

Summer 2018

Utah State Magazine, Summer 2018

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UTAH STATE

SUMMER 2018

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A WAY OUT

Casey Allred wanted to help people out of poverty, so he started a nonprofit to build schools in India. Then it folded. And put him on a new path. **20**



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There is no blueprint for Phaedra Budy to follow. That's what makes her latest experiment so appealing.

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Peter Kranz created a ground-breaking class on relations in the 1970s. It's still relevant today.

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we also want to hear from you.

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a quick survey?**

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FROM THE EDITOR : LETTERS

**End with
the
Question
in Mind**

Questions are at the heart of this issue. Some involve people living far away. What is one alum doing in India to stem the tide of sex trafficking? Others are painfully close. What is Utah State University doing to address reports of abuse on its campuses?

Questions not only lead to answers, they prompt action. Schools are built in India as a way to raise economic opportunities for children, and policies are put into place at USU to protect the health and well-being of students. Questions are admittance to ignorance, but precursors to awareness and improvement. Only the scale and scope varies. As there are no bad questions, there are no questions too large or small.

Questions, for example, of what it takes to heat a lake in the Arctic, and why bother? What can an artist do to make something as time-worn as pottery new and fresh? If our lab mice are stand-ins for humans, shouldn't they be eating a diet closer to that of the average human? Who are the women pioneers who can inspire younger women today? How can parents ensure their children's independence while keeping them safe? Why summit all of Colorado's 100 highest peaks? What can we do to help people of different skin colors come to accept each other as equals?

Folklore says the shape of a question mark derives from the appearance of an inquisitive cat's tail. If that is the case, let us hope the answers are never too far behind.



John DeVilbiss
Executive Editor, *Utah State* magazine

We welcome your thoughts. Please email letters to mageditor@usu.edu or mail to *Utah State Magazine* Editor, 0500 Old Main Hill, Logan, UT 84322-0500. Please include full name, address, phone number, and email, if available. We reserve the right to edit for length and clarity.

Business Class Upgrade

Dear Editor,

Given my own experience with Douglas D. Anderson, I was not the least surprised by what I read in John DeVilbiss's "Business Class Upgrade" in the Spring 2018 issue.

During the 1972-73 academic year, Doug was the editor-in-chief of what was then called *Student Life*, the thrice-weekly student newspaper. Doug's version of student journalism was unlike that of either the previous or the following years. He recruited reporters and writers and editors not only from within the journalism department, but from all over campus—anyone he thought would bring an interesting perspective to the paper. Not only did he give me the opportunity to discover that I might one day become a halfway decent writer, but he put together a team who loved working together to do good work and to keep doing it better and better.

Forty-five years (and four books) later, I'm still using skills and attitudes I learned from working with Doug and the amazing crew he put together that year.

—Mary (Weinberg) Griffith '74

The Untold Story

Dear Editor,

I read the spring issue of *Utah State* magazine with great interest. I was particularly interested in the "Untold Story Behind the 50 Million Dollar Gift" section on page 20. It was our department (Industrial Technology and Education), and particularly Reed Nielsen's creativity, that developed the polystyrene recycling equipment back in 1988 referred to in the article. It was a good time and Jon Huntsman was pleased with the results.

—Maurice Thomas

All-Purpose Teammates

Dear Editor,

What a nice treat your spring issue had for me—"All-Purpose Teammates." While I was a graduate student at USU, I was also a football official, and I officiated their practice games, having become acquainted with John Ralston. Yes, they were good.

—Wayne Linn '62



When student allegations of mistreatment

in the piano program surfaced on social media in February, President Noelle Cockett hired an independent investigator to conduct a thorough review. The allegations spanned from 1994 to 2017 and included gender discrimination, abuse, and sexual misconduct. In April, the independent investigator reported finding “persistent bias against women and a serious lack of faculty supervision and discipline” in the piano program and outlined recommendations for addressing these issues.

During a press conference on April 6, President Noelle Cockett outlined USU’s actions taken in response to an independent review of the piano program.

The university is taking action on all recommendations in the report, including a reorganization of Title IX compliance at USU and expanded prevention programming. In the last year, USU has made great strides in improving its response to and prevention of sexual violence, but additional changes are needed. Cockett called on all USU staff, students, and faculty to help create a zero-tolerance climate on campuses so individuals can reach their full potential.

“These issues that showed up in the review don’t just affect those that experience them directly; they challenge the very mission of our university and threaten the futures and careers of more than just the victims or those directly involved,” she said at a press conference April 6. Cockett pledged to move the university forward. “I am a fixer. I am dedicated to our students’ success. ... I feel like this is my call to action. This is exactly why I am in this office and I don’t intend to fail.” **A**

“Over the past year, we have witnessed a movement that is sweeping through our country. People—women in most but not all cases—are speaking up, telling heart-wrenching personal stories of abuse, mistreatment, and sexual assault. As you know, that movement hit Utah State University in our Piano Program earlier this year. USU students—again, women in most but not all cases—made their voices and their stories heard. They wanted to make sure the things that happened in our past to our students—to them—never happen to anyone else.

Thank you for being so brave. Thank you for demanding changes at Utah State. We are moving forward because of your exceptional strength. However, we cannot move forward as an institution if we do not own up to our past

mistakes. ... Step one in moving forward is standing up and admitting that we at Utah State made mistakes in the way we handled issues of abuse, of mistreatment of students, and even of instances of sexual assault. Step two is taking action to ensure that we correct those mistakes and that we put in place policies and procedures to protect the health and well-being of our students.

As president, I have made the strongest commitment I can to establish a campus culture intolerant of this kind of behavior. However, I can’t do this alone—it will take all of us within the campus community. We have a shared responsibility—faculty, staff, and administration. This is a community call to action.”

—President Noelle Cockett, statement during a press conference April 6, 2018

By the Numbers

7

The number of Utah State scholars awarded Fulbright grants for the 2017-18 academic year, putting USU among the top 10 institutions awarded them nationwide.

90°F

The temperature at which visitors are deterred from exploring Utah's national parks (except for Bryce Canyon and Zion), according to research by Jordan Smith, director of USU's Institute of Outdoor Recreation and Tourism.

252 Million

The years since the "Great Dying"—Earth's mass extinction of dinosaurs—an event USU geologist Ben Burger suggests was caused by burning coal ignited by volcanic activity in Siberia.

Art student Justin Tolman paints a sculpture he created of "Utahraptor," a dromaeosaurid that inhabited Utah some 125 million years ago, for the USU Geology Museum. On May 8, the Utahraptor became Utah's official state dinosaur.



USU's 13th President Dies

George H. Emert raised a lot of bars at Utah State. During his eight-year tenure as president, scholarship support increased from \$6 million to \$29 million, the university's endowment climbed from \$7 million to nearly \$80 million, the American West Heritage Center in Wellsville was raised, and construction of new Aggie athletic facilities took place.



"He was a dedicated Aggie who was a dynamic leader," USU President Noelle Cockett said. "Throughout George's administration, we all benefited from his ability to identify new opportunities to grow Utah State University and further grow our land-grant mission."

Emert was born on a farm in Tennessee and attended school from kindergarten through high school in a one-room schoolhouse. He was a decorated veteran and served two tours in the Vietnam War as a member of the U.S. Army Special Forces. Prior to his appointment at USU in 1992, Emert was a professor of biochemistry at the University of Arkansas and executive vice president at Auburn University. He died March 21 at the age of 79. Emert is survived by his wife Billie and four daughters.

"Start by Believing" Comes to USU

Sexual violence affects nearly one in three women and one in 50 men in Utah. However, studies estimate that nearly 90 percent do not tell law enforcement. A 2017 survey of USU students found a similar pattern of underreported incidents.

While 10 percent of females and 2 percent of males surveyed reported being sexually assaulted since becoming a college student, nearly 40 percent told no one about it, and less than 10 percent informed police, citing reasons of shame, fear of being blamed or not believed by others, and concerns

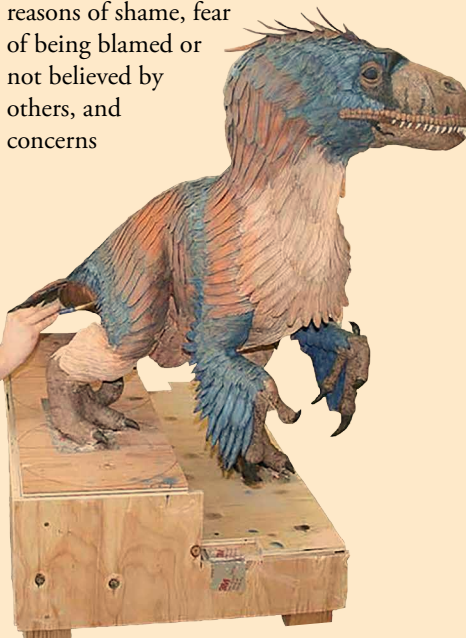
about privacy. In March, USU President Noelle Cockett signed a proclamation supporting the national "Start by Believing" campaign to help create a climate of support for victims and survivors of sexual assault. When individuals feel afraid to speak out about their experiences it can foster an environment where perpetrators are not held accountable.

"How we respond affects everyone," she says. "A negative or indifferent re-response—disbelief, blaming, questioning, minimizing—can worsen a victim's trauma and make it less likely they will report to police or seek the help they need."

National Awards

Nancy Huntly, professor in USU's Department of Biology and director of the USU Ecology Center, is one of 29 new Fellows of the Ecological Society of America this year. She leads USU's National Science Foundation funded Climate Adaption Science graduate specialization program.

Physicist David Peak, a mentor of more than 30 USU undergraduate recipients of 36 Goldwater Scholarships and honorable mentions, was named the 2018 Council on Undergraduate Research-Goldwater Scholars Faculty Mentor Award for his dedication to students.



Uncovering Discriminatory Lending Practices

The W. K. Kellogg Foundation awarded a multi-institutional research team a \$1.2 million grant to investigate small business lending practices in banks across the country. The three-year grant will allow researchers at the Jon M. Huntsman School of Business including Sterling Bone, associate professor of marketing, Brigham Young University, Rutgers University-Newark, and the National Community Reinvestment Coalition (NCRC), to examine how discrimination affects minorities seeking small business loans.

Bone helped conduct an earlier pilot study analyzing lending practices in banks in two cities for the NCRC's Center for Civil Rights that found bankers were three times more likely to invite white borrow-

ers over better-qualified black borrowers for follow-up appointments. These banks were also twice as likely to offer white entrepreneurs help with loan applications compared to black entrepreneurs.

"Entrepreneurship and economic development success hinge on ensuring that small businesses have access to capital," he says. "Unfortunately, if the small business is black-owned, Hispanic-owned, or is a women-owned business, then access to capital maybe difficult to obtain. We hope to help banks and other lending institutions identify ways to de-bias and rid their employees and practices of the implicit biases that enter into the way they treat and interact with minority customers."

New Provost Blows In from Wyoming

The stethoscope that Utah State University's newly announced executive vice president and provost wore around his neck as a veterinarian taught him how to be a good listener. That skill is what Francis D. Galey says he plans to use a lot of in the coming months.

President Noelle Cockett announced Galey's appointment in April. He comes from the University of Wyoming where he has been dean of the College of Agriculture and Natural Resources for the past 17 years. His responsibilities span 34 years as a researcher, author, teacher, and administrator. He also oversaw the University of Wyoming Extension and Wyoming Agricultural Experiment Station.

If shared experiences and common backgrounds are any indication of a good match in a relationship, USU found a good fit for its second in command and chief academic officer, says Larry Smith, who will continue to serve as interim provost until August 1 when Galey begins.

Overheard:

"I love the looks I get ... I am choosing to have fun with *my* college experience. How about you?" —*Student participating in USU's annual Human v. Zombies game.*

"The problem is I've already been run over by a golf cart. Don't ask me what we do in PE classes in California." —*Students walking on the Quad.*

HB349

The bill that passed the Utah legislature this spring, altering the Alumni Legacy Waiver. Now out-of-state students who are children or grandchildren of alumni pay reduced tuition during their first-year, and this time on campus will count towards the 12-month residency requirement for in-state tuition.

13

The number of scholarly books Joyce Kinkead, USU's 2018 D. Wynne Thorne Career Research Award honoree, has published to date.

107 Miles

The distance a 43-foot-tall sounding rocket traveled into the atmosphere before parachuting back to Earth. Among its payload was a new thruster developed by aerospace engineering professor Stephen A. Whitmore and three USU graduate students.

\$120,000

The amount of a NASA grant awarded to Ryan Berke, assistant professor of mechanical and aerospace engineering, to develop a high-speed imaging test used to study the structural integrity of rocket engines.

USU aerospace engineering students developed one of four payloads selected to fly on NASA's Undergraduate Student Instrument Project in March.



