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RAMEN KING IVAN ORKIN

GLENN MILLER'S **GOLD RECORD**

TO FINLAND, WITH LOVE

OLD HOME **ON THE HILL**

MEGAFIRE
THE TOO-BRIGHT FUTURE OF WILDFIRE IN AMERICA

Be Boulder.

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NOW

OCTOBER 2017

Snow came to campus early this fall: The first flakes piled up Monday, Oct. 9.

In all, six inches fell in Boulder that day, according to the National Weather Service.

The university operated as normal. Colorado's famous bluebird sky returned the next morning.

Photo by Glenn Asakawa

FEATURES

COVER Wildfire in the U.S. is likely to get a lot worse. Photo by Michael Kodas.

LEFT A quiet moment outside Old Main. See a medley of campus doorways on page 11. Photo by Casey A. Cass.

DEPARTMENTS

EDITOR'S NOTE

Marvels of human daring and ingenuity have brought us to sea bottoms and mountaintops, to the moon and back. There's serious talk of human travel to Mars.

Yet our species' creativity and self-confidence can also blind us to the natural world whence we sprang and of which we're part. We forget that towns and cities and the comforts of civilization are our creation. We emerged from something less tame and predictable, and we remain subject to its forces.

Often of late, nature erupts to remind us.

In 2017, hurricanes devastated Puerto Rico and submerged Houston as wildfires vaporized swaths of the American West, most consequentially in California.

Fire demands attention in the West. As Michael Kodas of CU's Center for Environmental Journalism explains in our cover story, wildfire has grown far more ferocious, a trend expected to continue.

We've often engineered our way to safety. Kodas shows us just what we're dealing with.

Eric Gershon

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NATURAL HAZARDS

Lori Peek *(PhDSoc'05), a CU Boulder sociology professor, directs the university's Natural Hazards Center.*

Floods, hurricanes and wildfires: 2017 has been devastating in the U.S. Have you been unusually busy?
Yes. We have been compiling resources for community members, stakeholders and others to help educate and inform as these disasters are unfolding. We also run a quick-response grant program that helps deploy researchers into the field so they can gather data and launch longer-term studies. There have been a lot of inquiries from media outlets.

What sparked your interest in studying the sociology of hazards and disasters?
I arrived as a new graduate student at CU in 1999 and had the incredible fortune to be hired as the graduate research assistant at the National Hazards Center. I fell in love with the possibility of taking social scientific knowledge and applying it for the betterment of humanity.

Have you ever directly experienced a natural disaster?
No, but when I was a child — I grew up in rural eastern Kansas — my grandparents' house was hit by a tornado and their barn was destroyed and their house was badly damaged. Fortunately, they were fine. I still have such vivid memories of my three brothers and my parents and I going down into the cellar outside of our house when tornado warnings would be issued.

Your book with Alice Fothergill (PhDSoc'01), *Children of Katrina*, focuses on the long-term effects of Hurricane Katrina on children. What are they?
Something Katrina really taught us is that the most destructive and disruptive disasters can have truly life-altering consequences for children. When children experience life threat or multiple displacements, these sorts of things can disrupt education, peer networks and family networks and can have long-standing implications for their health, development and well-being.

Has the U.S. made progress since Katrina on hurricane recovery?
While we have improved in terms of our emergency response, we have continued to build and develop in areas that are subject to natural hazards. If we don't mitigate risk, we're going to continue to see these bigger disasters. We must keep our eye on the prize and work on reducing the risks we face, which means building smarter, more sustainably and with a climate-resilient framework so we don't see more mega-catastrophes.

Has there been an increase in natural disasters, or are more people just living in vulnerable areas?
The number of reported natural disasters in the U.S. has tripled over the last 20 years. Some of the explanations for the increase are related to climatic changes, population growth and unsustainable development in hazardous areas. There is no one simple answer for why we are seeing bigger disasters, but we must understand these complex causes if we ever hope to reduce them.

Are there positives that have come out of increased media coverage?
What I've found most positive and heartening is that there has been a lot more evidence-informed reporting, really drawing on the expert knowledge that is out there. In addition, leaders have come on TV and been doing something that we recommend, which is to provide actionable information. It is not effective to just say: 'A hurricane is coming, get out of the way.' It is important to offer concrete steps people can take in light of their social context.

Are there certain regions in the U.S. that are more vulnerable to disasters?
There is no place that doesn't have some hazards risk. However, some places have much higher exposure, and some hazards are much more frequent and severe. New Orleans, Miami, New York City, Los Angeles, San Francisco and Houston are what we call disaster hotspots, because they have large concentrations of people and infrastructure in highly hazard-prone regions.

What is the most important thing people around the country need to learn from our recent natural disasters?
Disasters of this magnitude are not inevitable. There is a possibility to reduce the risk we are all facing, but that is going to take time, resources, sound science, leadership, focused attention and collective action.

*Condensed and edited by **Lauren Price** (MJour'17).*

Photo by Glenn Asakawa

Campus

Circles in the Sand

A CU ECOLOGIST TACKLES A MYSTERY IN AFRICA

Barren circles of red sand, 30 to 100 feet wide, form a Swiss-cheese pattern across hundreds of miles of arid grasslands in the Namib Desert of southwest Africa. No one knows why. Local legends call them footprints of the gods.

Scientists have proposed various causes for these "fairy circles," as they're also known, including hungry termites and underground gases wafting up and killing patches of grass. Now a CU Boulder team is going back to basics as it tries to solve this enduring ecological mystery.

"We just went to the principles of how ecosystems work and didn't let how cool these were distract us," said Nichole Barger, professor of ecology and evolutionary biology, who's closing in on answers after years of research.

It's no wonder it's taken a while: Just getting to the fairy circles, which can last for up to 60 years, is a challenge.

In April, Barger and her team traveled six hours southeast from Windhoek, Namibia's capital, into the NamibRand Nature Reserve, far from gas and groceries. They continued in an all-wheel-drive truck over sandy roads and dunes to follow up on an ongoing experiment.

Two years earlier, Barger had added water, fertilizer and insecticide to some circles to see if she could "kill" them by changing the conditions they form in. The hypothesis: Plants organize into the striking pattern simply due to competition.

Sure enough, in fairy circles where water and nutrients were both added, the grasses grew back — the circles started to "die." Adding resources had decreased competition among plants, which otherwise fight for them in the low-nutrient, dry environment.

The findings suggest fairy circles form when starved plants die, freeing resources for their neighbors, which grow tall around the dead patch and form the characteristic ring.

The promising results are still only "pieces of the puzzle," Barger said: The initial cause and what perpetuates the circles might be different. She noticed, for instance, that in fenced circles, inaccessible to zebra and oryx, the grasses also grew back, indicating grazers might play a role in maintaining fairy circles.

On her last day in Namibia, a local guide asked Barger, "What's causing the circles in the hills?"

She'd never heard of those circles — a new mystery for her next trip.

By Ula Chrobak

Photo by Nichole Barger

BOULDER BEAT *By Paul Danish*

THE TRIP

In 1968 CU architecture student **Bob White** (Arch ex'71) was sitting in his red 1962 4x4 Chevy truck in Circle, Alaska (just shy of the Arctic Circle), out of money, food, gas and options.

He pulled out a map and realized he was as far north as you could drive on a road.

So he decided to drive to Tierra del Fuego at the southern tip of South America.

"Giant decisions are sometimes made on the spur of the moment," Bob said.

Recently he sent me a book he wrote recalling the adventure. It's titled *The Trip*.

And a splendid broth of a trip it was.

Bob was chased by a grizzly bear while camping near Lake Louise in Canada.

He drove across the frozen Yukon River as the ice was breaking up under his wheels.

In Mexico, he tried his hand at bull fighting. (The bull won; Bob landed in a pile of fresh bull stuff.)

He dined with a contingent of Los Indio's de los Colorados, said to be headhunters, who served him the head of a capybara, a giant rat, as the entree. The chief showed him how to suck out the eyeballs and the brains.

HE DINED WITH HEADHUNTERS.

He crossed the Honduras-El Salvador border as the 1969 Soccer War was breaking out and was pinned down in a firefight that went on for hours.

He had a chance meeting and several beers with Thor Heyerdal of Kon Tiki fame at a bar in Panama City, after which Heyerdal invited him to sail across the Atlantic on a reed boat.

He translated a radio broadcast of the first moon landing into Spanish for the residents of a Quechua Indian village 12,000 feet up in the Andes.

The Automobile Club of Argentina threw a reception for him.

And then there's the possible encounter with a South American Yeti while camping in the mountains of Tierra del Fuego.

Back in Boulder, Bob became a successful builder; the San Francisco Townhouses on West Pearl Street are his signature project. In 1975 he got elected to the City Council, where we served together for four years, and became deputy mayor.

Today he lives on St. Croix in the American Virgin Islands. Alexander Hamilton's mother is buried on his property.

His latest adventure has been surviving Hurricanes Irma and Maria.

"Young men in their twenties are driven to do things that seem off the wall later in life," he said. "Whatever it is that drives them drove me."

Paul Danish *(Hist'65) is a* Coloradan *columnist.*

Photo courtesy Bob White

To Finland, with Love

A STUDENT'S MUSICAL HOMAGE TO A NATION WINS A HEARING BEFORE THE AMBASSADOR

It was Conor Brown's first visit to the Finnish embassy in Washington, and he'd brought company: Two violinists, a cellist, a violist, a clarinetist and a singing accordionist. They'd be doing most of the work.

A BOULDER PREMIERE WITH AN EMBASSY ENCORE

Brown (MMus'18) had largely done his part. Over the prior 18 months or so, he'd composed an original classical musical work the group would perform in a 100th anniversary celebration of Finland's independence from Russia.

"It's contemporary classical music inspired by Finnish folk texts," said Brown, winner of the College of Music's Finnish Jubilee Composition Scholarship. "The music is all about trying to tell the story in the texts."

Sponsored by **Don Johnson** (Arch'62) and his wife, Maria, a dancer and native Finn, the scholarship was intended to inspire an original composition in Finland's honor while benefiting a promising CU Boulder student.

After Brown, 29, won, he flew to Europe for 10 days of immersive research. He'd never been to Finland; it was a chance to steep himself in the language, landscape and musical tradition.

Brown's Airbnb hostess in Helsinki, it turned out, was the daughter of Finland's 2009 two-row button accordion champion, a resident of the far-northern town of Rovaniemi, near the Arctic Circle. Brown had coincidentally made plans to visit Rovaniemi. Once there, he hunkered down with the champion to soak in his knowledge of the instrument's outsized role in Finnish folk music.

The experience inspired Brown to give the accordion a prominent role in his new piece, a three-movement, 20-minute work that had its world premiere at CU Boulder shortly before the trip to Washington.

"It really isn't done until it's on stage," said Brown, who grew up in Boulder and studied clarinet at CU during high school, working with faculty clarinetist Daniel Silver.

Silver was on hand at the embassy, too — performing the clarinet part in Brown's piece before an audience of about 150, among them a contingent of fans and friends from CU. **Alicia Baker** (MMus'17), left, played accordion and sang.

"The ambassador and other officials seemed incredibly pleased with how the work turned out," Brown said.

