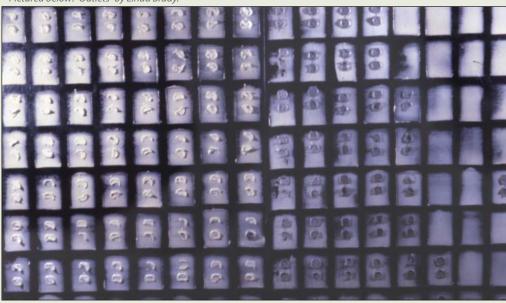
The Fanti

The Fanti live on the southern coast of Ghana. They were there when the Portuguese arrived in 1471, and the event had a great impact on their culture. Having over 24 traditional states, the Fanti were disadvantaged by their lack of political unity. They were greatly influenced by the military strength of the Europeans, and the Fanti mimicked some of what they observed in the creation of their own military companies and the flags used to represent the companies. As decendents of the Akan peoples, inheritance, succession, and political allegiance are based on matrilineal descent.

Pictured below: "Outlets" by Linda Brady

The Kuba

The Kuba people are a confederation of 16 small ethnic groups in the Democratic Republic of the Congo. They live between the Kasai and Sankuru rivers and are united by a central tribe, the Bushoong. The Kuba cultivate beans, corn, millet, and more recently, peanuts. They are known for making beautiful sabers, swords, and knives, which function as weapons as well as highly decorated ceremonial objects which convey the bearers' social status.



Promoting Cultural Awareness and Diversity through the Arts: Diversity, as it is represented through art, provides a personal and visual expression of our valuable cultural differences. Unity and the artwork it showcases can supplement your diversity program. It is the perfect way to discover the vibrancy of new cultures and lifestyles.

For more information on our cultural fine art collection, visit www.picture-that.com



Trace Foundation Brings Tibetan Yak Cheese to the United States

On the Qinghai-Tibetan Plateau just west of the world's highest peaks sits a small school for more than 600 nomad children. It is renowned among Tibetans for the superlative education it offers students, and it is the only school on the plateau (the highest plateau in the world and roughly four times the size of Texas) that incorporates traditional theological debate in the study modern sciences.

Jigme Gyaltsen, a senior monk from Ragya Monastery in Qinghai, founded the school in 1994. For years, he was able to educate the children in both Tibetan traditions and contemporary subjects solely through private donations and government funding, but as more students began to attend, costs increased, and it became impossible to accommodate all of the children.

Thousands of miles away in Lower Manhattan, Trace Foundation operates as a private non-profit with the mission of promoting the cultural continuity and sustainable development of Tibetan communities in China. The foundation has been a long-time supporter of Gyaltsen's school — providing teacher training, building classrooms and a student kitchen, providing library books, and paying teacher and staff salaries.



These wheels of Tibetan Yak Cheese are slowly becoming available to foodies in the United States. Proceeds benefit school children on the Qinghai-Tibetan Plateau.

As costs continued to rise, it became clear to Gyaltsen and the Trace Foundation that a new solution was needed to ensure the continued growth of the school, as well as benefit the nomadic families living on the plateau. Perhaps the answer was munching in the backyard. Tibetans have relied heavily on yaks for centuries, often referring to the animals as the "treasure of the



Senior Monk Jigme Gyaltsen

plateau." Yaks provide hides for shelter, wool for ropes and clothes, and milk and butter for year-round sustenance. Why not cheese?

The Tibetan Cheese Project came to life in 2001 when Gyaltsen and Trace Foundation built a small cheese factory at the junction of three magnificent valleys where Tibetan herders bring their animals for summer pasture. There, the yak forage on wildflowers and grasses, and they produce fragrant and tasty milk that contains twice the fat of cow's milk. In 2004, Slow Food joined the co-op to form the Tibetan Plateau Yak Cheese Presidium, an economic development project designed to improve the quality of Ragya Yak Cheese and establish viable systems for its distribution.

Two summers with master cheese makers from Italy and Switzerland enabled local cheese makers to incorporate techniques to produce a hard mountain cheese with an aroma reminiscent of an aged pecorino and a clean flavor that finishes with mild herbal and grassy notes. The Presidium works with 35 yak herders and a dozen cheese makers on the Qinghai-Tibetan Plateau to identify ways in which their local products can be made into sustainable sources of income. The Ragya Cheese Factory serves a prime example of how a scattered community can sell a sustainable product while maintaining its traditions and avoiding the negative impact of external markets.

Trace Foundation's Paola Vanzo notes, "This is the kind of world that exemplifies the work we do at Trace Foundation, exploring ideas and new opportunities for Tibetan communities in China to help themselves and retain their culture. These projects, well-grounded with support from the local community, will serve to reinforce the value of the nomadic way of life and Tibetan traditions for year to come." For more information, visit www.trace.org or www.tibetcheese.org.