FAILURE TO LAUNCH

By Kristen Munson

DAVID LANCY'S BOOK *RAISING CHILDREN: SURPRISING INSIGHTS FROM OTHER CULTURES* IS NOT A PARENTING MANUAL. HE DOES NOT OFFER PRESCRIPTIONS. THERE ARE NO HOW-TO INSTRUCTIONS. BUT IF YOU ARE A PARENT, READING LANCY'S BOOK MAY LEAD TO A THOUGHT THAT PLAGUES YOU WITH EACH TURNING OF THE PAGE:

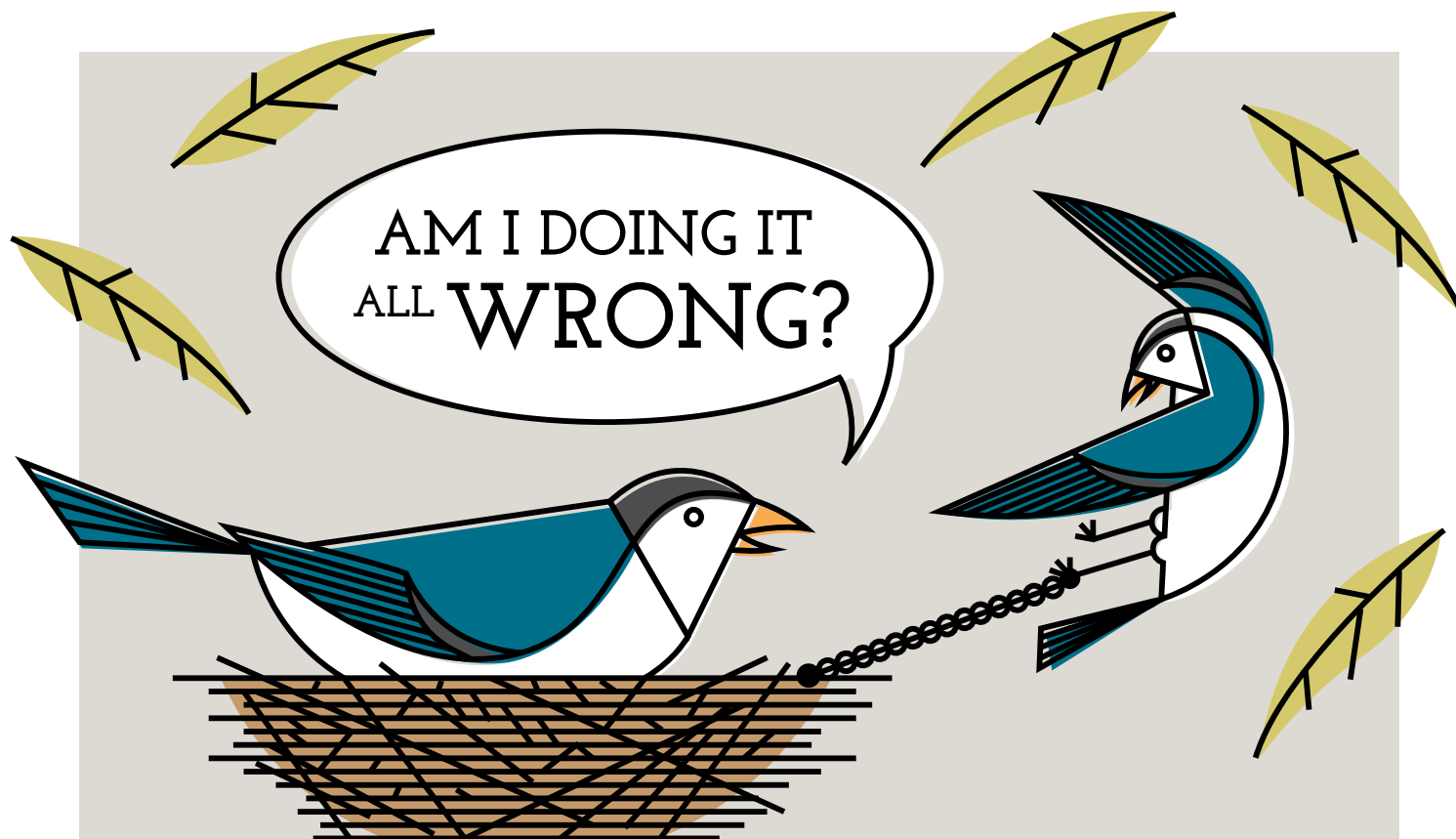


Illustration by Elizabeth Lord

Lancy won't say. As an anthropologist, his expertise centers on studying childhood across cultures; he isn't in the business of dispatching parenting advice. He will, however, assure you that are you probably worrying too much about doing it right: "Less is more. Whatever your expectations are for the amount of work or concern goes into childcare, chances are, you are doing way more than parents have done cross-culturally, and you're probably setting the bar for yourself too high. Lighten up, that's a message I can give out freely."

Reservations about swaddling? Attachment parenting? Agonizing over the perfect original name? Lancy argues Western Educated Industrialized Rich Democracies (WEIRD) countries, like the United States, can learn from societies that have

not yet mastered the creative pregnancy announcement on social media, but do let young children play with knives—that is how they learn to handle them properly.

Kristen Munson: *Utah recently passed one of the nation's first free-range parenting laws. What do you think of it?*

David Lancy: I am very good friends with Lenore Skenazy who wrote the book *Free Range Children*. She lives in Manhattan and was vilified years ago for letting her 9-year-old son take the subway by himself across town. She was referred to as "the world's worst mom." She embraced this, saying "Look, he's been to his aunt's house hundreds of times. There are dangers, but there are also dangers getting out of bed in the morning. Where do you draw the

line?' As soon as news came out of the possibility of some legislation here I got very excited and sent it to her. Lenore says it's becoming a national movement. She started an organization Let Grow to promote free-range kids. So I joined and sent a check for \$500.

KM: *Why are you such a fan of the movement?*

DL: It really gets at the crux of some of the most deleterious changes happening in our culture over the last 50 years. And those have to do with the increasing restrictions put on children for their protection, limiting their ability to explore, limiting their ability to be creative, to be inventive, and limiting their interaction with other children.

KM: *What are the dangers of protecting children too much?*

DL: In the chapter "Failure to Launch" I am basically going in the face of not just popular opinion, but scholarly opinion. Scholarly opinion focuses on late adolescence and what went wrong. My argument is that I don't think it starts in adolescence at all. I think it's barking up the wrong tree. You have to look at what happens to toddlers when you start clamping down and limiting their sphere of movement, limiting their exposure to risk, and limiting their decision-making power. It's like treating children as if they are somehow on the verge of terrible things happening to them. They grow up without a backbone.

KM: *Have we eroded our kids' resilience by overprotecting them?*

DL: There's no doubt in my mind we are harming kids. Not all children are equally harmed. Not all kids are failing to launch, but we are not helping them.

KM: *I know you are not arguing that we return to the days of 7-year-old chimney sweeps, but you do believe children should perform work. Why?*

DL: Children seem to be born with this innate desire to help. It's really our job to try and put chores in their way, in effect to feed this desire. I think we reached a comfortable place in terms of child labor in the United States in the 1950s—kids were still expected to do chores and there were chores to do. For instance, in New York City, I would guess children did a lot of the shopping for their family. That's a classic chore where they're learning social skills, arithmetic, and getting a sense of pride that they are participating in the process. But you don't see that happening today. It's considered too dangerous even though statistically it's a lot safer.

KM: *You write that privacy is something unique to WEIRD societies. Children in traditional societies often share toys and sleeping mats. Are we giving our children too much?*

DL: Yes. Simple answer, yes, way too much. It's undermined their ability to value things. Their wants are inexhaust-

ible. They have no sense of limits and everything they own is devalued if you can just turn around and say 'I broke this, I lost this, I'm not interested in this anymore,' and parents acquiesce to that type of consumerism. To me it's not necessary that the child have his own room, own computer, own phone. I think parents create this problem in the first place by never letting children play by themselves or be by themselves. When I was a toddler I was often plopped down in a playpen or in the dog's kennel. I was happy as a clam.

KM: *Do you have allergies?*

DL: [laughs] None whatsoever. Our kids need more dirt.

"There's no doubt in my mind we are harming kids. Not all children are equally harmed. Not all kids are failing to launch, but we are not helping them." —David Lancy



KM: *Your messages are refreshing for a new parent like myself where it can feel like there's a lot of pressure to get parenting right.*

DL: In the late 19th early 20th century, if things happened to kids, you didn't worry about it too much. It was God's will. Gradually the medical profession took over and a lot of that was welcome change. Good hygiene brought down the child mortality rate dramatically, but it got kind of out of hand. What we now have is a lot of mommy angst where they do not want to wait for a problem to occur. Just reacting to problems and solving them as they arise is no longer acceptable. Now, they want to optimize. How do we create superman and superwoman?

KM: *How do we walk it back?*

DL: That's a \$64,000 question. The implication of how do we walk it back implies a movement. And that's how we got into this mess in the first place. What we are seeing is the result of multiple little streams of social movements

that's forming this flood. A concrete example for a person to walk it back themselves is subscribing to Let Grow's newsletter where they have some ideas.

KM: *Instead of unleashing the children, it seems more like we need to unleash the parents to let kids take greater risks than they are comfortable with initially.*

DL: Count to five. If you see your kid doing something that provokes concern, instead of reacting just count to three and maybe later on to five. Take a deep breath and ask: what is the most likely thing to happen? Instead of saying 'no risk.' Maybe lengthen the leash.

KM: *You write that daycare is not the worst thing that could happen to a child, that in fact, in traditional societies, it is often expected that children be cared for by someone other than their parents.*

DL: It's absolutely mandatory in traditional societies. There are all these cases I could share with you of mothers being chastised by their own families because they are spending too much time with their child. There are these really rosy notions of celebrating the child with the community and that everyone should have a piece of that child. You can't treat staying at home as the default, the standard, that if you're not doing that you are deviant.

KM: *You taught at USU for a long time before retiring. Did you notice a change in students today?*

DL: Yes. That's a whole other book. **A**

Solo

by Jane Parnell

AT ITS HEART, THE NEW MEMOIR BY JANE PARNELL IS A LOVE STORY—THE TALE OF A WOMAN’S PASSION FOR THE MOUNTAINS OF COLORADO. READERS MAY KNOW JANE PARNELL AS JANE KOERNER, A FORMER USU JOURNALISM INSTRUCTOR AND EDITOR OF *UTAH STATE MAGAZINE*. WHAT MOST READERS DON’T KNOW IS THAT PARNELL WAS THE FIRST WOMAN TO SUMMIT THE HUNDRED HIGHEST PEAKS IN COLORADO. PARNELL’S FIERCE, TENDER MEMOIR BEGAN AS A MASTER’S THESIS WITH USU ENGLISH PROFESSOR JENNIFER SINOR. THE BOOK *OFF TRAIL: FINDING MY WAY IN THE COLORADO ROCKIES* EXPLORES “THE CONTINENTAL DIVIDE OF MY CHILDHOOD” WITH ITS TROUBLED FAMILY DYNAMICS, AND A MARRIAGE THAT COMES TOGETHER AND FALLS APART. ANCHORED BY WINDSWEPT MOUNTAINS, PARNELL COMES TO TERMS WITH HER OWN SUMMITS AND VALLEYS.

—NADENE LECHEMINANT ’84, ’98

There are six hundred and thirty-eight mountains over thirteen thousand feet high in the Colorado Rockies. If I were sensible, it would take several lifetimes to do them all. But I want to climb them all in this lifetime, provided my joints will tolerate the punishment. I want to leave my mark—my signature in every summit register or glass jar left by a previous party. I want to possess these mountains as they possess me ...

From Memorial Day until the snow sticks, every weekend is dedicated to the peak-bagging objective, each triumphal date and my companions’ initials recorded in the same notebook with a birdwatcher’s fanaticism ...

Weekdays I work in downtown Colorado Springs so I can pay the bills and prove to myself I am capable of taking care of myself as a recent divorcee. Bruised legs and blistered lips retreat behind dark stockings and bright lipstick, deflecting criticism. My immaculate boss has high standards. The condition of my hair, sunburned and unruly, gets her attention. She suggests Redken’s Extreme Conditioner. It fails to deliver on its promise—*restore your distressed hair to lustrous manageability*—and after noting the infraction in my biannual performance review, she hands me her hairdresser’s business card. “Book an appointment.”

During back-to-back integrated marketing meetings, while team leader Fred assigns the messages of the week—the same messages we’ve been trumpeting from sea to shining sea for three years—

I confine my mental perambulations to pictographs in my notebook: Aztec pyramids with red dots to indicate the route of the sacrificial virgin; half circles for peaks with walkable trails; an anthropomorphic figure with an eagle head, human torso, and alpine sunflowers for hands. I keep my internal commentary to myself for fear of creating the wrong impression, stifling the howl in my throat, which could be misinterpreted as the wailing of self-imposed singlehood or the mating calls of Coyote Woman. Another strike against me in the performance review.

Weekend forays into the mountains compensate. The checkmarks in the margins of my peak-bagging list accumulate so fast, I can barely decipher one conquest from the next. As the triumphs mount, so do the accidental casualties. By the fourth anniversary of my divorce, my Honda Civic seems destined for the junkyard: two sets of tires replaced, not counting blown and shredded ones; a busted U-joint; the bumper drowned at a creek crossing in the San Juan Mountains. The one hundred thousand mileage marker on the odometer resets to zero, restarting my journey.

On my return home, the face confronting me in the bathroom mirror after the shower resembles Alice on her return from Wonderland, bright-eyed with astonishment and fatigue, revisiting her question after tumbling down the rabbit hole and nearly drowning in her own pool of tears: “If I’m not the same ... who in the world am I?”