Days later, he and the musicians recorded the piece for the first time.

Brown again left the clarinet part to Silver.

"I'm just the composer!" he said.

By Eric Gershon

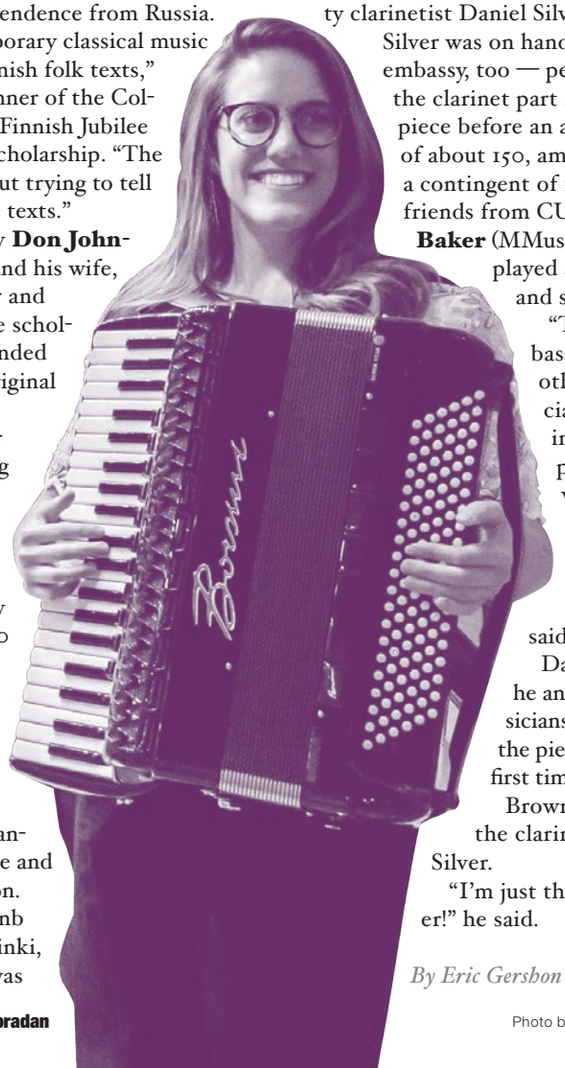


Photo by Daniel Kellogg

HEARD AROUND CAMPUS

"IN BOULDER YOU'RE MORE LIKELY TO HEAR THE WHOOSH OF A CYCLIST THAN THE SHRILL OF A SIREN..."

— *National Geographic*, which in October named Boulder "Happiest City in the U.S."

A LEGEND AMONG US

Dance Magazine this fall named Lorenzo "Rennie" Harris, an artist-in-residence at CU Boulder, a "Living Legend," placing him in the company of Fred Astaire, Pina Bausch and Misty Copeland, all past honorees.

A hip-hop choreographer from Philadelphia, Harris has received high praise before: In 2015, *The New York Times* called him "the most profound choreographer of that idiom."

Harris is the founder of Rennie Harris Puremovement, a dance company that preserves and disseminates hip-hop culture. He has taught at CU Boulder since 2009.

Dance Magazine annually recognizes artists who have "left a lasting impact on dance."

TWINS AID MARIJUANA RESEARCH

As more states consider legalizing recreational marijuana use, scientists are trying to understand how it plays out in people's lives.

With a $5.5 million award from the National Institute on Drug Abuse, a research team from CU Boulder and the University of Minnesota will assess whether legalization promotes use, for example, and try to identify the consequences of use for work, family and mental health. There's little existing scientific evidence.

The team will study 1,250 sets of previously researched twins in Colorado, where sales of recreational marijuana have been permitted since 2014, and 1,250 sets of twins in Minnesota, where it remains illegal. Using the Minnesota twins as a control group, the scientists will look for behavioral changes in the Colorado twins since 2014.

"There is clear need for solid scientific evidence," said study co-leader John Hewitt, director of CU Boulder's Institute for Behavioral Genetics.

The study could result in more concrete guidelines. Colorado and Washington were the first states to legalize recreational marijuana use, in 2012.

For more details, visit CU Boulder Today *online and search the words "twins" and "marijuana."*

DIGITS

SATURN FINALE

The dramatic September end of NASA's Cassini mission concluded a 20-year run aboard the spacecraft for CU's Ultraviolet Imaging Spectrograph (UVIS), which helped analyze Saturn's rings and moons.

1997
Year Cassini left Earth

4.9
Billion miles traveled

294
Saturn orbits completed

$12M
Cost of CU-built UVIS

6
Moons discovered

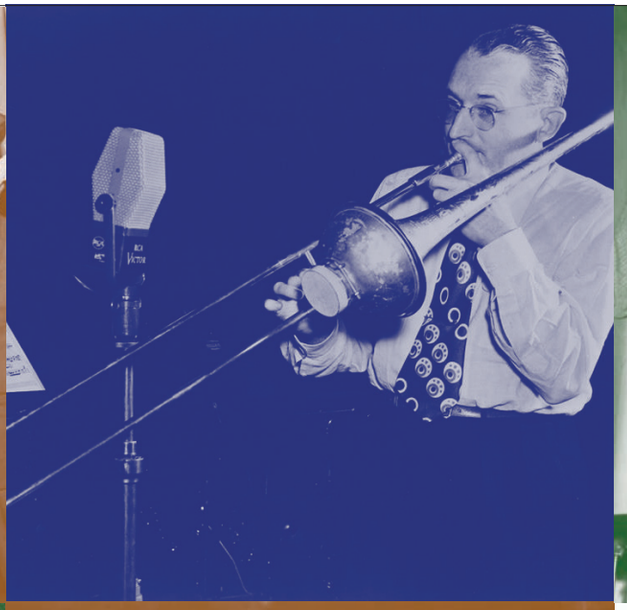
453,048
Images taken by Cassini

9/15
Cassini vaporized in Saturn's atmosphere

DOORWAYS OF CU BOULDER

There are more than 360 buildings at CU Boulder and thousands of doorways. Have you strolled through some of these? We'll send a poster of this image to the first 10 readers to correctly identify the location of 7 of the 12 doorways pictured here. Email responses to editor@colorado.edu.

Photos by Casey A. Cass



CHATTANOOGA CHOO CHOO

In 1958, the Recording Industry Association of America (RIAA) began awarding gold records to musicians for albums or songs selling at least 500,000 units. Elvis Presley racked up 90.

But the gold record had actually made its debut as a symbol of commercial success in music more than a decade earlier. The first one went to Big Band leader **Glenn Miller** (A&S ex'26; HonDocHum'84).

In 1942, Miller's record label, RCA Victor, wanted to recognize him for selling a groundbreaking 1.2 million records of his single "Chattanooga Choo Choo." During a live broadcast, the label presented him with a framed copy of the record sprayed with gold paint.

Other record companies adopted the tradition for their own mega-selling artists, and RIAA later established a formal certification program.

It's all thanks to a peppy song about a train.

"'Chattanooga Choo Choo' was the most popular record Miller ever made," said Dennis Spragg, author of *Glenn Miller Declassified* and senior consultant to CU Boulder's Glenn Miller Archive and American Music Research Center. "It was in the Billboard top 10 for 21 weeks in a row, and was No. 1 for nine weeks in a row."

Written by Mack Gordon and Harry Warren, the song tells of a man traveling from New York via train to meet his beloved in Chattanooga, Tenn. It was first recorded by Glenn Miller and His Orchestra and appeared in the soundtrack of the 1941 movie *Sun Valley Serenade*.

The film's success spurred record sales, and the song hit Billboard's No. 1 spot in November 1941. It remained there until "A String of Pearls" — another Glenn Miller song — bumped it in February 1942.

"Choo Choo" was a source of brightness in somber times. During its run on the charts, Japan bombed Pearl Harbor and America entered World War II.

"With an upbeat message and a lively tempo, [the tune] made you want to forget your troubles and dance," said Miller's daughter, **Jonnie Miller Hoffman** (A&S ex'67).

IT MADE YOU WANT TO FORGET YOUR TROUBLES AND DANCE.

In 1942 Miller, who attended CU for three semesters starting in 1923, enlisted in the military and founded the Glenn Miller Army Air Force Band. Two years later a plane carrying him to a Paris performance vanished over the English Channel. He was never seen again.

But his music — and his gold record — remain with us today: Hoffman recently donated it to CU. You can view it at the Heritage Center in Old Main.

*By **Christie Sounart** (Jour'12)*

Photos from Glenn Miller Archive

MEGAFIRE

WILDFIRE IS GETTING WORSE. A REPORT FROM THE FRONT LINES.

By Michael Kodas

Photo by Michael Kodas

I DIDN'T INTEND TO go to prison or to get overrun at a wildfire. I also didn't plan to spend years of my life chasing "megafires."

I was just excited to see my first wildfire.

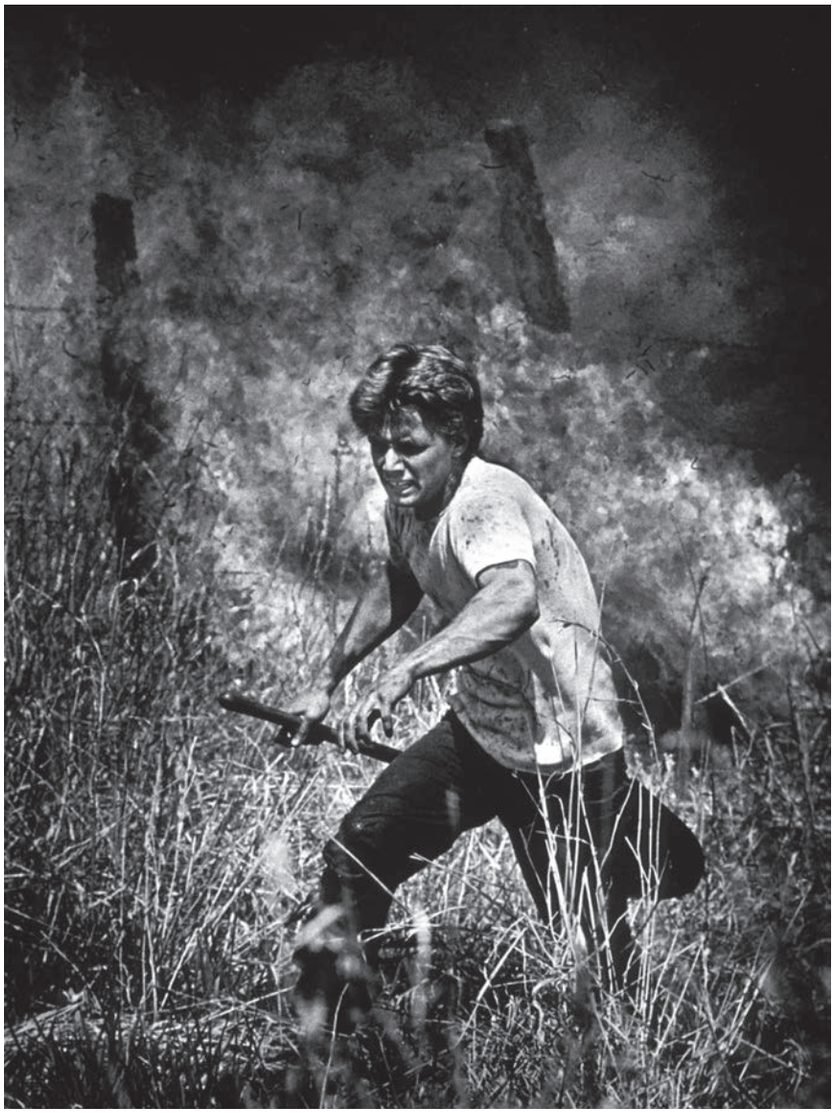
THEN THE BLAZE BLEW UP.