Matsutake: The Annual Harvest

Connoisseurs of fine Asian dining are already thinking about matsutakes, Japan's premier culinary mushroom, and chefs like Masanori Kokubu of Restaurant *i* in Charlotte, N.C., are already planning a way to get their hands on this prized and rare fungus. It's true that matsus, harvested in the fall, are also grown in China, Korea, and North America, but the Japanese variety is considered the best in flavor, texture, and taste. It grows under the leaves and fallen branches of 20- to 30-year-old Japanese Red Pines, and never in the same place twice. The rare growing conditions give the matsutake a flavor like no other. Chef Kokubu eagerly anticipates the annual harvest and, when they finally arrive, works them into a menu of soups, grilled appetizers, steak toppings and sauces. Full course meals are prepared and loyal patrons must make reservations well in advance or risk missing the event. "It takes a bit of luck to keep enough matsutakes on hand," says Harry Iwata, one of the restaurant's owners, "We are totally dependent what we can get air shipped on any given day." Pictured right, matsus and flank steak in a red wine sauce ... delicious!





Love In Disguise Chocolate

If a box of Uzma Sharif's chocolates comes your way, your first thought might be to toss the chocolates and keep the box as a souvenier. Chef Sharif designs the boxes herself, using textured, hand-made papers with special cut-outs, folds, and collage techniques. But throwing the chocolates away would, of course, be a very poor choice. Also hand-crafted and carefully hand-painted with henna-inspired designs, Sharif's chocolates are unmistakeably made with love and affection. They are favorites among chocolatiers of the Windy City and fast becoming popular with Internet shoppers.

Sharif has the entrepreneurial spirit, often putting in 10 to 12 hours each day growing her business. She finally comes to a rest with a cup of hot chai tea and ... a piece of chocolate. Quality control *is* one of the perks of the trade. So how did a first generation American, whose family emigrated from Sialkot, Pakistan, fall in love with chocolate and decide to open her



Chef Uzma Sharif

own shop? The answer lies, in part, within the culinary tradition handed down by her family. Her grandfather was a prominent pastry chef in the old country, so it was perhaps pre-destined that she enrolled at the Colorado Mountain Culinary Institute and later the French Pastry School in Chicago. Her knack for speed and accuracy in the kitchen earned her recognition with the instructors, and she developed a close, personal relationship with desserts along the way. They encouraged her to pursue her own business, which she did and aptly named Love In Disguise Chocolate.

As for those 10 to 12 hour days, "They are great," says Sharif. "I usually have some sort of creative vision the night before, and I am excited to get started on it. After checking the day's orders and answering e-mails, I eat chocolate, which is how I experiment with new techniques and recipes," she says. "The daily fires that need putting out keep me on my toes, like when

a recipe isn't coming out quite right, but nothing that can't be corrected. The chocolate making process is what got me interested in the field — I find it therapeutic and relaxing."

Sharif's primary business is caterings and gifts for clients in Chicago. Her work has become so popular that she is often asked to conduct demonstrations, sometimes on television. If her business plan works out, she wants to open a brick-and-mortar retail shop next year and eventually have chocolate boutiques nationwide. Thankfully, those craving a great piece of chocolate now don't have to wait: Sharif's chocolates can be purchased at her online store for immediate delivery. Simply visit www.loveindisguise.com.





Sharif packages her chocolates in handmade boxes that are often saved as keepsakes.

Honey Ganache

From Love in Disguise Chocolate, yields 75-100 medium-sized truffles.

Ingredients

1 1/4 cups heavy whipping cream 8 ounces chopped dark chocolate (64%) 8 ounces chopped milk chocolate 5 tablespoons honey Dash of love

Place chocolate in medium-sized mixing bowl. Bring the cream to a boil, then pour it over the chocolate. Let stand a few minutes so the chocolate melts. Once the chocolate has melted, begin to stir. While stirring slowly add the honey and of course the love!

Once cooled, you can pipe the ganache into molded truffle shells, or let it rest in the bowl for 24 hours. Once the ganache has set, using a melon baller or a spoon, scoop a quarter-size amount into hand and begin to form into a ball. Once formed, dip in white, milk or dark melted chocolate or

you can roll in chopped nuts.

A Refreshing and Nutritous Mango Treat

This Indian drink is like a mango milkshake and is delicious. From FoodNetwork.com, recipe by Jamie Oliver.

Ingredients

- 9 fluid ounces plain yogurt
- 4 1/2 fluid ounces milk
- 4 1/2 fluid ounces canned mango pulp or 7 ounces from 3 fresh mangoes, stoned and sliced
- 4 teaspoons sugar, to taste, or feel free to try salt and cardamom seeds

Put all the ingredients into a blender and blend for two minutes. Pour into individual glasses, garnish with mango slices and a mint leaf, then serve.