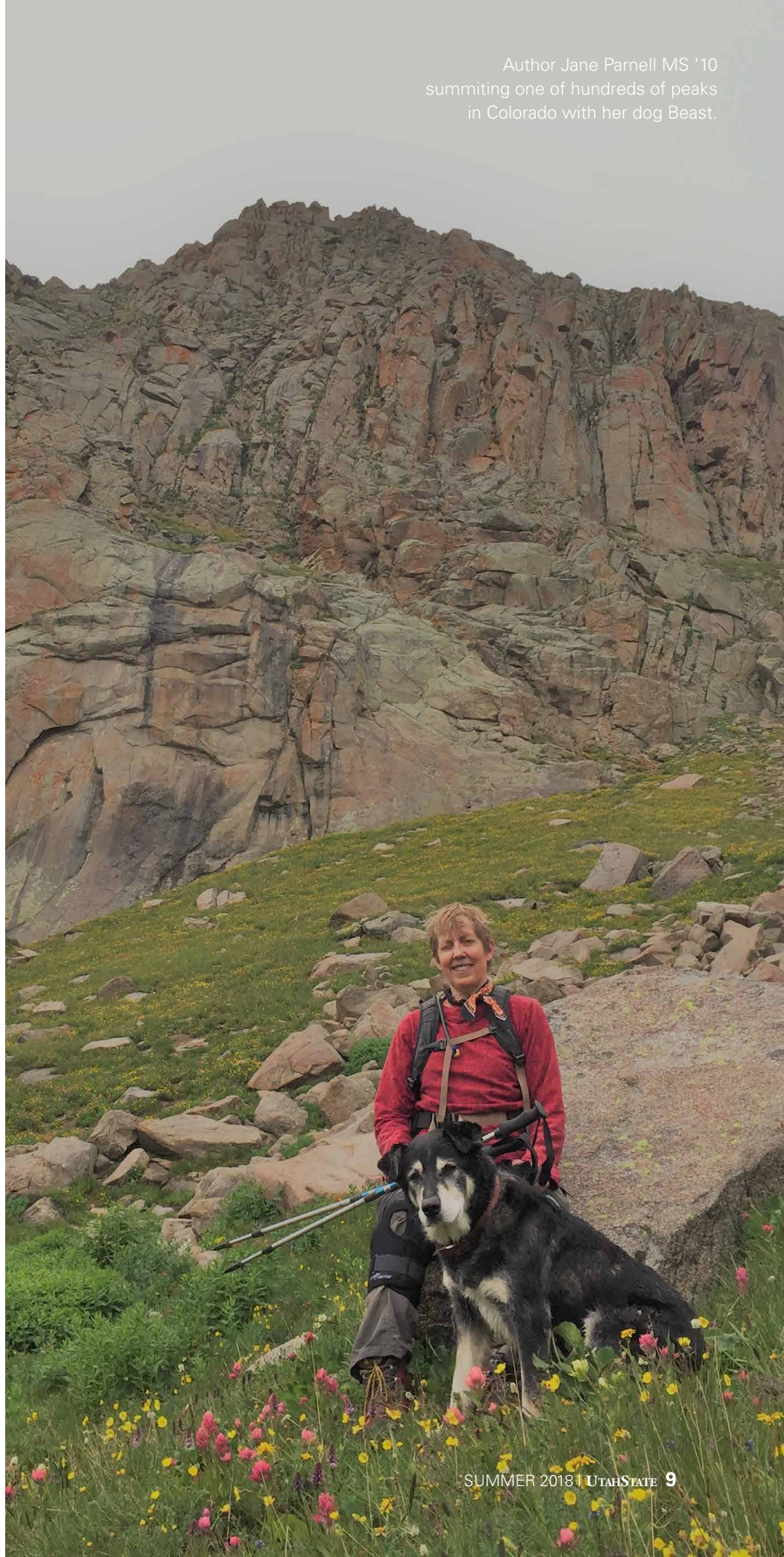
And yet not one mishap. Fifteen to twenty summits a summer, and I lose my way only once without having to sacrifice the summit, my sense of direction


corrected by a thorough review of the topo map. After several summers of hiking with friends or alone, I can recognize the tingle of electricity on my scalp in time to dodge an incoming lightening bolt, identify a peace-loving skunk in the dark, and find a summit in the fog; but I lose my Honda Civic in the grocery store parking lot. The orienteering course offered by the Colorado Mountain Club does nothing to minimize my disorientation in town. I am dyslexic with street signs, especially where I used to live, in Manitou Springs at the foot of Pikes Peak. Mountain Meadow? Deer Path? Elk Park? The names conflict with the Kentucky bluegrass lawns and domestic cats sunning themselves in raised petunia beds.

After a lengthy absence, I finally test my orienteering skills in Manitou Springs. I park my car with the Texans and Oklahomans in the public lot behind Patsy's popcorn stand and the Penny Arcade, and walk the crooked, hilly streets for hours on end, until my stamina gives out. I start out at dusk, when most of the tourists have already packed it in for the night. The camera dangling from my neck labels me as one of them. As I stroll up Manitou Boulevard, I barely recognize the intersection with the street I used to live with Karl, my husband of fifteen years. My customary landmark half a block up, Filthy Wilma's painted face on the brick exterior of my favorite vintage clothing shop, is gone. The sign over the doorway says, "Greenhouse Gallery: A Co-op of Manitou Artists." I've never heard of any of them.

I head up the avenue, ducking my head as I pass the window display of muskets aimed at the Mexican restaurant across the street, and beyond that proceed, my head held high, through a law-abiding neighborhood of renovated bungalows and former boardinghouses converted into stately homes, not pausing once until I reach the gate at the bottom of the staircase. The gate won't budge. Its uppermost hinge has separated from the post, and the gate is too loose to swing through the pile of mildewed leaves on the other side. I lift the gate by its ornamental crest and push; it gives a few inches with a screech of iron on battered concrete, shoving the leaves out of the way. Beyond the gate is a steep staircase buried in more leaves. Seventy-two steps

Author Jane Parnell MS '10
summitting one of hundreds of peaks
in Colorado with her dog Beast.





*I keep my internal commentary to myself
for fear of creating the wrong impression—
stifling the howl in my throat—which could
be misinterpreted as the wailing of self-imposed
singlehood or the mating calls of
Coyote Woman.*

in all. A number I memorized shortly after Karl and I moved into the house.

Seventy-two steps. Steep and narrow with three forty-five degree turns. I take a deep breath and begin the ascent. The slap, slap, slap of running sneakers on asphalt stops me in my tracks and spins me around. There she is—my successor, the Nordic goddess, perpetual youth. Coppertoned skin glistening with sweat, bared abs taut and rippling, twin greyhounds trotting along on her right and left, eyeing the street riffraff ahead. I know it is her because Karl has boasted of the dogs' racing pedigree. She races by in skintight, sky-blue Nike polyester, the greyhounds in lockstep. She must be training for the Pikes Peak marathon. Karl runs it every August.

I retrace my route, pausing to admire the cotton and silk imports in the window of Casual Comforts before turning onto the boulevard. Half a block farther, on the other side of the street, Patsy's is still open for business even though no customers are lined up at the order window. I cross the footbridge behind Patsy's and stroll down the alley, into the Penny Arcade. It takes me nearly twenty minutes to find Zambini, the Fortune Teller. Between throngs of tattooed, spike-haired teens

and the rat-a-tat-tat of their intergalactic dogfights, I am hopelessly confused. But after asking the night manager for directions three times, I finally find Zambini in a dusty, dim corner of the antique room. I drop a quarter into the slot and wait for Zambini's turbaned head to fix me in its red-eyed stare.

I must have been his first customer in years. His voice warbles as if swimming from the bottom of a fish tank or awakening from a century-long nap.

"Look into my crystal ball," he commands.

He holds the ball in his hands. With a clank, a card pops out of the metallic slit in his shirt pocket. He orders me to take it.

"Your lucky color is green." He got that one half right. I have hazel eyes. In the sunlight, green flecks speckle the brown irises. Several blind dates have been complimentary. They say my eyes are my best feature.

I fritter away a wallet full of quarters until the fortune I am seeking finally slides out of Zambini's pocket. "Unlucky in love? Your luck will change but only if you stop looking in the usual places."

I consult my topo maps. They rarely let me down as long as I hold them to the light so I can distinguish fingerprints and watermarks from contour lines and genuine summits. Their names and histories compose a haunting tune that plays, night after night, in vaguely remembered dreams. Cyclone, Precarious, Broken Hand, Crystal, Purgatoire, and Lookout. Bartlett, still standing after numerous beheadings to feed the global construction market. Vestal and Ice Mountain, lumped together in my mind's eye despite their separation of several hundred miles to remind myself of the psychological risks of excessive solitude. Unhappily celibate and hardened in old age.

The summers pass in a whirl of serial conquests indistinguishable from one season to the next.

I'll hike until the joints in my big toes dislocate and the podiatrist orders me to

take three months off to recover from bunion surgery. The screws in my feet compromise their flexibility, and I learn how to scramble on stiff arches and rigid toes.

I'll hike until the vision in my left eye clouds over, and I stumble into my ophthalmologist's office, complaining of the blinding light in my eyes when I drive. He schedules cataract surgery.

"What about the cobwebs in my eyes?" I ask during my first exam since the surgery.

"Floaters. An exceptional number for someone your age," he says. "It has nothing to do with the surgery. Between your myopia and ultraviolet exposure, you've got the eyesight of an eighty-year old." He spares both of us the lecture. I passed him once on the trail; he was equipped with only a fanny pack. I was headed down; he had just left the parking lot. He was moving so fast in his jogging attire, I thought he was pursuing a long-lost lover.

I'll hike until my heart stops beating and they find my belly up in the talus, my rictus grin a warning to those who venture out on their own.

Until then I'll hike sideways and with baby steps and thousand dollar knee braces if I must. "We can keep you going a while longer with physical therapy and ice packs and rooster comb injections," the orthopedist says after showing me the MRIs. "Climbing is brutal on your joints. Eventually you'll have to have both knees replaced. Have you considered taking up cycling and swimming?"

"Will I be able to climb with artificial joints?"

"They'll last longer if you avoid high-impact activity."

I'll take his advice about reducing elevation gains and mileage. But my feet won't cooperate. They cover so many miles while I sleep, my twitching toes wake me up before the alarm goes off, ready to hit the trail again. I tumble out of bed, onto the floor. It's Monday morning and I have to go to work. **A**

*Excerpt from Jane Parnell,
Off Trail: Finding My Way
Home in the Colorado Rockies
(Norman: University of Oklahoma
Press, 2018). Copyright © 2018
by Jane Parnell.*

Feeding Mice More Like People

By Dennis Hinkamp

Photo by
Dennis Hinkamp.

ABOUT FIVE YEARS AGO ROBERT WARD AND KORRY HINTZE, RESEARCHERS IN THE DEPARTMENT OF NUTRITION, DIETETICS AND FOOD SCIENCES, STARTED WONDERING IF LAB MICE WERE BEING FED TOO WELL. AFTER ALL, IF THEY ARE SUPPOSED TO BE STAND-INS FOR HUMANS, SHOULDN'T THEY BE EATING A DIET CLOSER TO THAT OF THE AVERAGE, TYPICALLY SOMEWHAT UNHEALTHY, HUMAN?

"We are feeding them the equivalent of what a health nut would eat in terms of optimum vitamins and minerals," says Hintze. "This diet emerged in the late 1970s when researchers realized feeding mice random mouse chow concoctions compromised research results."

They needed a standardized diet. However, the team that created one used a similar approach to developing feed for large farm animals, optimized for health and productivity, but not necessarily the best model for human therapeutics research.

You have probably noticed that your fellow humans don't always make the best food choices, but how can you mirror that in mouse diets? Mice don't stop at the drive-through before heading home for an evening of Netflix viewing in the mouse hut. But the idea isn't far off base. If you put out fast food for them, the mice will eat it and get fat, Ward says.

Giving mice a version of the stereotypical American diet high in fat, sugar, and salt is good for modeling obesity, but not

for modeling other research on nutrition and disease. That is more complicated.

Ward, Hintze, and cancer researcher Abby Benninghoff, associate professor in the Department of Animal, Dairy and Veterinary Sciences (ADVS) examined national food intake databases and took the 50th percentile amounts of the most common nutrients and distilled those into mouse pellets equivalent to human consumption patterns. The result was the "Total Western Diet."

The diet is showing up in an increasing number of citations, meaning other scientists are finding it valuable. The diet itself is "open source" in that it can be recreated by anyone with the recipe.

Mice are definitely getting more cancers while eating the Total Western Diet, Ward says. "The question is why?"

This improved animal model allows researchers like Benninghoff to introduce nutrients to mouse diets to see if there is a reduction in cancers.

"We are interested in 'functional foods'; those that have substances that promote health," she says. "There are a lot of substances other than the usual calcium, B12, and others that you see on a product label that interact with our bodies. These are called 'bioactive food chemicals' that help promote health."

Among these bioactives are catechins found in green tea that have anti-inflammatory, antioxidant, and anticancer properties, she says. Green tea is the second

most-consumed beverage worldwide, but it is not significant in the American diet. Introducing it into the diets of mice eating the Total Western Diet could allow researchers to make recommendations to Americans.

Still, mice are not tiny humans. They have different metabolisms and much shorter life spans than humans. Benninghoff says the next step is to examine differences between the purified Total Western Diet versus a whole foods version. The purified version is great for consistency because it's made from sugar, vegetable oil, milk protein, and a vitamin and mineral mix. But it lacks some of the complex fibers that come with whole foods from the garden or grocery store. This limits the comparison with humans because of the role the microbiome, or gut bacteria, plays in interactions with food.

The additional fiber in the whole food diet supports the growth of different gut bacteria that may be beneficial for health. As part of the quest to understand the effect of the Total Western Diet on gut health, the researchers have transferred the bacteria of a human microbiome to mice so the mouse model more accurately reflects what goes on in humans.

Benninghoff is in the early stages of a three-year USDA grant funded research project where the Total Western Diet will be used as the control mouse diet for a study of black raspberries. Similar to green tea, they are thought to contain bioactive substances that protect against colitis and/or colon cancer. The overall objective is to determine the direct effects of supplementing mouse diets with whole, freeze-dried black raspberries on gut bacteria, including measures of colitis, progression to colon cancer tumors.

What's the future of the Total Western Diet? Hintze and Ward say there is no reason one couldn't design a Total Asian or Total French Diet. You could also design specialty diets such as a Paleo or a Mediterranean diet to test purported health benefits. If it works for a mouse model, the Total Western Diet could also enhance studies with large animal models, which may better reflect certain health conditions than what is observed in mice.

There is one thing still left out of the Total Western Diet, broccoli. It constitutes less than one percent of the American diet. Hintze said it is also the only food he has seen a mouse spit out. So apparently mice really are similar to the average American. **A**

Article originally covered in Cultivate, the magazine of the USU College of Agriculture and Applied Sciences, in 2017.

HIGHER TALENT

1st Place

Intercollegiate Sales Idol Competition

2nd Place

Deloitte FanTAXtic regional competition

Grand Prize

Wake Forest Marketing Analytics Case Competition, beating teams from Wharton, Notre Dame, and USC

Top

Rookie Team, National Collegiate Sales Competition

1st Place

National Ethics in Action Competition

1st Place

Zions Bank Fixed Income Portfolio Competition, against 8 universities from around the world, including Oxford and BYU

3rd Place

National Real Estate Competition, outperforming teams from Harvard, BYU, Texas

These are just some of the ways to measure the talent at the Huntsman School. There's also our nationally ranked accounting and HR programs, a slew of individual awards, including the Truman Scholarship, the Elijah Watt Sells Award, for the top accounting students in the nation, and the fact that 6 of the past 7 student body presidents of USU have been Huntsman students.

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Huntsman
SCHOOL OF BUSINESS

UtahStateUniversity.

IN 1963, BOB DYLAN WAS SINGING ABOUT HOW "THE TIMES THEY ARE A CHANGING." IT WAS ONE YEAR BEFORE PASSAGE OF THE CIVIL RIGHTS ACT, FIVE YEARS BEFORE THE ASSASSINATION OF MARTIN LUTHER KING, AND SIX YEARS BEFORE A JEWISH KID FROM NEW YORK CITY EARNED HIS DOCTORATE IN PSYCHOLOGY FROM UTAH STATE UNIVERSITY.