It was 1986 and I was a young photojournalist in Connecticut trying to document a blaze reported over the police scanner in my car.

When I saw the smoke, I climbed over a couple barbed-wire fences to photograph a handful of men digging a line of dirt around a small grassfire. But as I focused my camera, I heard angry shouts and saw a bulldozer-sized man with a badge running at me. I'd strayed onto the grounds of a state prison. The firefighters were all inmates. The guard tackled me.

"You can't just walk in," he screamed. "And they can't just walk out."

Then the blaze blew up, threatening to overtake a firefighting inmate. I tried to photograph him running for his life, fully expecting the guard to grab the camera or handcuff me. Instead, he picked me up, pointed me at the action and stepped back. I photographed as the conflagration bore down on the prisoner.



The author's first encounter with wildfire, at a Connecticut prison in 1986. Here, an inmate runs for his life.

Photo by Michael Kodas

Suddenly, the wind shifted and the flames subsided. Spared, he went back to work and the guard led me away. I still have the photograph.

While that fire was tiny, the incident sparked my enduring curiosity about the phenomenon of wildfire, which has since grown much worse — especially in the American West, where I live today.

With as many as 30,000 people joining the battle against wildfires during busy fire seasons — by October, more land had burned in 2017 than in all but two years since national recordkeeping began — the U.S. must get firefighters wherever it can: Correctional facilities, the National Guard, the Air Force Reserve, battalions of the U.S. Army and even Australia and New Zealand.

The growing demand for firefighters reflects a new reality. In the 1970s around 3 million acres of U.S. land burned in an average year. During the first decade of this century, that figure topped 7 million. Prior to 1995, the U.S. annually averaged less than one fire exceeding 100,000 acres in size — the U.S. Forest Service's criteria for a "megafire." Between 2005 and 2014, the nation averaged 9.8 fires of that size yearly.

It's not just trees burning. Seven times more homes burn in wildfires today than did in the 1970s. Budgets are going up in smoke, too. In 1995 the U.S. Forest Service spent 16 percent of its funding on wildfires. In 2015 it was 52 percent.

And some 85 percent of firefighting costs are related to less than 2 percent of the fires — the epic conflagrations known as megafires.

But what exactly is a megafire? As a Ted Scripps Fellow in Environmental Journalism at CU Boulder in 2009, I started trying to figure that out by pursuing the biggest, most destructive fires on Earth.

I visited the scene of the Black Saturday fires in Australia that killed 173 people with an explosive force equivalent, by some measures, to 1,500 of the atomic bombs dropped on Hiroshima. The story there was the climate, which drove temperatures and drought so severe that the fire risk was literally off the nation's fire danger scale.

In Israel, I attended memorial services for the Mount Carmel fires that killed 44 people, including a police commissioner, the police chief of Haifa, 36 prison guards and a 16-year-old volunteer firefighter

STATISTICS

1995

16%

of U.S. Forest Service's funding spent on wildfires

2015

52%

of U.S. Forest Service's funding spent on wildfires

1970

3M

acres of U.S. land burned in an average year

2050

20M

acres could burn

1997-2017

84%

of wildfires are started by humans

Forest Service scientists predict that annual acres burned could reach 20 million in the decades ahead.

The 2013 Yarnell Hill Fire near Prescott, Ariz., killed 19 of the nation's most elite wildland firefighters.

whose mother drove him to the fire because he didn't have a driver's license yet. In that nation, where nearly 70 percent of the forests were planted in the last century, the new abundance of trees has resulted in thousands of wildfires in a landscape with no history of natural fire.

In Indonesia I witnessed fires so vast that, for 40 days in 2015, they released more greenhouse gases than the entire U.S. economy. Smoke from those fires sent half a million people to the hospital. Those huge fires grew out of small blazes set by farmers and multinational corporations to clear land for fields producing goods consumed around the world, most notably palm oil, which can be found in about half the items in any U.S. grocery store.

IT'S NOW HARD TO SEE WILDFIRES AS PURELY NATURAL DISASTERS.

In June 2013, just a day after I returned to Colorado from overseas, a tweet from a Boulder firefighter led me to reconsider how we've been defining megafire.

"19 Firefighters Dead While Battling Arizona Wildfire," it read.

That led to a dozen reporting trips to Prescott, Ariz., home of the Granite Mountain Hotshots before all but one member of that elite firefighting crew was killed in the Yarnell Hill Fire. Afterward, I came to measure megafires more by their effects than their size.

By Arizona standards, the Yarnell Hill Fire was tiny. Yet it destroyed more than 100 homes and killed 19 of the nation's best wildland firefighters, the greatest loss of firefighter lives since 9/11. Each of the drivers of the huge fires I'd seen overseas — the warming and drying climate, forestry practices that made woodlands more prone to intense burns, human development that introduced new fuels and sparks to vegetated wildlands — challenged the doomed hotshots.

I saw small but unusually volatile fires take lives, destroy homes and damage infrastructure and resources. Those, I realized, were far more "mega" than blazes of 100,000 acres burning in remote wildernesses, as they always have.

Colorado, for instance, broke its "most destructive" fire record four times in four years, beginning with the Fourmile Canyon Fire that exploded outside Boulder on Labor Day, 2010. None of those devastating fires, including the Waldo Canyon Fire that burned into the city of Colorado Springs, met the Forest Service's megafire criterion.

My original definition of megafire was the first of many misconceptions I abandoned during a seven-year-long wildfire reporting project, often with the help of CU researchers.

When I started researching megafires, I believed that the decades during which the U.S. was extinguishing every natural wildfire had left the nation's forests overgrown with too much woody fuel, driving the increase in wildfire. But research by Tom Veblen, who runs CU Boulder's Biogeography Lab, and **Rosemary Sherriff** (PhDGeog'04) showed that just 16 percent of the ponderosa pine forests on Colorado's Front Range showed increased fire severity due to fuels building up after past fires were extinguished. Most of the rest of those forests have always been prone to severe fires. That's something to consider before we build houses in there.

I thought the vast swaths of dead lodgepole pines left behind by beetle infestations couldn't help but make wildfires worse. But studies by Veblen and Tania Schoennagel, a researcher with CU's geography department and INSTARR, showed that beetle-killed trees weren't changing the behavior of fires much.

HUMANS START MOST OF THEM

And it was hard to continue thinking of wildfires as purely natural disasters after research by Jennifer Balch of CU's Earth Lab showed that over two decades, humans started 84 percent of them.

With Forest Service scientists predicting that the amount of land burning in the United States will double in coming decades — to 20 million acres a year — it's important that the nation sort through the myths about wildfires, regardless of whether they meet an arbitrary definition of megafire.

For the inmate firefighter I photographed decades ago, I'm sure the tiny grassfire that nearly burned him alive was "mega" enough.

Michael Kodas is associate director of CU Boulder's Center for Environmental Journalism. This story is adapted from his most recent book, Megafire.

Photos courtesy Michael Kodas

GETTING WORSE

Wildfires are growing more destructive in the United States, especially but not only in the American West. In 2015, a record 10 million U.S. acres burned, including tens of thousands in Colorado. Tennessee experienced one of its worst wildfires in 2016.

The blazes will likely become more costly in the U.S. and abroad, according to Michael Kodas, associate director of CU Boulder's Center for Environmental Journalism and author of the new book *Megafire*. In one recent year, 75 million acres burned in Russia alone.

Says Kodas:

"THE **BIGGEST** AND **BADDEST** OF THEM ARE STILL TO COME."

$3 BILLION

average annual amount U.S. government spent on wildfires in decade before 2013, up from $1 billion in 1990s

NINETEEN FIREFIGHTERS

killed in Yarnell Hill Fire, southwest of Prescott, Ariz., June 30, 2013

78 DAYS LONGER

annual wildfire season in western U.S., 2015 vs. 1970

44 MILLION

U.S. homes located near "fire-prone open space"

MAJOR FACTORS CONTRIBUTING TO WILDFIRES:

- Too much vegetation — fuel for fires — due to forest management practices
- Counterproductive political and economic decisions about wildfire
- Increased human development in or near wildfire-prone areas
- Global warming

A RECORD: 10 MILLION U.S. ACRES BURNED IN 2015

1970s (avg.)

1980s (avg.)

1990s (avg.)

2000s (avg.)

2016

2017

2050 (est.)

ACREAGE IN MILLIONS

20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Sources: Megafire, *Michael Kodas, (Houghton Mifflin Harcourt, 2017); NOAA National Centers for Environmental Information*

AVERAGE ANNUAL ACREAGE BURNED PER DECADE

ACTUAL ANNUAL ACREAGE BURNED BY YEAR

A FAMILY Tale

A 2012 ACCIDENT PARALYZED MARTY O'CONNOR BELOW THE SHOULDERS. WHEN HE WENT TO BUSINESS SCHOOL, A STUDY BUDDY JOINED HIM FOR EVERY CLASS.

By Janice Podsada

Marc Fawaz couldn't help but notice the unusual dynamic between **Marty O'Connor** (Film'10), an MBA candidate in his marketing management class at Chapman University, and Marty's assistant.

Marty was paralyzed from the shoulders down and couldn't take notes or use a computer without help, so an assistant made sense.

But she was unusually doting, Fawaz thought, even tender.

No wonder: "Yeah, that's my mom," Marty, now 30, told him.

For two academic years, from 2015 to 2017, Judy O'Connor served as her son's full-time study partner and aide — shuttling him between home and campus, pushing his wheelchair to classes, taking notes. At home, she created study guides and taped the notes to the walls of Marty's room, so every page was within his sight.

"I couldn't turn the pages of a book by myself," said Marty, who'd been a member of the club snowboarding and men's volleyball teams at CU Boulder.

After his CU graduation, Marty, originally from Anaheim, Calif., moved to Newport Beach. He worked in sales for a packaging supplier, TricorBraun, and spent a lot of weekends at the beach.

"I was living the life," he said.

Then one hot day in August 2012, while out with friends after a long day of golf, a dehydrated and fatigued Marty stood up, lost consciousness and fell down the stairs of a fire escape behind a Newport Beach restaurant.

"I don't remember the rest," he said.

The fall injured Marty's spinal cord.

His parents, then living in Tierra Verde, Fla., moved back to California to care for him. It took two years of physical therapy to tame the spasms in his legs.

In time, Marty regained strength, if not mobility, and he began to consider what to do with the rest of his life.

It wasn't obvious at first.

"Marty was really struggling to figure out what his future was going to look like," said Judy, a former sixth-grade teacher with a business degree from Notre Dame.