You can also try salt and cardamom seeds as a substitute for the sugar. The lassi can be kept refrigerated for up to 24 hours.

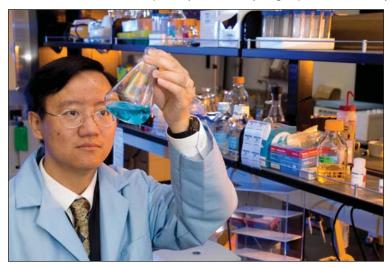
Mango trees grow to more than 100 feet in height and are plentiful throughout Southeast Asia. Mangoes have been cultivated for more than 5,000 years in India. The fruit is a popular treat for snacking, adding as a side dish to meals, and creating recipes for cakes, pies, ice cream, and drinks.





Sugar Cars

Percival Zhang drives a fuel-efficient, black Hyundai to and from his biochemical-engineering lab at Virginia Tech, where he is quietly working on some rather unspectacular solvents and enzymes that could change the world. In a field defined by explosive chemical reactions and exorbitant costs, Zhang has formulated a chemical process that can a) turn agricultural waste into cheap cellulosic ethanol and b) possibly solve the "hydrogen puzzle" — the holy grail of alternative fuel.



Percival Zhang in his laboratory at Virginia Tech

He has spent the past decade developing better way to produce ethanol from renewable raw materials.

Most ethanol today is derived from corn kernels, which Zhang sees as a waste of good food; there's plenty of energy-rich sugar in the cellulose of corn's inedible stalks. leaves, and cobs. But the cellulose is locked tight within the plant cell walls.



Anurag Kashvap

Scripps National Spelling Bee Now on Television

Last year, and for the first time, the ultimate spelling contest was aired on national television, signaling a growing respect for America's best middle-school-age spellers. The winner of the 2006 Scripps National Spelling Bee was 13year-old Kerry Close of H.W. Mountz School in Spring Lake, N.J., who won over a strong field of Indian American students. In fact, the Indian American community had good reason to believe one of their kids would win. Five of the past eight competitions have been won by Indian American children: Nupur Lala in 1999, George Thampy in 2000, Pratvush Buddiga in 2002, Sai Gunturi in 2003, and Anurag Kashvap, pictured above, in 2005.

In a recent article, Joseph Berger of The New York Times suggested that Indian Americans may have a cultural advantage over the competition: "Unlike many American children who are schooled in sometimes amorphous whole-language approaches to reading and writing, Indians are comfortable with the rotelearning methods of their homeland, the kind needed to master lists of obscure words that easily stump spell-checker programs. They do not regard champion spellers as nerds." It is unfortunate that kids who work hard at spelling are labeled in such a fashion. James Maguire, author of American Bee: The National Spelling Bee and the Culture of Word Nerds, notes that contestants are actually very well-rounded.

The 2007 contest, with finals to be held May 30 and 31, will also be televised. More than 10 million children will participate in the numerous contests leading up to the final weekend.

Standard scientific thought has been to break those cells down by blowing them up — under high pressures and temperatures in special reactors based in billion-dollar biorefineries. Then the cellulose has to be loaded up with expensive enzymes to convert it into fermentable sugar. All that translates into high costs and relatively low yields.

Zhang had a different idea. "No one thought to use a solvent," he explains. So he co-patented a recyclable, biochemical treatment that costs much less and yields more sugar. But this is just the beginning of his bigger vision: Zhang believes that the future energy carriers are hydrogen. Hydrogen is high in energy and ridiculously clean, but the current-day problem is that it is too bulky for mobile applications. Distribution of hydrogen also calls for huge investments in infrastructure and new vehicles, and extracting hydrogen by conventional methods is inefficient and more polluting than refining petroleum.

Zhang has a solution, "so simple," he says, "no one thinks about it." He is making hydrogen from sugar. His recipe starts with an ethanol-pretreatment process to release sugar from corn stalks, switchgrass, or other feedstock. Next he adds water, using the energy stored in those sugars in combinations with a novel enzymatic system to divide the molecules into hydrogen and oxygen. So far, his process has had high yields without inputting extra energy or emitting extra carbon dioxide. Moreover, "reaction conditions are modest, so you can put the reactors anywhere" including cell phones, laptops, cars, airplanes, and submarines.

To break it down in layman's terms, "We do not store and distribute gaseous hydrogen any more," says Zhang. "We can do it through solid sugars." He envisions a future in which "sugar cars" fuel up at "sugar stations," using much of our current infrastructure: Drivers pump solid sugar into the tank, a convertor extracts hydrogen on demand, and a fuel cell converts the hydrogen into electricity. Far from being a "sweet dream," his formula is being taken quite seriously. It is a technology that could change the world's energy future completely.

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