PHOTO OF PETER KRANZ IN CLASS
USED IN SARA ORTIZ' PRESENTATION

she could tell you a lot about the students who were. Born in 2000, she is a senior at Logan High School and sums up what Kranz did back then in one word: "intense." Through her connections with USU's GEAR UP, a college readiness program, she became acquainted with what Kranz did and, as a Latina, especially liked the idea of open dialogue between whites and blacks. She created comparison charts of students who took the class that measures the degree of impact it had on them. She also created a timeline

LEARNING WITH

CONFLICTION

Yet for Peter Kranz, nearly a half century later, the more things change, the more they stay the same. The groundbreaking class that he developed and taught on race relations in the early 1970s in Jacksonville, at the University of North Florida, remains as relevant today as it was back then.

Students who were there will tell you that today. Some of them you can see interviewed on *The NewsHour with Jim Lehrer* in 1995 during a 20-year class reunion. In that national broadcast, they talk about how the class positively changed their views on race. They say it in 2007 during a broadcast on Jacksonville public television. Again, in 2016, during another class reunion reported by Florida media, and most recently, they say it repeatedly in a just-completed book by Terence Clarke called *An Arena of Truth: Human Conflict in Black and White* that includes a forward by Price M. Cobbs, co-author of the 1960's bestseller, *Black Rage*.

Someone who was not at those class reunions was Sara Ortiz, although

BY JOHN DEVILBISS

"LITTLE DID

THE STUDENTS

KNOW HOW

MUCH THIS

CLASS WOULD

AFFECT THEM..."

—OPENING PASSAGE ON A WEBSITE
CREATED BY SARA ORTIZ,
LOGAN HIGH SCHOOL SENIOR,
IN CONJUNCTION WITH A USU GEAR
UP PROJECT FEATURING, IN PART,
THE EARLY WORK OF PETER KRANZ'S
GROUNDBREAKING COURSE HUMAN
CONFLICT: BLACK & WHITE

that chronicles race relations in the United States from 1972 to 2016.

Ortiz admires how Kranz got students to confront their differences and to realize that being different isn't always bad or negative. "It offered one solution to a problem," she says. "On a small scale, he had some great results."

"I guess the proof is in the pudding," Kranz says during a phone interview from his office at the University of Texas, where he continues to teach fulltime.

He began assembling the ingredients to that pudding at Grinnell College before going on to USU where he earned a master's in psychology in 1965 and a doctorate in Child Psychology in 1969. Kranz did not know it then, but his early work watching children at play, and using that as a means of getting them to open up and communicate their feelings, would influence his later work with college students.

He was also working through his own emotions in those early days



PETER KRANZ (CENTER) SURROUNDED BY HIS FIRST CLASS OF STUDENTS ENROLLED IN "HUMAN CONFLICT IN BLACK AND WHITE."

of his academic career about what makes people behave the way they do. Only a few years earlier, in 1964, his childhood friend, Michael Schwerner, had taken time off from college to volunteer to help blacks register to vote in Mississippi, during a time when Jim Crow efforts to restrict voting was at fever pitch and local Klu Klux Klan activity was surging. Kranz recalls how Mickey, just 25, and his wife, Rita, stopped by his work at a department store to say goodbye before going on to Mississippi. "And that was the last time I saw him."

Schwerner and two other volunteers were killed weeks later by members of the KKK. Kranz says that up to that point, he was living in the

peripheral of the country's civil rights unrest. News of Mickey's death, however, smacked him between the eyes.

Following graduation from USU, he began working as an assistant professor at Fresno State College in 1970 and got involved in social services in Bakersfield. He had heard about an upcoming workshop in San Francisco focusing on race relations that appealed to him, consisting of two-day seminars led by Cobbs and Bill Grier. It involved getting black and white participants to sit down together and confront their thoughts and fears about race. Kranz remembers the discomfort he felt as participants angrily spilled their feelings without mincing words. But by

the end of the sessions, he was amazed by how enmity turned to empathy. It was cathartic. And Kranz had to take it to the university level.

That was in Jacksonville, where he was a new 32-year-old professor at a college just starting up. He knew nothing of the community at the time, but being at a fledgling university felt energizing. His novel approach to teaching race relations by encouraging non-violent confrontation in a community grappling with desegregation intrigued administrators. To his surprise, Kranz says, they gave him permission to proceed.

The course he created, "Human Conflict in Black and White," was a first. He had no idea the gray areas

he might be getting into, but he did know that children are not born with hatred or bias. Prejudice is something that people learn. So what better place than a classroom to *un*-learn some of this? The most memorable part of the class, however, was what the students were required to do outside the classroom—live seven days with a family of a different race.

Just 12 years before, some 200 white people in Jacksonville chased down African Americans with baseball bats and ax handles that became known as “Ax Handle Saturday.” It started with a sit-in at two department stores by members of the Jacksonville Youth Council to protest racial segregation at store lunch counters. The city was still cordoned off into black and white zones and those divisions carried into Kranz’s classroom. He tried to use that to his advantage. One approach was to have students sit in two circles and segregate them in the inner circle, such as all black males or all white females, who were the only ones permitted to talk. Those in the outer circle could not respond until the end.

“When we sat on the floor in a circle, some of those conversations were tough experiences because they had pointed questions, things for which you really had to do some introspection,” one participant wrote in a journal he was required to keep. “This is when you need to get off dead center, and it forces you into making a decision. So in retrospect, these sessions gave me the guts to meet some of the challenges, and to accept some of the challenges, that I am faced with even now.”

First-person journal entries like this one featured in Clarke’s book, transports readers back to the tumultuous ’70s as students candidly reflect on their home stays. Such as from Michael H., a white student assigned to live with a divorced black woman with five children, including a fellow University of North Florida student:

“I had known Blacks before this, and made them fit into my stereotype of what a Black should be. I never really accepted them as people ... I

“IT’S WEEKS NOW INTO THE SEMESTER, AND I’VE THOUGHT SERIOUSLY ABOUT QUITTING THE CLASS. I CAN FEEL MY WIFE AND MYSELF PULLING APART IN OUR THINKING. IT HASN’T CAUSED ANY SERIOUS PROBLEMS YET; BUT I CAN SEE IT HEADING THAT WAY. THE CLASS DOESN’T COVER JUST BLACK-WHITE; IT COVERS ALL OF LIFE. HOW YOU FEEL ABOUT EVERY OTHER HUMAN BEING. AND HOW WE WHITE AMERICANS HAVE GOTTEN THE NOTION THAT WE HAVE A RIGHT TO THE BIGGER SLICE OF THE PIE. WE’VE PUSHED ASIDE THE INDIAN; ENTRAPPED THE BLACKS; SPAT ON JEWS; IGNORED CUBANS. BECAUSE THEY HAVE DIFFERENT SKIN COLOR AND/OR A SEPARATE LANGUAGE, AND HAVE CUSTOMS WE DON’T EVEN TRY TO UNDERSTAND. WE HAVE SEEN OTHERS PUT INTO DETENTION CENTERS BECAUSE THEY ARE A CERTAIN RACE; WATCHED OTHERS BEING KILLED FOR WANTING TO USE A CERTAIN BATHROOM OR FOR WANTING AS MUCH FROM LIFE AS ANY WHITE WANTS. WE ARE A NATION OF DEAD MINDS AND EMPTY HEARTS.”

—EXCERPT FROM *AN ARENA OF TRUTH: HUMAN CONFLICT IN BLACK AND WHITE* BY TERENCE CLARKE

had typed Blacks as either ‘militants’ or ‘Uncle Toms.’ But then I was admitted into Debbie’s home better than I have been by some of the white people in the neighborhood where I live.”

One white student Clarke interviewed looks back now with astonishment on those home visits. “This was the mid-seventies,” she told him. “The idea of sharing living quarters with a black family in the deep South? It was very edgy, for them and for me. *Very edgy*. I run into former classmates now and then, and invariably we discuss what happened there. The class—if we did it properly ... and most of us did—defines who we are.”

It was a gutsy move by Kranz, because nobody had tried this before, and it was courageous of the students and the 45 families over the life of the program who took them in, despite the risks. For the most part, it was a remarkable success, Clarke says. “I can tell you that everybody I talked to, and all the people whose journals exist, all talk about how the class affected them in positive ways. In so many cases it actually set a pattern for their life for change, for investigation of, and change to, the system.”

Students such as Rex, known 40 years ago for his large Afro, sunglasses, and pugnacious demeanor. He told Clarke how that class changed him by giving him confidence to talk to white people in power and directly confront them on matters of equality. He became an attorney, and eventually, assistant attorney general in Alaska.

“I felt I did something really worthwhile,” Kranz says, looking back. “It was not just lecturing. I jumped in where there were real issues and problems. That is what education should be about, having folks look at serious issues concerning themselves and others and coming away with a new awareness.”

Kranz argues that getting to know people on a more personal basis is a first step to understanding. That moment when you realize you have more in common than you have that is different, Kranz says. And dig this, it’s as true today as it was back then. **A**

THE LAKE EFFECT

BY KRISTEN MUNSON

THE LAKE IS NOT QUITE AT THE TOP OF THE WORLD, BUT IT'S CLOSE.

LOCATED ABOVE THE TREE LINE 150 MILES SOUTH OF THE BEAUFORT SEA, A 5-HECTARE LAKE SITS COVERED IN ICE FOR 9 MONTHS OUT OF THE YEAR. IT COULD BE ANY OF THE HUNDREDS OF ARCTIC LAKES THAT DOT THE REGION, BUT THIS ONE IS THE SITE OF A RISKY EXPERIMENT LED BY PHAEDRA BUDY, PROFESSOR OF WATERSHED SCIENCES AT UTAH STATE UNIVERSITY. SHE WANTS TO WARM ITS FRIGID WATER BY TWO DEGREES—OR MORE, IF PLANS GO WELL.

“The real driver is climate change,” Budy says. “Climate change is happening most rapidly across the globe in the Arctic.”

In 2017, the National Oceanic and Atmospheric Administration issued its annual Arctic report card. And it was grim. Despite a cooler than average spring and summer that allowed Arctic sea ice to rebound slightly, the report concluded that when taken in context, “the Arctic environmental system has reached a new normal.” That new normal includes warmer air temperatures and thawing permafrost, a layer of frozen soil, which historically, has served as a natural sequestration site for carbon and mercury. These elements have been stored in the roots of partially decayed plants on the tundra for millennia. Rising temperatures threatens to unlock them.

More atmospheric carbon further exacerbates global warming already underway, and more mercury in the environment, an element toxic to humans, could accumulate in fish consumed by native populations. Budy, co-head of the lakes division at the Arctic Long Term Ecological Research (LTER) station in Alaska, focuses on a different part of the equation—how warming affects aquatic ecology. She wondered how to mimic

the effects of climate change in a natural system rather than rely on modeling alone.

She knew scientists have artificially warmed other types of sites on the tundra before, prompting her team in the Fish Ecology Lab to brainstorm methods for heating an entire lake. They examined previous studies for clues, but no one had tried pumping heat into a lake before—at least, no one who shared their efforts with the scientific community.

“The initial reaction from a lot of people is ‘That’s crazy; that’s not going to work,’” says Stephen Klobucar, a postdoctoral student who assisted with developing the initial study proposal.

His work with Budy began six years ago while collecting long-term sampling data from some of the lakes near the Toolik Field Station. They have been isolated for the last 25,000 years since the last ice age receded, Klobucar says. “There are lakes that we go and sample and we might not have an idea of what we’re going to find, but we know that they have not been touched by man.”

The waters are pristine, unblemished by traces of humankind like pesticides and fertilizer, which makes them an ideal site for studying changes to the environment because scientists can ignore confounding effects present in other systems. Between mid-October and early June, the lakes are sealed with a sheet of ice 6 ½-feet thick. The short window between ice-on and ice-off is critical for the reproduction and growth of aquatic life. Organisms that call these lakes home have evolved to live in the harsh climate and may be particularly sensitive to environmental changes. But what happens when water temperatures extend beyond a system’s natural variability limits?

Current predictions suggest there will be longer periods of ice-off on arctic lakes. What that means for the life underneath is unclear. One theory is that it will cause a

habitat squeeze, Budy says. Here’s how: As lake temperatures naturally climb during summer months, stratification occurs with the warmest water rising to the top. The deeper you go, the cooler, and less oxygenated it gets. Scientists like Budy suspect increased warming will compress the area where most organisms thrive as they compete for less living space and resources.

“We predict there will be a habitat squeeze, particularly for fish,” she explains. “But, the \$10,000 question is will there be more food?”

Warmer water may prove to be a boon to fish populations, at least initially. As temperatures increase their metabolism speeds up. Fish grow faster and bigger, provided their food sources are also positively affected by warmer temperatures. But every fish species has a different thermal range, as do different species of plants, zooplankton, and bug life, Klobucar says. “A lot less is known when it comes to fish food. If food levels don’t respond at the same levels, then they can basically eat themselves out of house and home.”

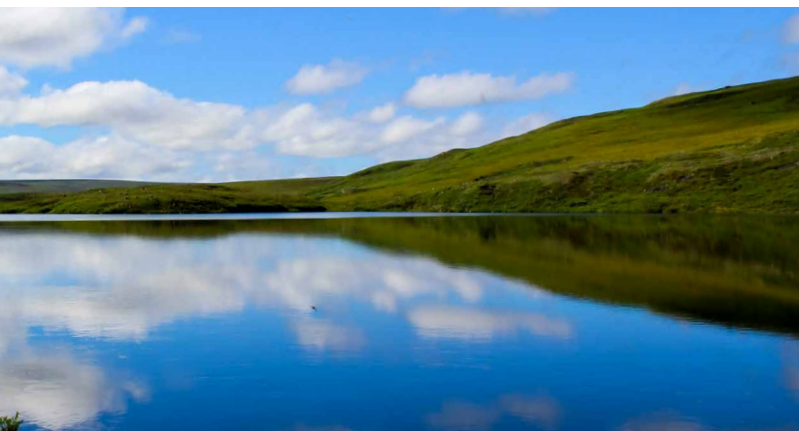
The Arctic is one of the regions most severely affected by climate change. As permafrost thaws, not only will it release more CO₂ into the air, it may alter lake dynamics as nutrient levels shift. Permafrost actually holds some arctic lakes in place by serving as a frozen bowl that cups the water. Thawing may cause some lakes to drain out entirely.