Marty had always been entrepreneurial, so she encouraged him to consider business school. He was anxious about it, but in fall 2015, he entered the MBA program at Chapman in Orange, Calif., armed with a mouth stick for operating his phone and voice recognition software on his computer.

Initially paired with a note taker, Marty saw he needed more. Judy was already helping him study. So she became his on-campus assistant, too.

For two years, she attended every one of Marty's classes, helping with every assignment and every exam.

"I quickly got over that awkward feeling of going back to school with my mother," Marty said.

Last year, with commencement on the horizon, Marty approached university officials to ask if they would consider recognizing his mother's contribution.

"I couldn't have done it without her," he said.

The school's leadership agreed and proceeded to make secret plans with Marty, avoiding telltale texts or emails.

"I didn't want my mom seeing anything popping up on my phone," said Marty.

At commencement exercises last May, Judy pushed Marty onto the stage in his wheelchair, then stepped back to let him have his moment of triumph. Marty received his degree.

Then teary-eyed officiants turned to Judy and presented her with a degree of her own, an honorary MBA, prompting an ovation from the crowd.

"I certainly never expected any recognition," Judy said. "I did what I did out of love for my son."

After commencement, she and Marty took a break. Judy visited her ailing mother in Florida and Marty began plotting his next career move.

This fall Marty started a job in business development with DIVERTcity, a Los Angeles startup that's developing programs and facilities to make action sports more accessible and affordable for urban youth.

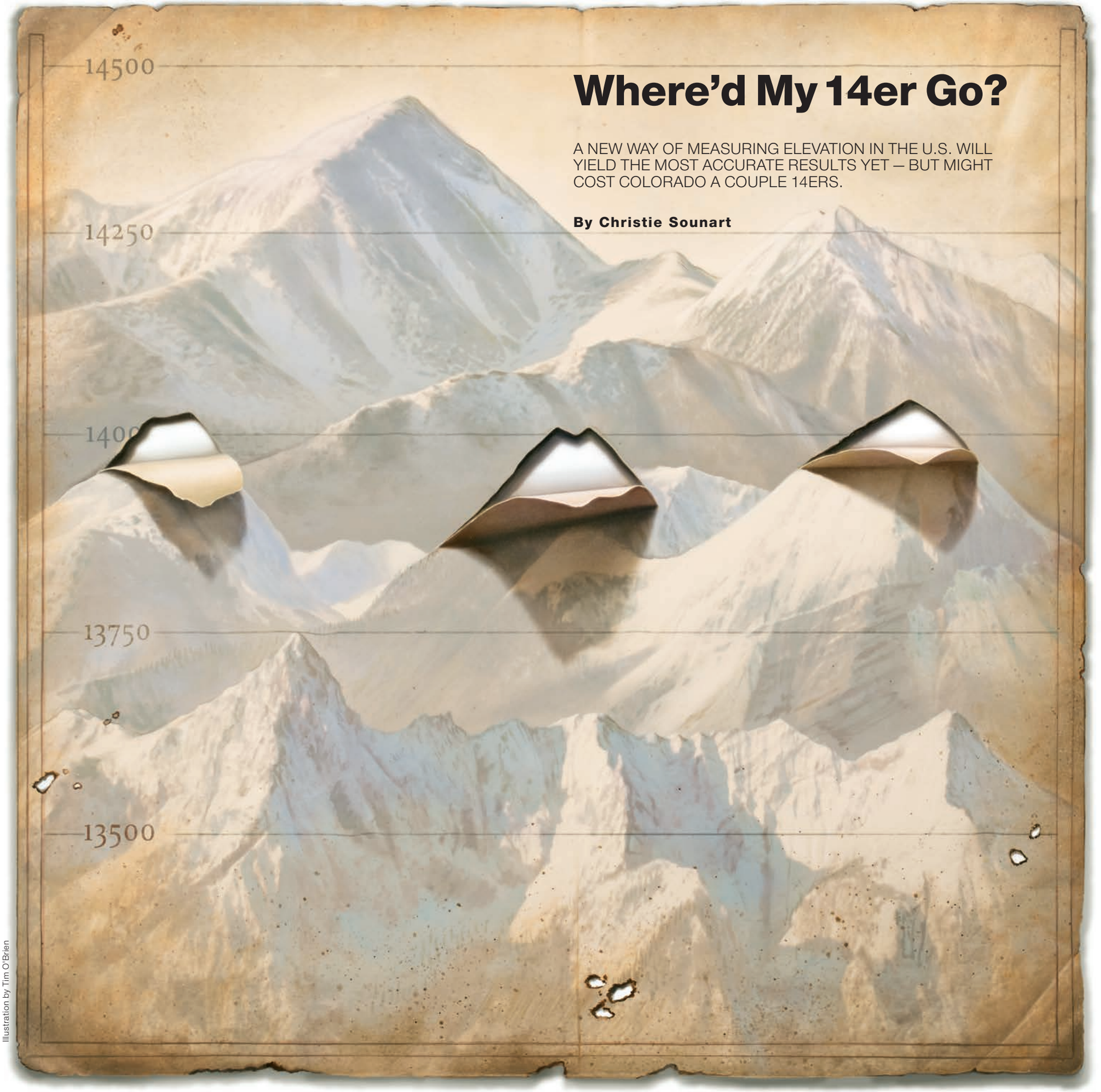
It's a CU Boulder reunion of sorts: Marty's former CU roommate **David Monhait** (Arch'11) and **Zachary Adamson** (Mgmt'11), founded the firm.

Judy's back in Florida, caring for her mother.

If she sees Marty less now, she still sees him often. "You can fire your assistant," she said, "but you sort of have to keep your mom."

Janice Podsada is a freelance writer.

Photo courtesy Chapman University



Where'd My 14er Go?

A NEW WAY OF MEASURING ELEVATION IN THE U.S. WILL YIELD THE MOST ACCURATE RESULTS YET — BUT MIGHT COST COLORADO A COUPLE 14ERS.

By Christie Sounart

Illustration by Tim O'Brien

At 14,001 feet, Colorado's Sunshine Peak is barely a "14er" — and might not be one for long. The status of Huron Peak, 14,003 feet, is also in jeopardy.

In fact, all of Colorado is expected to lose about two feet of elevation. Seattle will lose three feet. Florida will stay about the same.

ACCURACY WITHIN CENTIMETERS INSTEAD OF FEET.

Blame it all on better science.

For the last five years, U.S. government scientists have been redefining elevation — height above an agreed-upon reference point — using a new method that involves satellites and airborne gravity-measuring machines to determine a new baseline for measuring the heights of landmasses. Basically, they're establishing a new "zero."

Once complete, in 2022, the decade-long project will provide the most precise measurements ever.

The revised elevation data will help organizations like FEMA determine more exact U.S. flood plains, for example, according to **Derek van Westrum** (PhDPhys'98), a scientist with NOAA's National Geodetic Survey (NGS), which sets federal standards for surveying and mapping activities. The updates will aid land surveyors, oceanographers and geographers also.

"Measurement uncertainties will be within centimeters now instead of feet," said van Westrum, who works for NOAA in Boulder and is responsible for the survey's terrestrial gravity measurements. "In Seattle right now, if you wade into the ocean, the current height system will indicate you're about three feet above sea level."

NOAA is the National Oceanic and Atmospheric Administration. Current official elevations date from the 1980s.

The new measurement system is a far cry from the old way of doing things: For hundreds of years, terrestrial elevations were measured by hand from sea level using rulers, levels and brass markers.

While largely accurate when done correctly, this method is extremely tedious and costly, said van Westrum. And in places like Colorado, rugged terrain and extreme distance above sea level make it difficult to precisely measure. In Alaska, it's nearly impossible. It's an easier task in flat, seaside states like Florida.

"The new system can cover the entire continent quickly, and also keep it up to date as the Earth slowly changes, something you can't easily do with an army of folks with rulers," van Westrum said.

The new survey method also improves upon GPS-based elevation mapping, which assumes a simple ellipsoid model of Earth. In contrast, the new method accounts for the complex and evolving shape of the planet.

"People know the Earth is round, but because it's spinning, it kind of blobs out into an ellipsoid," van Westrum said. "And with mountains and valleys and things like that, we know the Earth isn't a perfect ellipsoid. It looks more like a lumpy potato."

Scientists on the project, called GRAV-D, short for Gravity for the Redefinition of the American Vertical Datum, measure gravity's pull near the Earth's surface. They use the data to create a model of Earth's geoid — a mathematically derived approximation of global mean sea level.

Measuring distance from this global mean to the top of landmasses will yield new, highly accurate elevations.

In order to map Earth's lumpy potato shape, NGS uses gravity meters developed by **Tim Niebauer**'s (PhDPhys'87) company, Micro-g LaCoste in Lafayette, Colo., in addition to NASA satellites that collect gravity-related data.

Niebauer's machines, which range in size from small toasters to barrels, use mirrors and lasers to measure gravity, said van Westrum, a self-described "gravity guy" who worked at Niebauer's company for 15 years before joining the NOAA survey. Scientists deploy the machines on slow-moving GRAV-D aircraft and on the ground.

"You're getting a picture of the Earth from outside of the Earth," said Niebauer, who commercialized his gravity meters after perfecting them at CU's JILA, a joint institute of the university and the National Institute of Standards and Technology (NIST).

To ensure that GRAV-D is as precise as possible, survey scientists have undertaken parallel projects across the U.S. using both old and new measurement systems and comparing results. Van Westrum led a Colorado project that measured elevations between Durango and Walsenburg, for instance. Initial data shows similar results from the two methods.

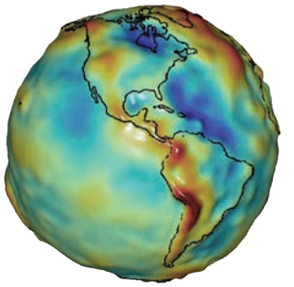
GRAV-D still has five years to go before it becomes the new standard for measuring elevation. Once it's in effect, in 2022, a NOAA team will continually monitor agents of geologic change — such as volcanic eruptions, earthquakes and the movement of tectonic plates — all of which influence Earth's dynamic shape. As the shape changes, so will global mean sea level and the elevations of landforms.

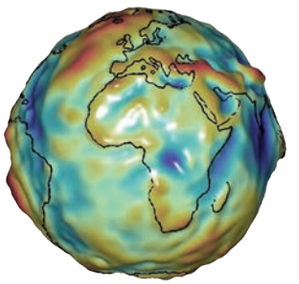
"You'll be able to go anywhere with a GPS and know exactly where you are, latitude, longitude and how far above the surface of the geoid you are," said van Westrum.

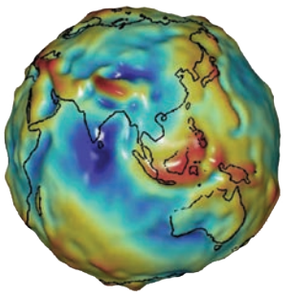
While it's possible that some places could gain elevation, in general they'll lose it, van Westrum said — imperiling Colorado's shortest 14ers. Like poor Sunshine Peak.