A bluebird day at a research lake on the North Slope, Alaska.



An arctic grayling fights against a researcher's fly rod during a hook-and-line sampling event.



BUDY'S LAKE WARMING PROJECT IS THE FIRST OF ITS KIND. THAT MAKES IT RISKY BY NATURE. THERE IS NO BLUE-PRINT TO FOLLOW AND THE EFFORT IS RIDDLED WITH UNKNOWNNS. THAT'S ALSO WHAT MAKES IT SO APPEALING.



Caribou and white-fronted geese make annual migrations to their calving/nesting grounds near the Arctic coast each spring.

"THERE ARE ALWAYS DIFFICULTIES IN SCIENCE. YOU'RE GOING TO HIT ROADBLOCKS. YOU'RE GOING TO HIT PROBLEMS."
—NICK BARRETT



Researchers at Toolik Field Station gather around a bonfire.

Budy's lake warming project is the first of its kind. That makes it risky by nature. There is no blueprint to follow and the effort is riddled with unknowns. That's also what makes it so appealing. Gary Thiede handles logistics for the experiment. He's a senior researcher who manages the Fish Ecology Lab and has worked with Budy for decades. They've never tried anything like it before.

"We have done things in small cattle troughs, in small ponds out in our Millville Research Facility," he says. "To do something on a large ecosystem basis, this is kind of the scale you need to go to."

And Budy is unafraid to go big.

"Phaedra is extremely driven," Thiede says. "For Phaedra, nothing can't be done and that's her attitude. And she surrounds herself with people that don't take no for an answer. With her, it's 'Why can't we try it? There's got to be somebody that can do this,' especially if it's an ecological question that she wants to answer ... She's a very stubborn and directed person. Our calculations say it can be done on paper. Just because it hasn't been tried, why can't it work? That's how Phaedra thinks. That's why she is successful."

Budy is the lead investigator for the lake warming experiment, an effort funded by the National Science Foundation. They

granted her team \$1 million over five years, however, the team has two years to demonstrate feasibility of the study.

"The NSF is charged with doing cutting edge science and it's going to be risky," Thiede says. "They know that there's going to be an initial investment and it may fail, but they're not guaranteeing long-term funding unless we can do it."

Part of the challenge is the sheer magnitude of the endeavor. The lake is just over nine football fields in size. Most of the year its water temperature hovers just above 4 degrees Celsius, or 39.2 degrees Fahrenheit, save for a brief period between June and September when the lake warms to 20 degrees Celsius—68 degrees Fahrenheit. Heating a lake of this scale between two and four degrees requires energy. They needed to rig a system that could generate heat despite having no power source in the middle of a wildlife refuge.

"It's remote," Thiede says. "You're out there with a can of bear spray, a survival kit and satellite phone, with two people at all times in case something goes wrong. And sometimes things do go wrong."

The first hurdle the team needed to clear was determining how to first heat and then pump water back into the lake when plugging in extension cords is not exactly possible. Conducting the experiment involves shipping dozens of

600 pound propane tanks up the Dalton Highway to the Toolik Field Station, which are then transported by helicopter to the lake 15 miles away.

"It sounds kind of funny, but we are going to be burning a lot of propane, a lot of fossil fuels to heat up a lake to mimic global warming," Thiede says. "We are using propane because although there are better sources like diesel, we are working in a wildlife refuge and propane is something that you can't really spill."

The warming system was masterminded by Peter MacKinnon, a fish biology engineer in Budy's lab. Propane tanks fuel mobile generators that power a pump feeding cold lake water into a pool heater where it is warmed before being pushed into the middle of lake. Meanwhile, a solar-powered mixer keeps the warm surface water circulating to prolong ice-on in the fall.

"Unsurprisingly, we had some logistical problems," Budy says. "We had to learn to do this off the grid."

There are so many factors that can throw off the study, she says rattling off a list: "There's wind, there's sun, there's fetch, there's the temperature of the air and the temperature of the lake—and these will determine whether or not we're successful."

Originally, the plan called for warming two lakes, but that proved trickier due to an unexpectedly cold summer. The smaller

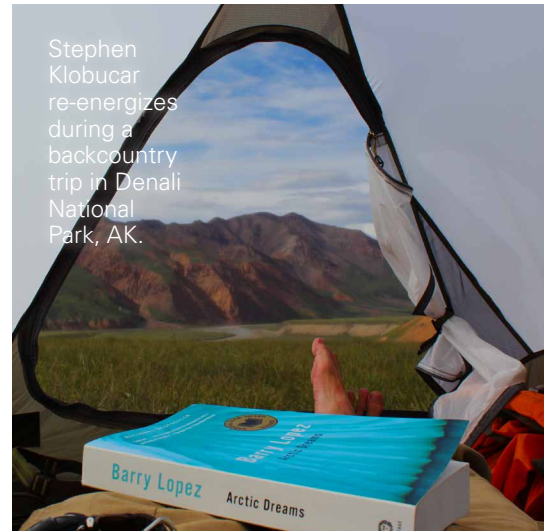


Catching data from fish is just part of lead PI Phaedra Budy's process.



A USU researcher releases an arctic char after processing during an early season (May) sampling trip.

The lake-warming experiment is a collaborative research project associated with the National Science Foundation's Arctic Long Term Research (ARC-LTER) project. Utah State professors Sarah Null and Jiming Jing are also involved, as well as researchers from Woods Hole, Oregon State University, and the University of Michigan.



of the two lakes turned early in the season, essentially hitting reset on the team's warming efforts. With one season left to prove the experiment's viability, the team is investing all of their equipment and energy into the bigger of the lake.

"We are going to cook it," Thiede says. "This is the year we have. This is make or break."

*

The NSF's long-term research sites like the Arctic LTER station represent ecosystems from rain forests and coral reefs to deserts and tundra. They are "sentinels for environmental changes," Budy says. And they may offer a glimpse of what is to come to similar regions with climate change, a potential warming shot across the bow. But studying food webs in the wild is different than monitoring changes in a lab—it's harder.

"In [lab] experiments things are highly manipulated versus natural systems," says doctoral student Nick Barrett. "That's the big question in science. It's a trade-off between the scale and how much you can control and how applicable your results are. We all want to do experiments in natural systems, but that's the most difficult."

He spent his master's work analyzing how heat affects the food web of bluegill fish by warming cattle tanks using big aquarium heaters. And that was a feat, he says. Barrett

signed on to pursue his Ph.D with Budy because of the opportunity to try something bold. He spent much of last summer sleeping in a tent next to the lake, monitoring an experiment where he had almost no control.

"This is groundbreaking, or it could be," he says. "What we are trying hasn't been done before. It's exciting and terrifying. There are always difficulties in science. You're going to hit roadblocks. You're going to hit problems, but then being able to address those problems and keep moving forward—that's the progressive nature of science. It's just little baby steps but you just have to be motivated by any movement forward."

Scientists have been sampling some lakes around Toolik for decades, but this study requires sampling more often and more intensely. Budy's team collects data including DNA samples, fish survival and growth rates, water nutrient concentrations, sediment cores for analyzing benthic bug populations, and continuously logged temperature, among others. Because you can't just look at one piece of the puzzle.

Budy argues studying what happens at the lower trophic levels is critical to see if warmer waters can support more growth higher up the food chain. Fish are dependent on aquatic plants growing larger to supply more oxygen in the waters, and they are dependent on there being an uptick of

available nutrients—that's not necessarily going to happen, she says. "The whole system could just get top heavy and collapse."

That's why running an experiment in a natural system is so valuable.

"When you increase temperature you pretty much crank up the physiological processes of every organism in the system," Barrett says. "Just like us, when we work out we are going to need more energy intake to support that energy output. When you turn up the temperature in a lake, it's similar. A lot of the [modeling] predictions are that warming is going to increase metabolic rates of all these organisms, and that is good. That's going to increase growth, increase activity, increase all these physiological processes."

But the effects of warming is all context dependent, he says. "Warming can have positive effects and it can have negative effects ... if you don't have an increase in resources, then it could be devastating for those fishes because it's warmer, their metabolism is running wild, but they don't have any food to supplement it."

Arctic fish, like trout and char, may benefit from warmer waters to a point, he says. "But it's dependent on so many interconnected things that we don't know. And that's essentially why we are doing this." **A**

A blurred background image showing a woman in a red garment, likely the subject of the film 'Stolen Innocence'.

A Way Out

A woman featured in "Stolen Innocence": a film Casey Allred produced to raise awareness about human trafficking in India. Photo by Christopher Davis.

CASEY ALLRED'S FIRST TRIP TO INDIA WAS A THREE-WEEK WHIRLWIND.

Then a sophomore at Utah State University, Allred rushed through his organic chemistry final and drove to Salt Lake City to catch a flight. Nearly 24 hours of airline snacks, cramped seats, and several connecting flights later, he found himself on the other side of the world.

"I thought I knew what poverty was," Allred says. He had seen destitution in other countries he'd traveled, but none of it prepared him for what he saw in India. "It's a polarization that I don't think Americans can understand. You have a sky-

rise with multi-billionaires living in it and right next door is the slums."

While Christmas music played and fresh snow covered the ground back home, Allred and a few college friends were working in the heat and humidity, along with Bushra Zaman, a USU doctoral student who introduced the idea of spending the break doing humanitarian work in India. It was an experience Allred wasn't fully prepared for, and one made more jarring when he returned to the comforts of life in northern Utah. Allred has spent the years since dedicating his life to help others out of poverty.



By Thomas Sorenson

STOLEN INNOCENCE

In 2015, Allred started work on a documentary film “Stolen Innocence” to shed light on the horrors of the sex trafficking crisis in India. Exact numbers are difficult to gather, but the U.S. State Department estimates there are millions of Indian women and children who are victims of human trafficking, often young girls destined for a life of prostitution. The problem is exacerbated by the extreme poverty in India. Many vulnerable young women seeking jobs are lied to by potential employers and sold to brothels.

Others are outright kidnapped as children.

“It pissed me off,” Allred says. “No one tells you there’s a slave trade going on right now.”

Allred first learned of the trafficking problem in a conversation with an Indian man during one of his early visits to the country. He told Allred of a girl who was kidnapped, but it was unlike other kidnapping stories Allred had heard before.

“I started to understand that she wasn’t being kidnapped and hidden for ransom,” Allred says. “She was being taken to a big city and broken like a horse.”

THE INDIAN DREAM

Though humans have been living on the Indian subcontinent for thousands of years, the country is relatively young. Dissatisfaction with a century of British rule led to a revolution and its eventual independence in 1947. India became the most-populous democracy in the world with the signing of its constitution in 1950. The country has more than 1.2 billion citizens—the second-largest labor force in the world—and boasts the fourth-largest GDP in terms of purchas-



Casey Allred co-founded a nonprofit with colleagues at USU to provide affordable and high-quality education for children in India. He is now Chief Executive Officer of Effect.org and the only founder still working for the organization. Photo by Christopher Davis.

ing power. India generates more than \$250 billion in exports every year and has six cities with populations exceeding nine million residents. It has become a major player on the world stage.

"It's a country that's booming; it's growing so quickly," Allred says. "These are people who want good schools, who want cars, who want insurance, who want good health care. India is a force that needs to be reckoned with."

That growth has provided incredible opportunities for those fortunate enough to take advantage of it.

"My business partner grew up in the slums of Delhi and he learned English on his own," Allred says. "Now he's running a pretty large company. The 'Indian Dream'—which you don't hear very often—is alive and well."

That rapid growth has a dark side, however. In 2011, The World Bank estimated that more than one in five Indians lives below the poverty line. Life expectancy in India is climbing, but remains among the lowest in the world. Allred

"MY BUSINESS PARTNER GREW UP IN THE SLUMS OF DELHI AND HE LEARNED ENGLISH ON HIS OWN," CASEY ALLRED SAYS. "NOW HE'S RUNNING A PRETTY LARGE COMPANY. THE 'INDIAN DREAM'—WHICH YOU DON'T HEAR VERY OFTEN—IS ALIVE AND WELL." THAT RAPID GROWTH HAS A DARK SIDE.

saw an opportunity to make a difference utilizing the resources and connections available at USU and got to work.

"The university is a prime place for people to share ideas," said Shannon Peterson, director of global programming at Utah State. At the time Allred approached her for guidance, she was a professor at the Jon M. Huntsman School of Business. As Allred's passion grew, Peterson became a critical mentor.

"There's nothing more powerful than experiencing these things yourself,"

she says. "Getting out of your own little comfort zone or perspective makes you appreciate what you have here more and the things you take for granted."

Two years in Albania on a Church of Jesus Christ of Latter-day Saints mission and travels to other impoverished nations left Allred with a core belief—"that education was the key access to getting people out of poverty," he says. One of the most significant problems facing India, particularly in rapidly urbanizing areas, Allred says, is access to quality education. In the

months after the initial holiday trip, he built his first low-cost school in India, aiming to offer a quality education to children for as low as two dollars per month.

While balancing the responsibilities of his own education, Allred continued traveling back to India. He accrued advice from Peterson and other Utah State professors who helped him put together business plans and develop strategies to do humanitarian work. In 2012, Allred graduated from the Emma Eccles Jones College of Education and Human Services with a degree in kinesiology and health sciences and turned his attention toward medical school. As he prepared for the next educational step, however, he began to have second thoughts.

"I felt like college was so inward," Allred says. "It was all about you and what you're supposed to achieve with your career and I was really looking to do something outward, something that was potentially helping people around the world."

After months of deliberation, Allred shifted his focus. Medical school offered a prestigious career and a comfortable financial future, but he decided to put those years and that effort into an organization that had a more immediate impact on others. Effect International was born.

EFFECT INTERNATIONAL

After graduation Allred moved to San Francisco—"startup heaven"—to establish a home for the organization and began searching for potential donors.

"We were living on nothing and trying to get known," Allred says. "Those first two years were great and we made a ton of contacts, but they were also super difficult."

Allred's mentor could see the challenges of those first two years, even from afar.

"You're competing with all these other organizations for limited donor funds," Peterson says. "How do you create something unique and show people this is valuable and you're making a difference? I was worried because I knew for many years they had no money to pay themselves, let alone their staff. Times

were tough, especially when you look at that situation compared to how he could've gone to medical school."

For two years Allred focused exclusively on building Effect International and on building schools in India, earning barely enough money to stay afloat. He learned a lot in that time, he says, about how nonprofits work and how to develop an effective school system. Eventually the money and the donations ran out. Allred had moved to India full-time, but Effect International couldn't support itself and it collapsed.

"Taking that all in—that we failed—was really difficult," Allred says. "I'd quit medical school and left all that behind and then this thing that I'd told my family and my friends that I was doing had completely failed."

KICKSTARTING A MIRACLE

"In the real world everything is interconnected," Peterson says. "It's not like you can just go solve one problem. You need to understand that your knowledge and expertise in one area is going to be affected by what's going on in all these other areas as well. The more you understand that, the more you're able to address the problems."

Not wanting to give up the dream of helping people, but unable to continue building schools, Allred turned his attention to raising awareness of the sex trafficking issue he had seen firsthand.

"Girls we would see on the street or something would all of a sudden disappear," Allred says. "As we did more and more research on it we realized these girls were being trafficked and being sent to a horrific, disgusting life through no choice of their own. It was being forced upon them."

Allred found director Chris Davis and a film crew and began the work of fundraising to produce a documentary film. The group launched a Kickstarter campaign with a goal of raising \$100,000, living on maxed-out credit cards to survive until the money had been raised. Kickstarter is designed so that interested donors can pledge towards funding a project, but the project only receives the money if the full fundraising goal is reached within a short timeframe. It's all or nothing and, with less

than 24 hours to go until the deadline, Allred's film had only raised 60 percent of the goal—effectively nothing.

"We were freaking out," Allred says. "If we didn't reach our goal we would be done, crash and burn. Time to go get another job."

Suddenly, with just hours to go, Allred's phone started vibrating with repeated notifications—first a couple per minute, then more frequently. Pledges were pouring in. Allred learned later that a Huffington Post article about the documentary helped the Kickstarter campaign garner "viral" status. The film blew past its goal, raising more than \$150,000 in the initial round of fundraising.

"The next day, driving to church, I was bawling my eyes out because I felt so blessed," Allred says. "It actually worked."

BUILDING SCHOOLS, CHANGING LIVES

Encouraged by the success of the Kickstarter, Allred restarted Effect International, rebranded as Effect.org, and started seeking donations.

"Casey's had a lot of struggles and he hasn't given up," Peterson says. "When you're driven by something that you feel is meaningful it keeps you going."

But how do you make something like school building sustainable? "It's one thing to start a school but how do you keep it running?" Peterson asks. "How do you show that what you're doing is actually making a difference for these kids?"

Benefiting from the knowledge and lessons gained during the first two years, Allred and his team developed a different system to help answer those questions. The schools now are able to scale up, breaking even and then turning a profit in just three years. The ensuing profits are then paid forward into starting other new schools. Charitable donations are used to start new schools, but the system is much less likely to collapse if the donations stop, ensuring the students won't have their education interrupted.

Additionally, Effect.org took a more active role in the educational process, rather than simply constructing a building. The organization partnered with Teach for India and developed a curriculum that incorporated strategies from the

“THIS THING THAT I’D TOLD MY FAMILY AND MY FRIENDS THAT I WAS DOING HAD COMPLETELY FAILED.” —CASEY ALLRED

top educational countries in the world with traditions and lessons from India. Using modern technology in the classroom, teachers get immediate feedback on how well the children understand the curriculum and needed changes can be pushed out through the system instantly. All of the classroom teachers are Indians who understand the culture, but are able to provide a better learning environment in the private school than they would working in the government schools.

“In some areas I’ve been the government schools have lost 50 percent of their children,” Allred says, adding that there isn’t always accountability for the teachers who sometimes don’t even show up to school.

So far, Effect.org has established three schools around the capital city of New Delhi and have been operating there successfully the past three years. They opened two more schools in April.

“A lot of Americans think private schools are only for the rich, but in India private schools are for the poor as well,”

Allred says. “A lot of these private schools are being set up for affordable prices. The problem is that a lot of them are terrible quality. That’s the niche we’re filling—we’re bringing schools that are affordable, but really high quality.”

Not only do the schools fill a need for basic education, they’re also working to help the children be more prepared to face the world around them. Included in the curriculum are lessons on manners and proper ways of eating food, among other skills. The schools host programs for parents with lessons on how to plan healthy lunches for their children or how to teach their children what to do if they’re being touched inappropriately.

Because the schools are only three years old, most of the children in the program are still very young, but Allred and the Effect.org team has already seen incredible development in the children. A recent baseline study of the students showed a 30 percent growth in math, science, and social studies, an eye-popping number for any school system. One first-grade boy entered

the school system unable to even speak the local Hindi language. Now he comfortably speaks English and is able to handle his own in the classroom.

“The last time I was there I saw him and he was like, ‘What’s up?’” Allred recalls. “I sat down and had a conversation with this boy and that’s moving, that’s powerful. He’s understanding a completely different world. We’re getting to them at the right age and building this foundation for them to be successful. We hope that we educate the next prime minister of India.”

SHINING A LIGHT

Allred sees his efforts with the schools working hand-in-hand with the documentary film. Many of the women and children who are captured are looking for work, but don’t have the educational background to seek quality jobs, and end up in the hands of people who lie and take advantage of them.

“The best way to prevent human trafficking is to get girls in schools,” Allred says.

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Casey Allred answers questions from USU students about human trafficking and ways they can get involved in humanitarian work.

For many of these Indian girls, being educated can quite literally save lives. One woman told Allred of being taken to New Delhi for a new job. On the way, she was able to read the street signs and realized she was being taken the wrong direction. She was fortunately able to escape without any harm. Many trafficking victims aren't so lucky.

"The women hate what's going on and they hate their lives," Allred says. "Many of them are dying from AIDS."

As part of the filmmaking process, Allred and the crew lived in some brothels to get a better understanding of what life is like for the women.

"It's hard to put into words what all happened," he says. "All of these women have been trafficked and have been forced into this. It's been going on for so long the older ones have just accepted it. They're free to do what they want now, but many of them continue to do sex work because it's all they have to survive."

In every area the crew went, they spent time with the women there, made connections with them, and were allowed to tell their stories.

"I had to get comfortable with asking, 'How were you raped?'" Allred says. "I had to ask, 'How long were you in captivity? What did they do to you?' Hearing these stories was terrible. This film has impacted every person that worked on it."

Other nonprofit groups supported Allred and his team, helping them make connections with trafficking victims and sharing critical information. The most important assistance the crew got, though, was from the women themselves.

"They became our advocates and our leaders," Allred says. "We had women literally holding our hands and guiding us through these dangerous areas."

LOOKING FORWARD

As Effect.org has grown, Allred's responsibilities have shifted. He now spends most of his time in San Francisco fundraising and managing the organization. He stays connected to the team in India by making frequent, short trips that mimic his first whirlwind experience. Two years ago, Allred flew more than 200,000 miles. While he has cut back on his travels this past year—only visiting India four times—he finds those trips to be the most enjoyable thing he does.

"It's the world's longest commute," Allred says. "I wish I could spend more time in India."

The film "Stolen Innocence" premiered at the Raindance film festival in London in September 2017. Allred visited Utah State in January to show the film on campus and participate in classroom discussions. The film will

continue to be shown at small festivals over the next few months, but Allred plans to make it available through a streaming service like Netflix or Amazon. The further the reach of the film, the more it can accomplish, he says.

"We made the film because we're optimists," he says. "There are terrible, terrible things happening, but there are also good people doing good things and we need to support these programs that are trying to stop it. The first step is awareness and the second step is action."

Now that the film is completed, Allred is refocusing on building hundreds more schools in India, something that will take hundreds of thousands of dollars in donations to accomplish.

"It's been really interesting to see how he's designed this organization and how successful they've been," Peterson says. "It's been challenging, and that's been eye-opening too. I think he's probably learned more from the mistakes and the struggles than anything."

Despite the setbacks, Effect.org has built a solid foundation and model Allred is proud of, he says. "We really see ourselves as a new generation of nonprofits." **A**

If you would like to learn more or volunteer, you can email info@effect.org



THE COLLECTOR

TOM ALWARD MFA '18 IS SCRUNCHED IN A BRICK TRAIN KILN FASTENING A SEASHELL TO THE BOTTOM OF A CLAY POT. HIS RUDDY NOSE AND CHEEKS ARE A TESTAMENT TO THE DROPPING TEMPERATURE. THE FIRST REAL SNOW OF THE SEASON IS COMING. BUT FOR THE NEXT 40 HOURS, ALWARD CAN'T WORRY THAT THE GROUND MAY FREEZE AND THE SEASON FOR DIGGING NEW MATERIALS COULD CLOSE. By Kristen Munson



Tom Alward's work fuses his love for the landscape of the American Southwest with his curiosity about the unique properties of clay.

GATHERING

HE RARELY BEGINS PIECES USING A "BODY IN A BAG,"

a mixture of fine-grain clays from around the world potters can purchase, squeeze

from plastic packaging, and plop on a wheel. Alward relies largely on elements he finds outside. Small batch collections dug from road cuts or while hiking.

Some people collect clay by examining topographical maps, cross-referencing ridgelines, and connecting the dots, Alward says. Others identify clues from geological data gathered online. Then there's the old-school way—going out and talking to people familiar with the soil

like farmers and miners. That's more of Alward's tack.

"Probably 75 percent of the stuff I use is just from sniffing it out and driving around or backpacking," he says. "What I look for is color, decomposition, that natural behavior of clay—cracking or being slick, particle size. It's just those more instinctual things of like smelling it, tasting it. What does it do when it's wet or dry?"

ALWARD CAME TO UTAH STATE UNIVERSITY TO BUILD HIS MATERIALS LIBRARY AND CHASE A PALETTE OF CLAYS AND FELDSPARS THAT REFLECT THE LANDSCAPE HE LOVES: THE AMERICAN SOUTHWEST.

Six years ago Alward began experimenting with new materials and researching the properties of Southwest clays. They're different from store-bought varieties, which are primarily gathered from the eastern riverbanks where the ancient mountains have eroded over millennia. It's a slow process of going off hunches, testing new things, failing, and finding some success, Alward says. "Over time you start to understand what different materials do and what they're capable of."

The knowledge snowballs. He's starting to recognize how a material will behave when he sees it in the field and understand if it's workable—if it pops in the kiln, or crumbles.

"It's not all black and white like 'this is clay, this is not clay,'" Alward says. "There are some things that are very much in the gray area or off in their own scale of just bizarre rock types. It's not something you can get from a clay supplier or off the internet."



ALWARD TENDS TO OPERATE IN THE GRAY AREA.

"Clay is just a hodgepodge of so many different materials," he says. "If you took a chemical analysis of it, it's the dog's breakfast; It's hard to know what you're actually working with, like how much is clay versus feldspar versus soils versus organics. And from that you get things that do weird stuff. I have a clay that instead of shrinking and melting, puffs up in the kiln like a bread rising."

Alward spent the last year prepping clay samples for analysis in the university's geology lab. He's trying to parse what is in the materials that causes them to behave in such peculiar ways. The rare treasure will be plastic enough to mold, have good color, and hold up to high heat.

"It takes a really long time to find clays that are suitable to throwing," he says. "You can't have a bowl decaying on the table."

Alward came to Utah State University to build his materials library and chase a palette of clays and feldspars that reflect the landscape he loves: the American Southwest. Much of his work he considers place-based. "Often things start as a story, as my expression of a landscape," he says.

His goals are twofold. One, is to celebrate the material.

"That's what keeps me interested as a potter," Alward says. "It's not glass, it's not wood, it's clay. It's this material is made over eons of time. This material came from rock and now is this fine-grained plastic clay that we can shape and records our movements and emotions. You go out and find pot shards from prehistoric cultures and see fingerprints right on the handle, or pinch marks when they were making pots. And it might have been from clay 30 feet away and you're using the same stuff."

The other goal, is to celebrate the environment the material came from. He wants his pieces to reference the fragility, the sacredness and beauty of the landscape and wilderness. He wants them to appear "more like a found object off the desert floor." Something a little eroded by wind and water.

Alward grew up in Prescott, Arizona, climbing hillsides where pottery shards and arrowheads lay scattered amidst rocks and pinyon pine and juniper. As a kid playing cowboys and Indians he would squat in riverbeds sculpting tiny pinch pots.

"I still have these little pots on my windowsill in Arizona I made with barely enough clay to hold them together," Alward says. "I fried them in the sun."



MINERALS, EARTH, AND ROCK, PULVERIZED TO A POWDER AND DROWNED WITH WATER.

Pushed and molded before being toasted in flame and smoke. Specks of sand glint on the surface. All the universe in a cup.

Hold one of Alward's mugs in your hands. Wrap your fingers around the base. Friction grips your palms. Turn it and there's a slickrock smoothness opposite the handle. Alward wants you to connect with the piece and picture where it came from. He wants you to picture cracked deserts and weathered buttes.

"It doesn't have to be polished and perfect and round," he says. "It can be what it is and the material and form speak for itself. The same way wine can say where it's from, a pot can say things about where the clay is from—the geological structures of it."

Alward knows while processing the clay if the material is pliable enough to throw on the wheel or too fragile and better for sculpting. He adds particles of sand or granite to add texture to the clay. After the firing, they will look like stars in the night sky. Once he shapes the bowls, cups, plates, and sculptures, he stands back and analyzes the pieces for form, texture, and size. He tries to figure out what about each piece speaks.

"Then you edit," Alward says. "You separate what didn't work, the failures, and learn from them."

Then they go back in the recycling bin to be turned back into clay.



**"IT DOESN'T HAVE TO BE POLISHED
AND PERFECT AND ROUND. IT CAN
BE WHAT IT IS AND THE MATERIAL
AND FORM SPEAK FOR ITSELF."**

—TOM ALWARD

Alward prepares each piece for the outdoor wood kiln, even though it's winter and it would be easier to use an indoor gas kiln. The barometric pressure, the wood type used, all those things change each firing, he says. "That's what keeps it interesting and worth doing. It's a ton of work. It takes longer. But if you do it long enough and fine-tune it enough, you find certain little aspects of a finished piece you just can't get any other way. So that's the wood-firing carrot that's constantly being dangled. And one I can't shake."