***Christie Sounart** (Jour'12) is associate editor of the* Coloradan.

The team uses ground-based and airborne machines to measure gravity's pull near the Earth's surface.







THE NEW METHOD CAN SURVEY THE ENTIRE CONTINENT QUICKLY AND KEEP UP TO DATE AS EARTH MORPHS.

Photo by National Oceanic and Atmospheric Administration/Department of Commerce

Illustration by NASA/JPL/University of Texas Center for Space Research

A Houseful of TEPLEYS

ONE HOUSE ON THE HILL. ONE FAMILY. FOUR GENERATIONS OF BUFFS.

By Eric Gershon

Photo by Glenn Asakawa

The plaque at 1145 Grandview Ave. went up in the mid-1990s. "Tepley House," it declares. "C. 1907."

Yet for years after the old home on The Hill became a Boulder landmark, and for some time before, the only way **Bill Tepley** (Pharm'87) could get inside was to knock, introduce himself and ask to poke around for old times' sake.

Access is simpler now: In August, his younger daughter, **Grace Tepley** (IntlAf'18), moved into the turreted Queen Anne-style home, just off Broadway — extending the family streak to four successive generations of Tepleys in residence while attending CU Boulder.

"Grace is in one of the rooms I stayed in," said Bill, 57, a Denver pharmacist with a fondness for hats and a gig as the bassist in a cover band called The Vinyls.

Grace's sister, **Savannah Tepley** (MechEngr'15), passed on an earlier chance to advance the streak, making a practical decision to live by the engineering center — clear across campus — where most of her classes met.

If the streak itself is remarkable, so is the story of its start.

Early in the 20th century, Bill Tepley's paternal grandparents, **Katherine** (Hist'30; MA'32) and **Leo** (MD1917) **Teplitzky**, fled Russia for New York after their release — in Leo's case, escape — from the Siberian lockup where they'd been political prisoners, according to family lore and research. Katherine's offense: Teaching peasants to read. Leo's: "backing the wrong horse," Bill said.

The couple came to Boulder, changed their name and worked as custodians in CU's stables. Leo helped lay sidewalks.

Leo eventually worked his way into medical school and became a psychiatrist. He and Katherine migrated to Denver and had three children, including Bill's father, **Eugene** (A&S'36; Law'39), a future CU gymnast specializing in the flying rings, a lawyer and a political candidate.

The Grandview house entered the picture after the Tepleys' marriage foundered. In 1924 Katherine and the children moved back to Boulder and into No. 1145.

The kids all went on to study at CU — as did Katherine, who attended alongside daughter Victoria. Katherine earned two degrees in history, then taught at CU and the University of Denver.

"She was what I would call a progressive woman," Bill said of his grandmother, whom he never knew. "Education was important to her. She went to prison twice over it [in Russia]."

The house remained in the family long enough for Bill to live there in the 1970s and '80s. He and friends paid his parents, who managed the house as a rental property, about $60 each per month. Nine of 15 Tepley Buffs lived there at some point.

Bill's parents came to Boulder for home football games, usually dropping off food for their renters and sometimes doing their laundry. Over the years, Bill helped his father replace the house's plumbing and insulation. They repainted it top to bottom.

In 1988, as Bill's parents entered old age, the family sold the home.

After the city landmarked the house — the plaque honors the architecture, the Tepleys and also former occupant **Wiley B. Rutledge** (Law'22), CU's first alumnus on the U.S. Supreme Court — Bill would double park while friends hopped out to take a look.

Decades went by.

In fall 2015, Grace Tepley, then a sophomore, made her move to resume the streak.

She strode to the door of 1145, introduced herself and asked for the landlord's number. She called, only to learn the house had already been leased for the next year.

But the landlord, who'd bought the house from the Tepleys, gave Grace first dibs for 2017. All she'd have to do was round up roommates.

THE AMERICAN DREAM, MANIFEST.

Once she had — and not before — the aspiring lawyer, now 22, gave her dad the good news.

"I knew he'd call our entire family," she said. "I didn't want it to fall through."

Bill sees 1145 Grandview as a symbol, not just of his own family.

"In a time where people are saying, 'Immigrants, we don't need 'em,' you look at my family, they came here with no language and no skills and had to change their names to get jobs — and yet they turn into the American dream," he said. "It all goes through that house."

Eric Gershon is editor of the Coloradan.

MOOC

ONLINE EDUCATION GAINS STEAM AT CU BOULDER.

By Eric Gershon

Illustration by Harry Campbell

Whenever CU professor Robert Mazzeo offers "Exercise Physiology," an upper-level undergraduate course popular with aspiring doctors, it fills quickly. So does the waiting list. He and a colleague each teach the class once a year to a combined total of about 230 students.

In June, Mazzeo, a member of the integrative physiology faculty and an avid tennis player, introduced an online version of the course called "The Science of Exercise" that also has proven popular — on a vastly greater scale and far beyond Boulder.

By early November, more than 35,000 people worldwide had at least sampled the course, a MOOC, or massive open online course. Nearly 800 were on track to finish it, many for fun and at no cost, others for a certificate of completion and a $49 fee. A new cohort of students enrolls every two weeks. There is no cap on enrollment.

"Based on the number of new students joining each week, 'Science of Exercise' is on track to be the most popular course in the history of CU," said **Cory Pavicich** (Engl, Hum'04) of CU's digital learning initiatives unit, which helps faculty design MOOCs.

MOOCs emerged about a decade ago. The 2012 debut of delivery platforms with ties to Stanford, Harvard and MIT led to a sustained burst of attention and a *New York Times* headline dubbing it "The Year of the MOOC." The medium was hailed as a way to offer online learning to mass audiences at minimal or no cost, amid intensifying concerns about the high cost of traditional campus-based higher education.

The hype has died down, but MOOCs have shown they're here to stay and that they can coexist with campus-based instruction while drawing huge numbers of additional off-campus learners. Coursera, one of the most prominent MOOC platforms, edX and Udacity now offer thousands of courses, commonly developed by professors at established universities, including CU Boulder.

After a modest start in MOOC development in 2013, when CU introduced its first four courses, including "Introduction to Power Electronics" and "Comic Books and Graphic Novels," the university is rapidly growing its slate. As of November, nearly 25 MOOCs developed at CU Boulder were available on Coursera, the university's main platform partner. By 2020, the electrical engineering department alone expects to add at least 50 more.

"MOOCs were once branded the death-knell of the university and then they were proclaimed dead, but, in reality, they remain a fascinating field of play," said English professor William Kuskin, who as vice provost and associate vice chancellor for strategic initiatives oversees MOOC development. "It's an arena that uniquely merges teaching and research in ways capable of reaching the entire globe."

MOOCs are just one form of online education, and not the only one offered by CU Boulder. The School of Continuing Education offers a variety of paid online courses open to the public, for example, and the campus has eight fully online graduate degree programs, mostly in engineering. But MOOCs are proliferating fastest, largely because production requires only one professor and a small team, and most of the faculty work is up front rather than continuous.

Besides "Science of Exercise," CU Boulder MOOCs include "Kinematics: Describing the Motions of Spacecraft," "Graphic Design," "Business Analytics for Decision Making" and "The Dynamics of Group Communication." Others scheduled for debut are "Social and Emotional Learning and the Teacher," "Roots and Shoots," a collaboration with the Jane Goodall Institute, and "Active Optical Devices."

"The mission of a university should be to provide educational opportunities to students and reach as many as possible," said Juliet Gopinath, the electrical engineering professor who developed the optical devices MOOC. "The online forum allows us to reach non-traditional students and provide opportunities to those for whom it might be otherwise impossible. Personally, I also hope that it helps underrepresented groups as well as those in Third-World countries who struggle to find the time and opportunity to receive an education."

NEW STUDENTS: THOUSANDS.

As the name MOOC suggests, a MOOC ("massive open") is easy to join. Anyone with an internet connection can participate by visiting a provider website, such as coursera.org, registering, picking a course and clicking the first lesson. Learners can watch instructional videos and consume other course materials (readings, quizzes, projects) for free. To be evaluated and eligible for a certificate of completion, students pay a fee, typically less than $100 on Coursera.

THE HYPE HAS DIED DOWN, BUT MOOCS ARE HERE TO STAY.

Two years ago, Mazzeo hadn't even heard of MOOCs. When he did, from Russell Moore, the university provost, Mazzeo seized on the potential for propagating the core message of his teaching and research — that "exercise is medicine" — at an exponentially greater rate than possible on campus.

Working with a CU team of learning design experts, Mazzeo condensed and simplified the lectures from his semester-long campus course, shot a series of videos and developed new quizzes that could be scored by software or other students in the course. Within months, thousands of people around the world were enrolling in "Science of Exercise."

"I'm reaching populations I never thought I'd reach in my career," said Mazzeo, who marvels over students' locations, which he surveys on an electronic dashboard on his office computer: Botswana, Qatar, Algeria, Nepal, Iraq, India and scores of others. At least two-thirds of all people enrolled in CU Boulder's MOOCs live outside the U.S., according to Pavicich.

All this means the campus and MOOC versions of Mazzeo's course complement rather than compete with each other.

"These are truly new students for the University of Colorado Boulder," Pavicich said.

Mazzeo's MOOC covers the same basic concepts as his in-the-flesh course, "Exercise Physiology." But it's not the same course, and isn't intended to be. The MOOC, which consists of four modules that can be completed at the student's pace within a 180-day period, is shorter and less technical, for example. It involves fewer and less-detailed tests. And successful completion of the MOOC doesn't confer CU academic credit.

Kuskin's group believes MOOCs serve the university's fundamental mission and key interests in several ways.

They fulfill the broad mandate of providing public education, and they amplify CU's renown. At least one CU department has reported that its MOOCs have helped attract full-time, degree-seeking students to campus.

Teaching through new media also prompts professors to reevaluate how and what students ought to learn. This can lead them to modify and improve traditional classroom courses.

And MOOCs are a source of revenue, modestly so far for CU, but with potential for significant growth.

Many universities have raced ahead in online education, among them Arizona State and the University of Florida, which bring in tens of millions of dollars through their programs, including online degree programs. The University of California Berkeley offers an online master's program in public health, and Georgia Tech offers online master's programs in computer science and analytics. MIT offers a pair of online "MicroMasters" credentials that can lead to admission to an accelerated on-campus master's degree.

In time, CU Boulder expects to increase its share of paid online certificates and degree programs, according to Pavicich. MOOCs offer a foundation for that effort while immediately serving a greater number and variety of learners than the university ever has, he said — both newcomers to higher education and people who simply want more of it.

"We are past the point where you can assume you're done learning when you're 22 or 23," Pavicich said. "You should expect to learn throughout your life."

Eric Gershon is editor of the Coloradan.

Illustrations by Harry Campbell

RAMEN King

JAPAN WENT CRAZY FOR IVAN ORKIN'S RAMEN. NOW AMERICA HAS THE FEVER.

By Christie Sounart

Photo by Daniel Krieger

Ramen wasn't Ivan Orkin's calling. At first.

In 2006, **Orkin** (Jpn'87) was living in Tokyo with his family, jobless and restless. The U.S.-trained chef tried for three years to fit in with the Japanese culture he adored, but struggled to find his place in Japan as a Jewish Long Islander.