**EMPTY, THE KILN LOOKS LIKE
A TOMB. WHEN LOADED, AN
ARCHEOLOGICAL GOLD MINE.**

Snow amasses in the parking lot as the kiln crackles with poplar, cottonwood, elm, box elder, willow, roasting the clay back to rock.

Alward tends the kiln, stoking it to about 2,100 degrees. He monitors the heat to ensure it gets high enough to

bake the clay, but stays low enough it doesn't ruin the ceramics inside.

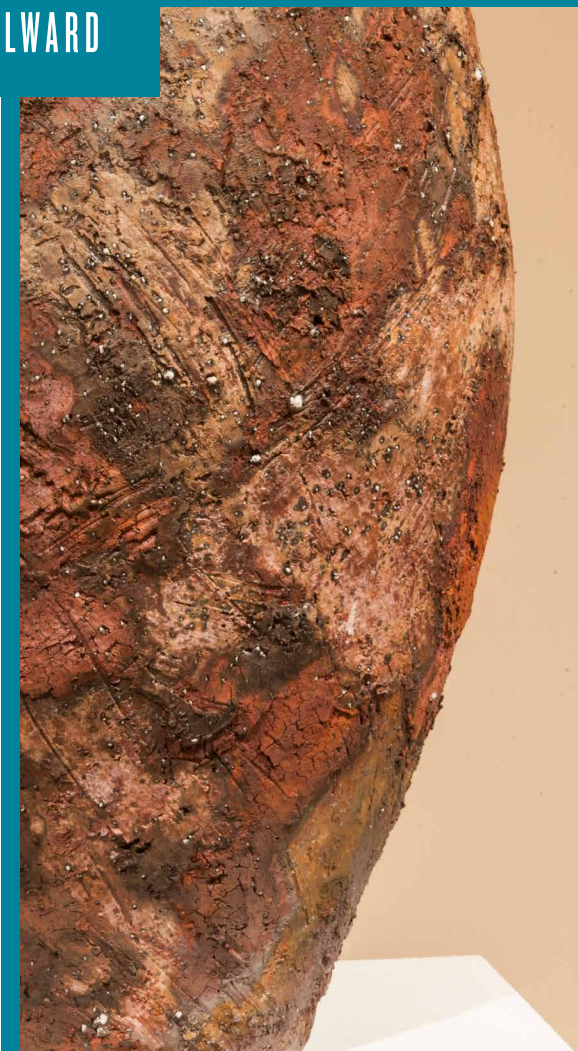
"When you look in and the pots are there one moment and they aren't there in another—that's a panic moment," Alward says. "Or when you run out of gas, after you spent a month splitting and collecting wood and you couldn't get to that last 150 degrees. Stuck at the one-yard line."

Piled up around him are about 2.5 cords of wood that will be used in the firing. Wood type matters. Poplar and cottonwoods soak up minerals in the soil. In Utah, they absorb potassium and salt, which produce a texturing effect on the pieces.

"I've exploded pots, I've ruined other peoples' work," Alward muses as he feeds kindling into the oven. "There's many ways to screw up. But when something goes kind of wrong, that's where the breakthroughs happen."

Firing is a sensory experience. He listens for change. Is the kiln quiet? Does it need wood? What is the chimney saying? "Firing is this time to step away from your studio, your computer, your phone—from people. For me, I check out. I need that," Alward says.

Every now and then a spark flies out of the kiln. "Sometimes it can smell like ice cream cones." **A**



"Clay is a hodgepodge of so many different materials," says Tom Alward. "If you took a chemical analysis of it, it's the dog's breakfast." That's why he has spent the last year testing samples in the university's geology lab, trying to determine what makes certain clay behave in such unusual ways.

GIVING IS PERSONAL

GIFTS TO UTAH STATE UNIVERSITY COME IN ALL SHAPES AND SIZES, BUT ONE THING THEY ALWAYS INCLUDE IS A PASSIONATE DONOR AND AN APPRECIATIVE BENEFICIARY.



CAROLYN BENSON

has made repeated monetary gifts to USU, but none has been quite so heartfelt as the gift of her family's motorized wheelchair, similar to the one that USU student and aspiring equine therapist **JAKE CHARLESWORTH** received from USU's Center for Disability Resources. Her act of kindness—like those of hundreds of others who support students with unique challenges through scholarships, gifts in kind, or genuine acts of service—is what giving to USU is all about.

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RUNNING IS IN HIS JEANS

BY JEFF HUNTER

THE MOST DECORATED LONG-DISTANCE RUNNER IN UTAH STATE HISTORY
MAY END UP BEING REMEMBERED AS MUCH FOR A RACE HE DIDN'T RUN.

Dillon Maggard set himself even further apart from the pack on March 9 when he decided to compete in the finals of the distance medley relay at the NCAA Indoor Track & Field Championships. The Aggie relay team was ranked second in the nation, but Maggard was also rated second in the 5,000 meters, a race slated to begin just 40 minutes prior to the DMR final. That left a difficult choice for the record-shattering senior.

"I kind of had the realization that I was only going to be able to run the DMR with the Aggies and that group of guys one more time, and that was at nationals," he explains. "And being able to share success with your teammates is much more enjoyable and important to me than as an individual."

The DMR squad placed fifth with a school-record time, propelling

Maggard, Jordan Beutler, Clay Lambourne, and Brady Martin to first-team All-American status. Maggard also took fifth in the 3,000 meters final, earning another All-American honor.

He owns three other school records for the indoor mile, 1,500 meters, and 5,000 meters, and recorded sixth at the 2017 NCAA National Cross Country Championships—the highest finish ever for an Aggie. (Maggard is the unofficial world record holder in the Blue Jean Mile with 4:11, a time he posted wearing a secondhand pair of Levi's).

Maggard stands out in a crowd—and not just because of the braces, tattoos, and long hair that he's been growing since his freshman year.

"I was rocking a mullet my first day of college," he admits. "Then my roommates cut my hair and I haven't cut it since."

He came to running relatively late, joining the track team his junior year in high school in Kirkland, Washington. Maggard's times improved rapidly, drawing the attention of long-time USU cross country coach Steve Reeder who died in 2016, having recruited one of the top long-distance runners in school history.

Maggard hopes to run professionally after graduation, but will continue running regardless. He runs nearly every morning, routinely logging five miles before heading to school and then onto practice.

"Running just gives me focus in life," he says. "And it's kind of a feeling of fulfillment. As long as I get my miles in for the day, then it feels like a success. After that, I feel like my quality of life is improved. Water is better, food is better, taking naps is better. All around, I think I'm just happier when I'm running." **A**

Dillon Maggard logs about 100 miles a week on the roads and trails around Logan, including this one up Green Canyon. He was named the Aggie Male Athlete of the Year at the Robins Awards in April.



LEARNING THEIR NAMES

THERE ARE NAMES YOU RECOGNIZE: AMELIA EARHART, ROSA PARKS, AND MARIE CURIE. AND THERE ARE NAMES YOU LIKELY DON'T.

"We don't know our history," pop artist Jann Haworth says one January afternoon at Merrill Cazier Library while a half dozen people cut stencils of women they admire. "It's a little voyage of discovery. It's there." The goal of "Work in Progress," a community art project Haworth conceived is to cement the names of pioneering women into our collective memory.

"We have a history—it's just not repeated. We need to know these stories," she says before stepping away to snag a tube of crimson paint from a table holding bouquets of Xacto knives, pencils, and paint brushes.

Across the room Janis Boettinger, a soil scientist and USU vice provost sits slicing into a photograph of Elizabeth Klepper, the first woman elected as a fellow to the Soil Science Society of America. When considering agents of change in her discipline, Boettinger immediately thought of Klepper, in part, because there have been so few women that came before her.

In 1986, Boettinger, a graduate student, walked into a conference and saw a sea of men in polyester. She encountered Klepper in an elevator—it was a welcoming sight.

"Some people think her teeth are too much in this, she says holding up the stencil. "But she is quite toothy."

Across from Boettinger, bioengineering student Sydney Lowe is in the final stages of stippling her cut out of Katherine Jones, the human computer who calculated the NASA orbital flight plan of astronaut John Glenn in 1962. But for Lowe, Johnson's greatest achievement was co-authoring a NASA report.

"Having your name on a report gives you credibility, that what you are doing is actually significant," she says. "For her to have it on a report was the first time that women's work was recognized [by NASA]. Now, for me, it's easier to get my name on something."

Lowe sets the brush aside and clasps her hands. It's time to reveal the portrait underneath.

"This is a good one!" associate professor in animal, dairy and veterinary sciences Abby Benninghoff says as Lowe peels the paper back.

"Oh yes, I know she is," Lowe says. "I'm not an artist, but I am proud of it."

When Benninghoff considered who to nominate for the mural, the name most relevant to her field—Rachel Carson, author of *Silent Spring* which brought environmental concerns about DDT to the public's attention—was already on the list. Benninghoff pivoted to another name

instrumental in her life: Juliette Gordon Low, the founder of the Girl Scouts.

"Without my experience as a Girl Scout, I know I wouldn't be where I am today," she says. "Girl Scouts embraces girls of all backgrounds and abilities. It didn't matter what church you went to, whether or not your parents had money, or if you were disabled, Girls Scouts was a universally welcoming experience ... Girls Scouts is more than just cookies."

Rachel Martin, assistant professor of accounting, nods in agreement. While cutting her stencil of Larzette Hale, the first African American Certified Public Accountant to hold a Ph.D in accounting, Martin describes the way her troop was run when she was a scout. "Camping" was sleeping in a motel. "Hiking" was walking along the side of the road. Martin wanted her daughter to develop real wilderness skills so she became her scout leader.

Has she thanked you?

"Not yet," Martin smiles. **A** –KM

Twenty-five USU faculty and students from across disciplines created stencils of women who are catalysts of change for artist Jann Haworth's mural "Work in Progress." The community art project was brought to USU by the Nora Eccles Harrison Museum of Art as part of the Year of the Arts.



IN MEMORIAM

Through April 24, 2018

1930s

Max B. Rasmussen '38 Att, Apr. 11, UT

1940s

Ruth A. Aston (Archibald) '45 Att, Feb. 26, ID
Lorna Beck (Clark) '47 Att, Jan. 23, UT
Dorothy L. Bertin (Jensen) '44, Apr. 9, UT
B. Allen Bunker '45 Att, Mar. 31, AZ
Virginia Burrell (Lee) '45, Mar. 31, NM
Patricia A. Chadwick (Daines) '47, Feb. 5, UT
Beulah Dalley (Walther) '43, Mar. 22, ID
Lorraine B. Duce (Parkinson) '44 Att,
Mar. 19, UT
Gerald Emerson Earl '44 Att, Feb. 15, ID
Kay E. Freeman '46, Apr. 9, UT
Willard H. Gardner '48, Mar. 18, UT
Beth S. Hall (Swenson) '45, Mar. 14, UT
Melba S. Hansean '47, Feb. 4, UT
Helen M. Hatch (Michaelson) '43, '65MS,
Apr. 10, UT
Myrl W. Klippert '43 Att, Jan. 25, ID
Helen S. Knippen (Smith) '49 Att, Feb. 2, IL
Kenneth G. Lee '43, Feb. 20, CA
Kenna F. Nielsen (Oswald) '48 Att, Mar. 8, AZ
Helen M. Pugh (Chamberlain) '43 Att,
Jan. 24, UT
Mary Rogers (Berntson) '44 Att, Feb. 14, UT
Robert L. Stephenson '48, Jan. 23, UT
Robert H. Terry '47, Feb. 2, WA
Cora Thorell (Michelson) '42, Jan. 25, UT
Unita W. Welch (Woodland) '44 Att,
Feb. 22, UT
Marie Williams (Larsen) '48, Feb. 6, UT

1950s

Robert H. Allred '50, Mar. 6, UT
Lanell B. Bachman '57, Apr. 2, NM
Lavoair A. Banks '58, '60MS, Feb. 17, UT
Jack A. Barnett '58 Att, Apr. 13, UT
Blaine Dee Bendixsen '52, Feb. 28, UT
Enos L. Bennion, Jr. '56, Mar. 7, UT
Jay Pope Bills '55, Apr. 6, ID
Charles Mckell Bird '50, Feb. 28, UT
Laraine C. Bodily (Christensen) '55,
Mar. 21, UT
Rowe B. Byers '50, Mar. 11, PA
Audrey Reeve Clark (Craner) '57, Jan. 25, UT
Larry B. Colton '53, Jan. 25, WA
Ruth Knighton Crook '56, Mar. 4, UT
Carl A. Dickerson '55, '66MED, Mar. 11, UT
Ken Dixon '53, Mar. 13, ID
Gloria Beth Eliason '55, Feb. 7, UT
James W. Garrett '55, Apr. 9, NJ
Clarion Gibbons (Gardner) '51, Feb. 26, UT
Nellene F. Hancey '50 Att, Feb. 26, UT
Lois B. Haws '54 Att, Apr. 11, UT
Robert William Holmes '58, '65MS,
Apr. 12, UT
Donald E. Hume '54, Mar. 20, UT
Paul D. Hunsaker '58, Feb. 5, UT
Shorland G. Hunsaker '57, Mar. 30, UT
Lorin Hunt '57, Mar. 2, UT
James R. Jarrett '50, '59MS, Mar. 23, UT
DeVon C. Jensen '57, Mar. 23, UT
Elvaletta Z. Johnson (Zollinger) '52, Feb. 23, ID
David D. Judd '51, Mar. 19, UT
Harl E. Judd '55, '64PHD, Apr. 16, UT
John J. Karnick '56, Apr. 11, IL
Marilyn Kay (Mitchell) '52 Att, Feb. 3, UT
Ellis R. Kendrick '52 Att, Feb. 2, UT
Karl B. Kenney '53, Feb. 26, UT
JR Knowles '59 Att, Apr. 1, UT
Carole F. Leavitt (Bingham) '56 Att, Mar. 9, UT
Charles Stephen Lunt '58, '68MS, Jan. 31, UT
Lieutenant Ben McComb, Jr. '50, Feb. 21, UT
Vear Lee Mortensen '52, Feb. 25, UT
Amy Moser (Beckstead) '51, Feb. 2, UT
Robert D. Nielson '50, Feb. 11, UT
Dale H. Ogden '53, Mar. 16, ID
Merrill W. Packer '56, Mar. 8, KY
Leland M. Powell '59, Jan. 24, UT
Clarence Edward Pratt '57, Mar. 7, WA
Patrick H. Preston '57, Feb. 13, UT
Joann D. Reese (Daniels) '51 Att, Mar. 8, UT
Carter Rich '57 Att, Feb. 4, UT
Norman J. Shaw '50, '64MED, Jan. 28, UT
Wallace D. Sjoblom '52, Mar. 9, UT
Alvin R. Southard '57, '58MS, Mar. 5, UT
Stanley W. Sutton '51, Feb. 4, UT
Richard L. Walker, Sr. '57 Att, Jan. 25, ID
Newell Edwin Warr '53, Feb. 12, UT
Leland A. Williams '55, Jan. 26, UT

Sally Wood (Stevenson) '58 Att, Mar. 17, UT
Tracy D. Wright '56 Att, Apr. 13, UT
Virginia Wynn (Webster) '54 Att, Mar. 16, CA
Rex A. Zilles '51 Att, Mar. 19, UT

1960s

Joe Shannon Abel '63 Att, Mar. 10, UT
J R Allred '68 Att, Apr. 16, UT
Marilyn Anderson (O'Dey) '66, '67MS,
Mar. 3, UT
Christine Ballew '67MS, Mar. 14, TX
Leo S. Bankhead '67 Att, Mar. 14, UT
Alvin L. Beal '60, Jan. 24, UT
Heber G. Bingham '69, '78MED, Mar. 15, ID
James E. Bowden '67, '72MBA, Feb. 21, ID
Wayne Orson Budge '64, '65MS, Feb. 10, AZ
Owen W. Cahoon '63, '64MS, Feb. 27, UT
Wilford K. Carey '65, Feb. 3, OR
Judith Murdock Chamberlain (Murdock) '62,
'94MS, Mar. 5, UT
Ted H. Chidester '62, Feb. 24, UT
Weldon Christensen '64, '70MS, Feb. 27, UT
Vernon A. Condie '60, Mar. 4, UT
Jesse R. Dansie '63, '64MBA, Feb. 20, UT
Linda F. Evans (Fox) '62 Att, Mar. 26, UT
Allen N. Gines '63 Att, Mar. 10, UT
Garth A. Hanson '63, '66MS, Apr. 6, UT
Ronald B. Hanson '67, Mar. 26, UT
James Vance Hendricks '62, '67MS, Mar. 12, ID
Dennis L. Hill '64, Apr. 8, UT
Paul A. Huff '63, Feb. 11, ID
Dale H. Hultengren '67, Feb. 14, WA
William Carl Johanson '66, Mar. 2, UT
Linda K. Jordan '69 Att, Mar. 29, OK
Karren Kranwinkle Kraus (Kranwinkle) '65,
Apr. 7, CA
Arlene T. Lawrence '58, '60, Jan. 27, CO
Conrad E. Michaelson '67, Jan. 28, ID
Ray G. Minkler '67, Mar. 13, UT
John D. Morris '64, Feb. 4, ID
Toni L. Nelson '67, Apr. 6, CA
Riley L. Newton '66 Att, Feb. 7, UT
Sid Perkes '63, Feb. 27, UT
Jerald Winn Peterson '69, Apr. 10, UT
James H. Riley '68 Att, Apr. 10, ID
David L. Rogers '63, '64MS, Feb. 15, UT
Ronald P. Smit '66MS, Feb. 20, WA
Emma Lois Smith '64, '69MS, Apr. 10, UT
Juan Spillett '61, '65MS, Apr. 3, UT
Fay Stringham '64, Mar. 13, UT
Alberta P. Tolman (Pincok) '60, Jan. 24, ID
Lester M. Tueller '62, Feb. 14, UT
Larry Owen Webster '69, Apr. 4, UT

1970s

Michael F. Alford '73 Att, Jan. 29, UT
Linda M. Barton (Harvey) '75 Att, Feb. 27, UT
Bob Bayn '75MS, '82PHD, Apr. 17, UT
Mary Kay Bigler '70 Att, Mar. 24, UT
Donald Paul Campbell '70, Mar. 26, UT
Sandra Kay Cragun (Bott) '75MS, Feb. 27, UT
Daniel B. Davidson '76, Mar. 2, AZ
Mary Lou Densley '78MS, Apr. 6, UT
Conrad Byron Elliott '78, Mar. 25, UT
William R. Gast, Jr. '75MS, Apr. 4, AZ
Ellen Gay Gertsch '75, Mar. 30, UT
William S. Gillespie '78, Jan. 28, UT
Shari K. Gregory '77, Apr. 9, MI
Ron L. Hadley '72 Att, Feb. 20, UT
James B. Hansen '70 Att, Mar. 24, UT
Donna J. Hawkes (Prisbrey) '70, Apr. 16, UT
James K. Henderson '76, Feb. 23, UT
Christine M. Hinton (McArthur) '73,
Apr. 8, UT
Janis Hugie (Seamons) '70, Jan. 25, UT
Dean P. Inman '73, Apr. 5, OR
William F. Kearney '77, '80, Mar. 7, WY
Keith Leavitt '74MED, Apr. 16, ME
Jerry B. Lerohl '70MED, '73EDD, Mar. 2, UT
Loren M. Linford '70, '73MS, Mar. 7, UT
Stephen S. Mather '71, Mar. 30, AZ
Timothy O. Maurer '76 Att, Mar. 5, UT
Theon Merrill '78, '87, Apr. 9, ID
Max Molyneux '70, Apr. 2, UT
Arlin Poppleton Murray '72 Att, Mar. 26, UT
William Bruce Negley '73 Att, Mar. 19, UT
Kathleen H. Rees '70, Feb. 18, UT
David Ernest Robb '73, Feb. 27, NV
Marilyn C. Wagner '70 Att, Feb. 26, UT

Mary A. Wiest (Sokolowsky) '73MS,
Mar. 15, WA

1980s

Dianne K. Anderson (Keetch) '80, Feb. 26, UT
Dick B. Call '83, Feb. 10, ID
Candace J. Carpenter (Hembree) '81,
Feb. 9, UT
Diana Tout Esplin '87, Apr. 7, UT
Diane Criddle Garrard (Criddle) '83, Feb. 10, UT
Joyce S. Hooker (Sumsion) '80MIE, Mar. 25, UT
Mace Pratt Jacobson '82 Att, Mar. 23, UT
Karl Dean Jensen '85, Mar. 16, WA
Pamela J. Nielson '88MED, Apr. 8, UT
Jaimy T. Patton '85, Feb. 7, OR
Polly H. Potter '87MED, Feb. 20, UT
Eileen Rencher '83MS, Feb. 20, UT
Kimberly G. Smith '82PHD, Apr. 9, AR
Valerie D. Davidson '94, Mar. 22, AL
Tawna J. Fencil '92, '93, Mar. 1, UT
Paul Alan Gillespie '91MED, Mar. 7, UT
John D. Griffith '92, Mar. 29, ID
Stephanie Udy Keyes (Udy) '92, '03MBA,
Mar. 3, UT
Troy C. Leishman '96, Feb. 20, ID
April Ann Mortensen '98, Mar. 10, UT
Erin M. Partridge '97 Att, Mar. 28, PA
Margaret G. Perrenoud (Gardner) '94, Feb. 10, MS
Gordon G. Richins '95, Feb. 11, ID
Linda Kay Richins (Carter) '96MS, Mar. 26, UT

2000s

Max K. Bertola '03MS, Mar. 23, UT
Bradley Ray Blackham '07, Feb. 27, UT
Kenneth D. Campbell '00PHD, Feb. 3, MN
Kelley Lynn Crandall '01 Att, Feb. 17, UT
Rebecca Dutton '07, Feb. 14, UT
Arlene Gold '03MED, Feb. 5, UT
Laurie Hornsby (Shepherd) '05, Feb. 17, UT
James Robert Madden, Jr. '08 Att, Mar. 23, SD

2010s

Joylynn N. Baldwin (Nelsen) '14, Apr. 4, UT
Parker G. Bradford Apr. 1, UT
Kristine Anne Camargo '10, '12, Apr. 10, UT
Miklo Levi Curoton '19 Att, Mar. 20, ID
Jan Mateusz Dobrowolski '12 Att, Feb. 23, UT
Alex John Larsen '10 Att, Feb. 18, UT
Kacey Leavitt '16 Att, Jan. 29, UT
Scott J. Mortenson '11, Feb. 12, UT
Jonathan D. Ogilvie '13, Mar. 31, PA
Leah Jane Reigle '09, '11MSLT, Apr. 12, AB
Timothy James Russell '15, Mar. 13, UT
Kevin J. Turner '11, Mar. 27, UT

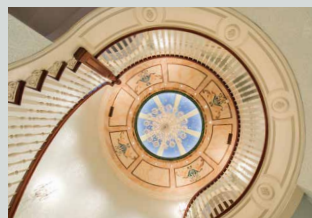
ATTENDERS

Hazel B. Allred (Brasher) Att, Jan. 23, UT
Lloyd W. Andrews Att, Feb. 10, UT
Christian Benson Att, Mar. 21, UT
Colleen Byrge Att, Feb. 15, UT
David Randall Campbell Att, Mar. 15, UT
Valdemar Rodriguez Castillo Att, Feb. 1, UT
Angelo Cerroni Att, Feb. 28, UT
Perry Cheney Att, Feb. 11, TX
Colleen M. Clark Att, Feb. 11, UT
Vern Blane Crook Att, Mar. 23, WY
Jeana Dalpiaz Apr. 11, UT
Brayden James Eaton Apr. 7
Flora M. Erickson Att, Feb. 18, UT
Lena Esketts Att, Mar. 9, NM
James U. Fivecoat Att, Mar. 14, UT
McRae Frischknecht Att, Jan. 30
Charles Ghirardelli Att, Mar. 24, UT
Barbara Olson Gibbs Att, Jan. 25, UT
Ty A. Glines Att, Feb. 18, UT
Lawrence Gonzales Att, Feb. 23, UT
Krista Grover Att, Mar. 27, UT
Carolyn Webb Guymon Att, Feb. 16, UT
Glenn A. Hampton Att, Jan. 27
Jesse R. Hargrove Att, Feb. 3, UT
Clyde Harvey Mar. 21, UT
Shareon E. Higgs Mar. 29, UT
Phillip Everett Hooper Att, Feb. 9, NV
Garry Hribar Att, Mar. 23, UT
Janet Marie Jackson Att, Feb. 18, UT
Alice Jane Jensen Att, Mar. 7, UT

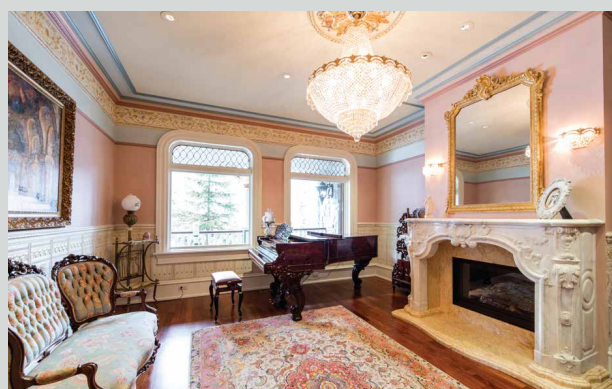
Marilyn M. Kerekes (Mathis) Att, Feb. 19, UT
A. LaVell King Att, Feb. 25, UT
Daunna Lenora Lincoln Kirkham Feb. 7, ID
David Lee Kopp Jan. 27, WA
Claris Hall Larsen Att, Mar. 28, UT
Steven Loy Larsen Att, Mar. 18, UT
Lori A. Laws Jan. 23, UT
Dale L. Lee Att, Mar. 2, UT
Dennis V. Lee Att, Feb. 26, UT
Norman K. Lee Mar. 4, SC
Shayla Lister (Anthony) Att, Mar. 10, UT
Pauline Maguire Att, Feb. 24, UT
William L. Manchester Att, Jan. 31, UT
Martin Lee Martinez Att, Feb. 8, UT
Denton Brake May Att, Apr. 12, CO
Norma Murdock Merrill Att, Feb. 25, ID
Madison Moffat Att, Mar. 9, CO
Margaret Ann Moser Att, Jan. 30, CA
Gordon Woodruff Moses Att, Mar. 10, CA
Lynn Elton Mower Att, Jan. 29
Christine Beckstrand Nelson Att, Apr. 14, ID
Geraldine Oyler Newman Att, Apr. 10, UT
Ira Wayne Noble Att, Feb. 22, UT
Howard Norton Att, Mar. 23, UT
Emil Ondrechen Att, Mar. 6, ID
Louis Paul Ori Att, Mar. 17, UT
Sigfred M. Padilla Att, Jan. 29, CO
Manuel Palacios Att, Mar. 6, UT
Betty Ellen Palmer Att, Mar. 3, UT
Richard Bird Peirce Att, Feb. 27, UT
Richard K. Petersen Att, Feb. 12, UT
Brad A. Pierce Att, Feb. 18, UT
George Poulos Att, Apr. 5, UT
Bradley J. Pummell Att, Jan. 31, AL
N. N. Raghuvir Mar. 10, FL
Gayle V. Randall-Ball Att, Feb. 20, ID
Betty Jean Reed Att, Mar. 20, UT
Barbra Jean Relitz Att, Jan. 30, UT
Neil F. Robertson Att, Feb. 16, UT
Ronald George Rogers Att, Feb. 27, CO
Grant Rowley Att, Mar. 9, UT
William Edward Schroeder Att, Mar. 2, WI
Todd L. Shannon Apr. 14, UT
Mont Shepherd Att, Feb. 16, UT
Juanita Drechsel Skolmoski Att, Mar. 4, UT
Vera A. Trujillo Att, Mar. 12, UT
Owen Gordon Vaughn Att, Mar. 16, TX
Blaine Warren Att, Mar. 15, UT
N. Brent Wassmer Feb. 25, UT
Marilyn Kaye Wright Att, Mar. 10, UT
Ervin David Young Att, Mar. 6, UT
Janisse Martin Zabriskie Att, Feb. 10
Bud Zollinger Att, Apr. 4, ID

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