"I felt quite hopeless," said Orkin, who had worked at top New York restaurants, including Lutèce. "I felt like I was never going to find my way."

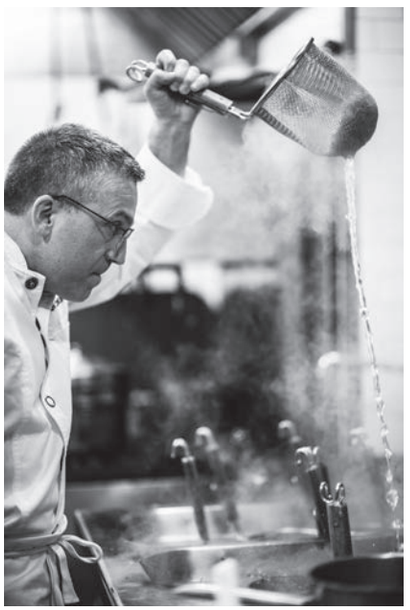
His wife, Mari, a native Japanese, suggested he open a ramen shop.

"I didn't have a clue how ramen was made," said Orkin.

But ignorance was no obstacle.

Orkin developed a unique twist on traditional ramen — thin noodles served in a piping-hot meat or seafood broth, sometimes with other toppings — a hugely popular dish in Japanese cuisine. Tokyo alone has thousands of ramen shops.

Located in Tokyo's western suburbs, Orkin's 10-seat restaurant, Ivan Ramen,



drew media and locals who were curious to sample an American chef's take on ramen. Orkin offered homemade noodles (rare in Japanese ramen), aromatic flavors, few (but choice) toppings and light double-broth bases made with chicken and pork. Obscure-to-Japan ingredients like roasted tomatoes and rye flour added to the soup's appeal.

In a glowing 2009 review titled "Ivan Ramen: Artisan ramen with NY accent," *The Japan Times* wrote: "You will not taste anything like this anywhere else in Japan."

Acclaimed Japanese ramen critic Hiroshi Osaki — who claims to have eaten more than 23,000 bowls of ramen — called Orkin's ramen "amazing" and "delicious."

Success in Japan has since led to two other ramen restaurants and a pizza restaurant in New York, a Netflix documentary and a new life back in the United States.

As *The New York Times* put it in 2013, "Ivan Orkin appears to have pulled off a chain of unprecedented feats."

A LOVE FOR JAPAN

Orkin's infatuation with Japan began when he was 15 years old and worked as a dishwasher in a sushi bar in Syosset, New York. He reveled in trying new dishes, which were radically different from the frozen meals he ate, and hated, at home.

When it came time for college, he chose CU Boulder, which offered both a dramatic mountain escape from New York and a Japanese studies program.

At CU, academics weren't really Orkin's thing — "I would make breakfast for my friends and they would do my homework," he said — but he enjoyed the Japanese program.

"It's one of my great memories of college," said Orkin. "I learned just enough about Japanese grammar."

After graduating, he moved to Japan and taught English for three years, a job he found unoriginal and uninspiring. He met his soon-to-be first wife, Tamie, and the couple moved back to the U.S., where Orkin studied at the Culinary Institute of America in New York. There he met his eventual business partner, David Poran.

"He was like Woody Allen on 12 cups of coffee," Poran said of the young Orkin.

Afterward, Orkin worked under Bobby Flay at Mesa Grill and at Lutèce in New York. When Tamie became pregnant with their son **Isaac Orkin** (Jpn'19), he accepted a more stable, higher-paying job with Restaurant Associates, a New York-based hospitality company.

In 1998, when Isaac was two and Tamie was pregnant with the couple's second child, she died of a sudden illness. Devastated and eager for his son to remain rooted in his mother's Japanese culture, Orkin began taking him on annual trips

Ivan Orkin, who has found success in the U.S. and Japan, has been called "an American ramen master."

to Tokyo. On one of these trips, in 2002, he met Mari over a bowl of ramen, and married her three months later. The couple settled in Tokyo, and Orkin began feeling his way into the future.

After Ivan Ramen took off in 2007, Orkin added a second restaurant in Japan and created a popular line of instant ramen.

"Ivan's very analytical, he's extremely intelligent and he's slightly OCD," partner Poran said. "I think that's a combination for success."

I DIDN'T HAVE A CLUE HOW RAMEN WAS MADE.

By 2012, ready to return to the U.S., Orkin and Mari moved their three sons to New York. He opened Ivan Ramen Slurp Shop in the Hell's Kitchen neighborhood and his flagship restaurant Ivan Ramen in the Lower East Side. They, too, were instant hits. *The New York Times* refers to him as "an American ramen master."

These days, he stays out of the kitchen. Mostly.

"I still work on recipes, I still train people, but I don't have a spot in my restaurant," he said. "But when there is something for me to do, I'm there all day and all night."

A CALL FROM *CHEF'S TABLE*

Last year, the crew behind Netflix's *Chef's Table*, a documentary series profiling renowned chefs, came calling.

"Netflix was the first time I ever really allowed a television camera to see my life that closely," he said, adding he filmed five days in New York and five days in Tokyo. "It was hard telling everybody your innermost secrets."

After the episode aired in February 2017, Orkin's name, and food, grew more famous still.

"It's completely been one of the most wonderful things that's ever happened to me," he said.

These days, Orkin, who lives in the Hudson River Valley north of New York, is exploring potential new ramen restaurant locations elsewhere in the U.S. Meanwhile, he's also dabbling in the pizza world. He and Poran opened Corner Slice inside the Gotham West Market to rave reviews.

"The pizza business is a big deal for us," said Poran. "We have big expansion plans."

There's never really any telling what's next for Orkin.

"If there's anything I've learned in this life," he said, "it's when I get tired of doing something, I'll just do something else."

Christie Sounart *(Jour'12) is associate editor of the* Coloradan.

Photos by Daniel Krieger

Ancient BEASTS of Australia

WHAT KILLED THEM OFF? A CU SCIENTIST WITH AN ARCTIC PEDIGREE THINKS HE'S FOUND THE ANSWER IN THE HOT AUSTRALIAN INTERIOR.

By Jim Scott

For Australia's earliest human immigrants, who likely floated there from Indonesian islands on wooden rafts they lashed together more than 50,000 years ago, the wild menagerie of huge animals and birds prowling the landscape must have been astonishing.

Think rhinoceros-sized wombats, 1,000-pound kangaroos, 25-foot-long lizards, ferocious marsupial lions and Volkswagen-sized tortoises, said professor Gifford Miller, a fit CU geoscientist who bicycles from home to a cluttered campus office that harbors the skulls of a walrus and a polar bear he found in the Arctic.

The extinct Australian animals, collectively known as megafauna, also included a 400-pound flightless bird that stood almost seven feet tall and laid cantaloupe-sized eggs.

But just a few thousand years after the arrival of humans — the blink of an eye in geologic time and, for that matter, the history of life — most of the wondrous beasts were gone forever. A scientific debate has raged for decades as to what, or who, did in Australia's ancient megafauna. And Miller believes he now knows the answer: Homo sapiens.

"Shortly after human settlement in Australia, the geological record shows that most of the large animals disappeared," he said. "Reconstructing what activities associated with human colonization might have contributed to this remains challenging, but a human cause of some sort is apparent."

How did Miller, associate director of CU's Institute of Arctic and Alpine Research, who's spent most of his career charting climate change in the High Arctic, wind up sifting through Australian sand for the bird eggshells that constitute key evidence?

Family destiny, perhaps.

His father, Robert Rush Miller, a Smithsonian fish biologist, was part of a 17-person team that made a historic nine-month trek through northeastern Australia in 1948, collecting plants, animals, art and archaeological material produced by Aboriginal peoples.

"I was only two years old, so I don't have a recallable memory of that," said Miller. "But there were knick-knacks from Australia in our home, and I think it was locked in my brain as a young child that I was supposed to go there."

1 MEGALANIA PRISCA
An extinct monitor lizard related to the Komodo dragon.

2 GENYORNIS NEWTONI
Flightless bird that stood nearly 7 feet tall and weighed 400 pounds.

3 GENYORNIS EGGS
Each was roughly the size of a cantaloupe.

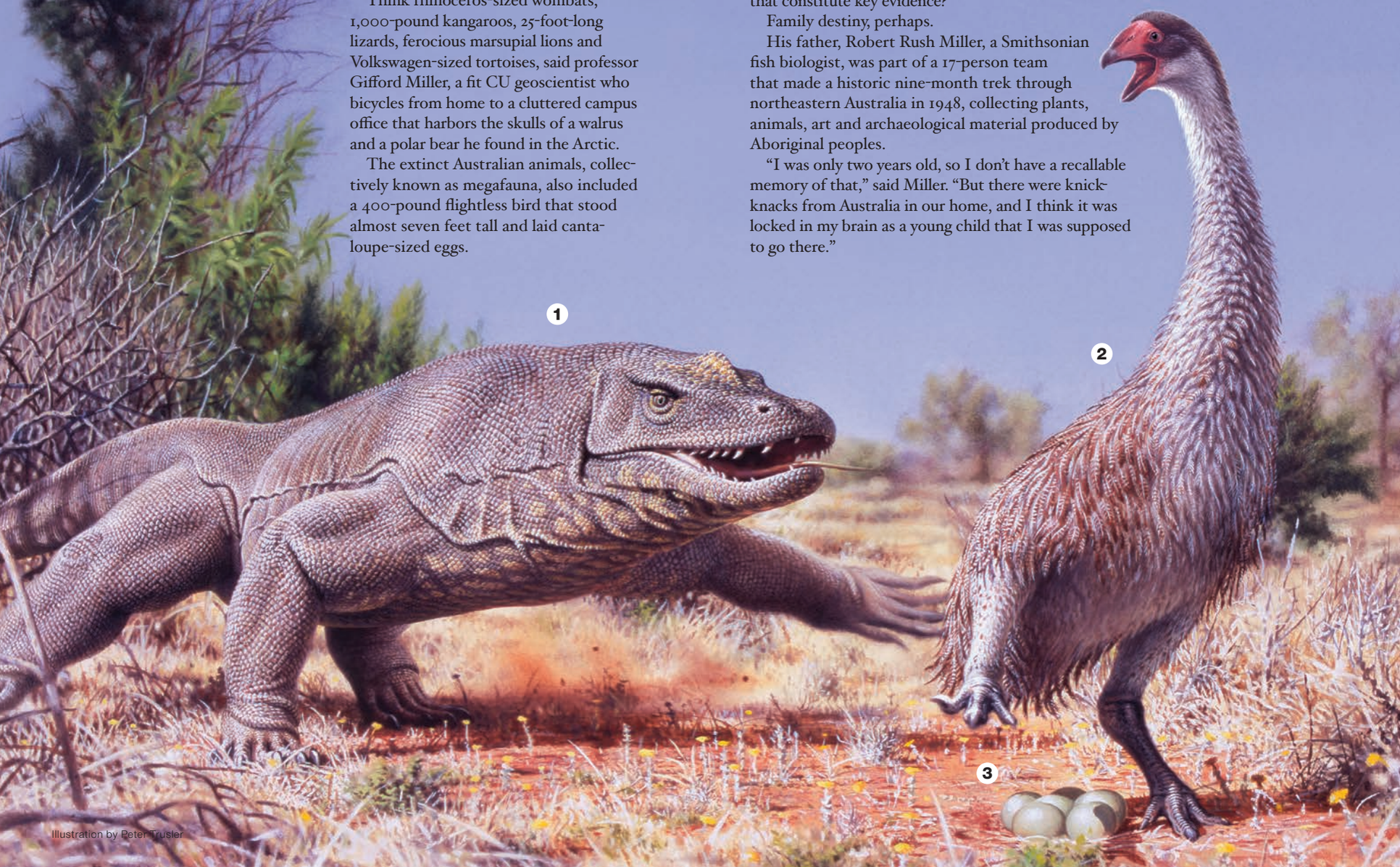
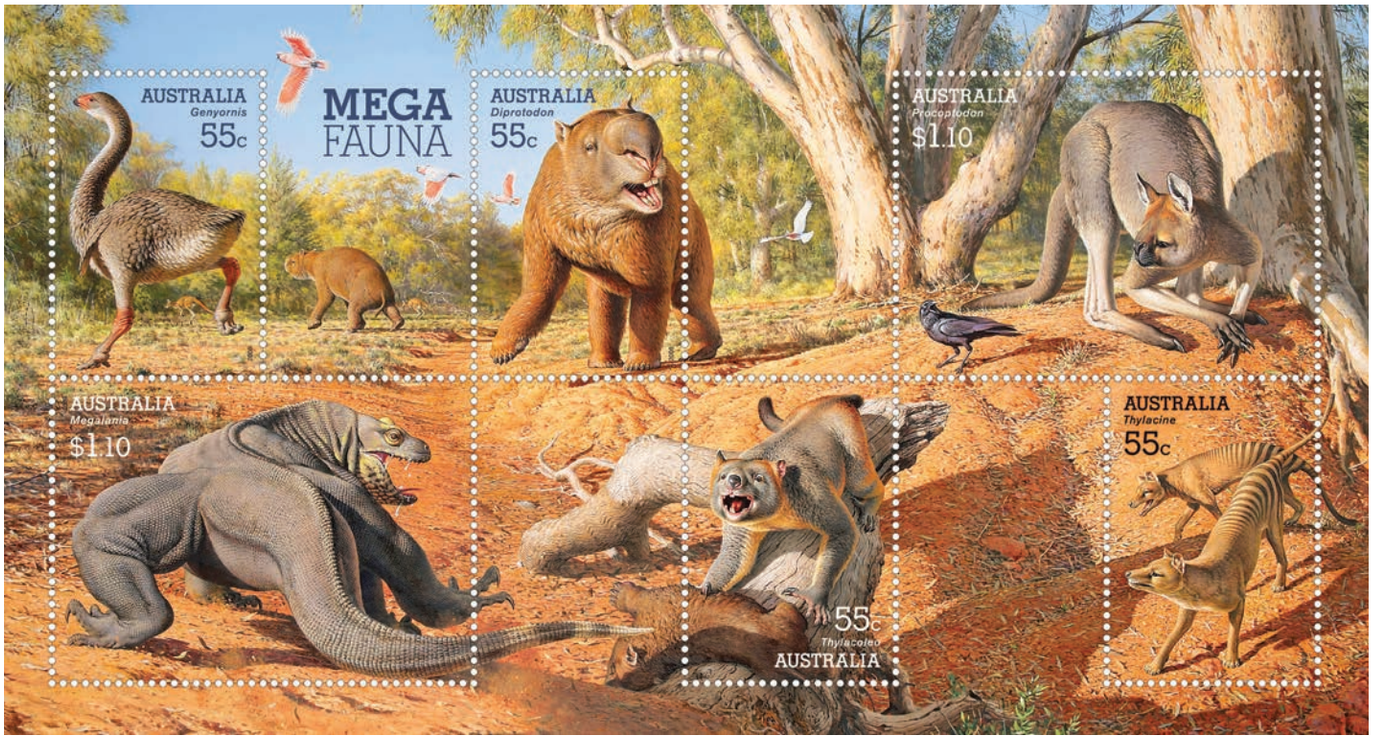


Illustration by Peter Trusler



A few thousand years after the arrival of humans, a blink of an eye in geologic time and the history of life, most of the wondrous beasts were gone forever.

Later, in the late 1980s Gifford Miller was working in northern Africa's Sahara Desert — in a spot so dry it has never rained there in recorded history — trying to understand how the climate system produced a permanent lake where early humans hunted and feasted on a range of large animals. The team was investigating sites on the lake's edge, putting together a chronology of human habitation. Miller was charged with dating ancient ostrich eggshells, remnants of ancient meals.

A colleague suggested Miller visit Australia's interior to investigate a similar, abrupt change in climate that coincidentally could also be dated with the eggshells of a huge, extinct bird.

He went.

Initially Miller focused on the possible effects of systematic burning of the landscape by the earliest human colonizers. This could have sufficiently altered vegetation patterns to diminish the effectiveness of the summer monsoons that periodically drenched northern Australia, triggering increased aridity in the interior, he said.

Eventually, in 2016, Miller and colleagues reported the first direct evidence that early humans in Australia preyed on Australia's megafauna — in that case, on the region's own Big Bird, the almost seven-foot Genyornis newtoni.

The team dated Genyornis eggshell fragments using a technique called luminescence dating — assessing when quartz grains encasing eggshell fragments were last exposed to sunlight — as well as more traditional dating methods. Together they indicate Genyornis disappeared between 54,000 and 47,000 years ago.

Most telling were the burned Genyornis eggshell fragments.

By looking at amino acids in fragments burned at one end and not the other, the researchers concluded the heat gradient on a single fragment was as high as 1,000 degrees F — a clear indication they were partially burned by isolated embers, as in a campfire. Wildfires would have produced sustained, across-the-board heat on the shell fragments, Miller said.

Moreover, most of the hundreds of discovered Genyornis eggshell fragments were found in clusters.

"We believe the evidence is consistent with early humans harvesting Genyornis eggs, cooking them over fires, and then randomly discarding the eggshell fragments in the area," Miller said.

Last year, he and colleagues at Australia's Monash University reported a clever way to paint a portrait of the huge vegetarians that once roamed the landscape. They analyzed a sediment core extracted from the Southern Indian Ocean off the coast of southwestern Australia — which has layers much like an ice core — delving back 150,000 years beyond the last ice age to Earth's last warm interglacial period.

The core contained chronological layers of pollen, dust and ash washed into the sea over time, indicating southwestern Australia had dense forests 45,000 years ago. This would have made the region a hotbed of biodiversity, and perhaps one of the last holdouts for a dwindling megafauna population. More important, Miller said, the core contained spores from the fungus Sporormiella, which snacked on the dung of plant-eating mammals.

MOST TELLING WERE THE BURNED EGGSHELLS.

"It's a region with some of the earliest evidence of humans on the continent, and where we would expect a lot of animals to have lived," he said. "But in a window of time lasting just a few thousand years, Sporormiella spores disappear from the record, telling us the megafauna population collapsed."

Miller took a roundabout route to becoming one of CU Boulder's top-tier scholars.

After a couple of fits and starts at Michigan colleges after high school, he joined VISTA, a domestic version of the Peace Corps. He was sent to Tuluksak, Alaska, a Yup'ik village of just a few hundred people, to help with community development.

"I still remember the zip code," he said. "99679."

He followed that with a brief career as a fur trapper, acquiring his own dogsled team. It took a full day to travel from Tuluksak to the trapping camp, then three days of tending trap lines and another day to get home.

"As much as I loved it, I knew it was something I was not going to do for the rest of my life," he said. "That's when I moved to Colorado."

He got his academic mojo going at CU Boulder, earning bachelor's and doctoral degrees, followed by a postdoc at the Geophysical Laboratory at the Carnegie Institution in Washington, D.C., and a year at the University of Bergen in Norway, which he calls his "finishing school."

Over the decades, his research in the Arctic — where human-caused climate warming from increasing greenhouse gases is occurring faster than anywhere else on the planet — has included landmark studies. Two years ago he and his team determined the current level of warming on Baffin Island, west of Greenland, may be as high as it was more than 2 million years ago, when sea levels were several meters higher.

The globetrotting Miller — who recently began a project in Madagascar to study the demise of the 1,000-pound elephant bird, Aepyornis, also shortly after humans arrived — credits his students as an inspiration.

"I've been fortunate to have a cadre of motivated students over the years anxious to make their mark in the world of science," he said. "They are always challenging me to explore new ways of doing things. Without them I would not be nearly as productive, or have nearly as much fun."

__Jim Scott__ (EPOBio'73) writes about science for CU Boulder.

Alumni

News WINTER 2017

CU Boulder Next

NINE-STOP NATIONAL TOUR PUTS CU'S TALENT ON DISPLAY

FEBRUARY MARKS THE DEBUT of CU Boulder Next, a nine-stop, seven-state tour for a dynamic cast of CU Boulder's most captivating faculty, staff and students, offering alumni and friends the chance to experience the latest and best of CU Boulder.

The large-scale tour opens in Los Angeles Feb. 24 and concludes in Boulder in April 2021, with intermediate stops in seven major cities.

Initiated by Chancellor Philip P. DiStefano, CU Boulder Next is the first event of its kind for CU. It aims to showcase and share the bright minds and cutting-edge research that are the university's lifeblood and hallmark.

A series of brief TED-style microlectures — Buff Talks — forms the heart of the half-day event, followed by breakout sessions that provide a forum for conversation with the experts. Aerospace engineering, athletics and other campus units will stage exhibits, allowing attendees to experience extraordinary elements of the campus atmosphere.

"This exciting program showcases the phenomenal breadth of academic achievement that makes CU Boulder a top university for innovation," said DiStefano. "We look forward to interacting with alumni, donors, parents and prospective students in cities across the U.S. beginning in Los Angeles in February 2018."

Presenters will delve into biosciences, humanities, the arts, engineering, politics and more.

The kickoff in Los Angeles takes place at the J.W. Marriott L.A. Live on Saturday, Feb. 24. Following the series of 10-minute expert lectures, nine faculty will lead discussion sessions, including Marie Banich, an expert on the teenage brain, and English professor Adam Bradley, an entertaining authority on the poetry of pop songs.

The tour resumes in Washington, D.C., on Saturday, April 21, at the Washington Marriott Marquis. San Francisco, Seattle and Denver will follow in 2019.

Learn more at colorado.edu/next.

THE HERD'S ULTIMATE CHALLENGE

CU students' mental and physical abilities were put to the test during The Herd's Ultimate Challenge, Oct. 21. Modeled after CBS' *The Amazing Race* and co-produced by **Floyd Pierce** (ApMath, Econ'17) — a participant in the spring 2017 season of the show — the event gave 29 two-person teams a chance at $2,000, half for the winners, half for the CU student group of their choice.

The teams raced around Boulder searching for clues at McGuckin Hardware, Hotel Boulderado, the Pearl Street Mall and Macky Auditorium while completing tasks such as balancing three golf balls one atop another, building a planter's box and completing puzzles. The winning team, "Snoopy Goons," was a duo of U.S. Marine Corps veterans, **Christopher Black** (EPOBio, IntPhys'18) and **Allen Dehoff** (EPOBio, IntPhys'18). They donated $1,000 to the Student Veterans Association.

HOMECOMING 2017

The Alumni Awards Ceremony kicked off the weekend (Oct. 26-29), before a 300-person crowd — plus online viewership of 4,700. Friday, Olympian **Bill Marolt** (Bus'67) served as keynote for the 50-Year and Golden Anniversary Club reunion. Elsewhere, alumni attended microlectures from astronomer Douglas Duncan, speech pathologist Kathryn Hardin and others. Koenig Alumni Center hosted 14 brewers and three vintners at Buffs on Tap. Saturday saw the Buffs' best game of the season — a 44 to 28 win over Cal.

CHAPTERS AND CLUBS

The Aspen alumni chapter's September "Entrepreneurship in Ski Communities" event drew about 140 people, including extreme skier **Chris Davenport** (Hist'93). ... Albuquerque's chapter has new leadership: **Cassie** (Psych'13) and **Jarred Langhals** (AeroEngr'13). ... The 50th anniversary of the CU Trivia Bowl, April 2-8, 2018, at CU's Village Center will include competitions for students and alumni, said organizer **Paul Bailey** (EnvDes'83; MA'94). Find out more at cutriviabowl.com.

BUFFS AT THE BUTTE

Graduates of the last decade are invited to kick off the spring ski season at the annual Buffs at the Butte weekend in Crested Butte, Colo., Feb. 23-25, 2018. Attendees stay in a slope-side condo and get a two-day lift ticket. Early-bird pricing is available through Jan. 31, 2018, for $275 a person. Register at colorado.edu/alumni.

FOREVER BUFFS ONLINE STORE

The Alumni Association's Forever Buffs Online Store has launched. Get signature CU-themed items including jewelry, clothing and gifts. Also available is the 2018 alumni wall calendar for $15 and the Forever Buffs wine. Visit colorado.edu/alumni/shop.

2018 TRIPS

CRUISE THE RHINE RIVER
June 27-July 5, 2018

TOWN AND COUNTRY CAMBRIDGE, OXFORD AND THE COTSWOLDS
July 6-14, 2018

CRESTED BUTTE TO ASPEN HIKE
Aug. 2-5, 2018

SCANDINAVIAN TREASURES
Aug. 18-29, 2018

TREASURES OF PERU
Aug. 27-Sept. 6, 2018

For more information about the Roaming Buffs travel program, email lisa.munro@colorado.edu, call 303-492-5640 or 800-492-7743 or visit colorado.edu/alumni.

Q&A WITH THE CHANCELLOR PHILIP P. DISTEFANO

DRIVING DOWN STUDENT COSTS

You made some major announcements in your fall State of the Campus speech about further reducing the cost of attending CU Boulder. What were the highlights?

I announced that we are eliminating $8.4 million per year in course-related and program fees for our students beginning next fall. The amount of the fees ranges from $1 per credit hour for German and Slavic languages to $1,255 per semester for the graduate clinical Speech, Language and Hearing Sciences program.

Does this cover all fees on their tuition bill?

There are still mandatory fees for select services like the rec center, the bus and bike program and student health services.

How can the university do this?

This money will come from increased revenue thanks to higher enrollment and improved student retention. This is complemented by savings from improved campus operating efficiencies. Our Board of Regents enabled this by endorsing a multi-year tuition guarantee so we could forecast our finances to see if we could eliminate these fees.

Refresh us on the tuition guarantee.

We have a guarantee for all incoming undergraduate students, which locks tuition and mandatory fees for four years.

You made some other headline announcements in your State of the Campus as well.

We introduced the new CU Boulder Impact Scholarship, which measures a qualified applicant's persistence to get to college despite economic circumstances. And we are supporting our student leaders in their effort to reduce textbook costs through Open Educational Resources — shared electronic educational materials. The campus is offering to pilot this program with up to $1 million. The hope is to eventually save students hundreds, if not thousands, of dollars a year.

You're calling these measures The Be Boulder Pact. What does that mean?

It is a pact with our students and their families to lower their cost of education. This pact helps them with financial planning and predictability, and it helps our students graduate on time with less debt. When I speak of student success, I mean success both as a student and as a graduate, something I'm very passionate about.

Illustration by Melinda Josie

Sports

News WINTER 2017 *By Jennifer Osieczanek*

Dominant Cross-Country Takes Pac-12 Title

COLORADO IS SYNONYMOUS WITH CROSS-COUNTRY EXCELLENCE

With a women's victory at the Pac-12 Championships in late October, the Buffs have won 10 of 14 conference team titles since CU and Utah joined in 2011.

Leading the way this fall was junior **Dani Jones** (IntPhys'20), who claimed the individual crown in the women's 6K race with a time of 18 minutes, 57.3 seconds. Jones, who was named the Pac-12 Women's Cross Country Athlete of the Year, is the first Buff to earn an individual cross-country title since **Jenny Simpson** (Econ, PolSci'09) won the Big 12 Championships in 2009.

"She was smart and patient," CU cross-country coach Mark Wetmore said of Jones. "She kept herself within the front the whole time and closed hard."

Kaitlyn Benner (ChemBioEngr, Soc'18) and **Sage Hurta** (ApMath, ChemBioEngr'19) also finished in the top 10 to lead CU to an 18-point victory over Oregon and Stanford, which tied for second. The win marked Colorado's third women's conference title in as many years.

CU's men finished second to Stanford by just six points, in what was essentially a two-team race. UCLA was a distant third, 56 points behind the Buffs.

Stanford's Grant Fisher won the men's 8K race in 23:44.9, with CU's **Joe Klecker** (BioChem'20) second, less than 4 seconds later (23:48.0).

Prior to 2017, the Colorado men had claimed all six of the Pac-12 team titles in cross-country.

"I think our men ran their best race of the year," said Wetmore. "We are smart and patient and ran really hard. We knew Stanford was coming in as a team that was a little under-ranked. It was a war and we lost by a couple of points, but I am real proud and happy."

The cross-country NCAA championship took place after the Coloradan *went to print. See colorado.edu/coloradan for an update.*

Photo by Gary Breedlove

Photo by Teresa Lee Photography

BOYLE QUESTIONS NCAA DECISION

Freshman forward **Evan Battey** (A&S'21) will take an academic redshirt for the 2017-18 men's basketball season after a ruling by the NCAA that he didn't meet the requirement of graduating from high school in four years.

Battey repeated ninth grade, partly because of "personal and family issues," CU coach Tad Boyle said.

"I'm extremely disappointed," Boyle told cubuffs.com. "It's a little bit ironic to me with all the things that are going on with college basketball ... North Carolina academic scandal, they lawyer up and fight the NCAA for two years and they win on a technicality. They get off scot free. There's an FBI investigation going on, there's been four assistant coaches [at other schools] that have been arrested by the FBI. As of today, nothing has happened to those four schools. No ramifications for those sorts of things. ... [But] Evan Battey gets punished."

Battey, who practiced but could not play during his senior season in high school because of the two-year stint in ninth grade, is trying to look on the bright side. "It will give me time to get my body in shape," he said.

BUFFS BITS **Dave Plati** (Jour'82), associate athletic director for sports information, ended his streak of 410 consecutive CU football games worked when he missed the Buffs' road game at Oregon State in October on account of health. ("I'll be fine," Plati said.) Plati's streak started Nov. 19, 1983, when the Buffs beat Kansas State. According to Plati, the record is likely 502 consecutive football games worked by the late Bob Bradley of Clemson. ... **Kaitlyn Benner** (ChemBio, Soc'18) earned the Pac-12 Women's Cross Country Scholar-Athlete of the Year award. She has a 3.93 GPA while majoring in chemical and biological engineering. ... **Kirsty Hodgkins** (MechEngr'20) was named the Pac-12 Women's Golfer of the Month in October. She claimed medalist honors as the Buffs won the team title at the CDA Resort Collegiate Invitational in Idaho. The men's golf team tied for the team title in its own Mark Simpson-CU Invitational.

STATS

3-0

Sweep by the Buffs for first-ever win against USC in volleyball

8

Number of newcomers on 13-member women's basketball team

14

School record for soccer shutouts in a season

19

Jersey number of Heisman Trophy-winning tailback **Rashaan Salaam** (Soc ex'95), retired by the Buffs Oct. 28

700th

Football win by the Buffs, notched in a 44-28 Homecoming game victory over Cal Oct. 28

HIGH EXPECTATIONS

In a preseason interview, CU men's basketball coach Tad Boyle addressed the value of boisterous fans, pick-up games with alumni in the NBA — and offered a formula for a Final Four team.

How has this program changed since you've been here?
I think the expectation level has changed, both internally and externally with our fans and alumni. People hopefully recognize Colorado Basketball as a legitimate contender in the Pac-12 Conference. I think there's an expectation that we are going to go to the NCAA Tournament. We haven't won a championship [Pac-12 Tournament] since 2012, so I would like to be competing for another championship at some point in the near future.

What are you most proud of?
We've really made a concerted effort to tie the eras of Colorado basketball together. If you're a former player, if you played for [former head coach] Sox Walseth, you're just as important to us as you are if you were **Derrick White** (Mgmt'17) and you just went to the NBA draft in the first round. It doesn't matter who you played for or where you played or how much you played, you're a Buff for life and we want you to feel welcome back at our games, in our office, at our practices.

Is there something you're still working on?
Oh yeah. A Final Four berth. Competing for a national championship. We're still working on winning a Pac-12 regular season championship. We're still working on a lot of things. Every day that I wake up and I come to work, I think 'What do I need to do today to make this place better than it was yesterday?'

What do you think are the missing pieces?
It all starts with recruiting. You have to recruit great players. I look at the players that we've had in the last seven years and — obviously, **Alec Burks** (A&S ex'13) was here when we got here, and **Cory Higgins** (Soc'11) — but we recruited **Andre Roberson** (A&S ex'14), we recruited **Spencer Dinwiddie** (Comm ex'15), we recruited Derrick White. We got **George King** (Soc'18) in the program. We recruited some very, very good players. It's funny, especially in the climate of Division I basketball now, with kids leaving early to go to the NBA, we haven't had any one-and-dones. But, Alec was a two and done, Andre was a three and done, Spencer was a three and done. If there's any way we can hit the cycle where we get three of those guys on one team, which we actually conceivably could have had with Alec, Andre and Spencer, that's what you have to have to get to a Final Four.

What does it mean to have Buffs NBA players coming back to campus interacting with the team?
It was awesome to have those three guys [Roberson, Dinwiddie, White] back for the Texas State [football] game. I think it made them feel very good and it certainly made our players feel really good. They had a chance to play pickup with our guys, and the pickup games, from what I heard, were as good and competitive as they've ever been. When you've got three NBA guys in the gym, everybody's game picks up a little bit.

How important is the student body for a home-court advantage?
They are the number one, most important thing for the Coors Events Center. I always say the student section is the heartbeat of our arena, and when they are here and they are engaged and they are loud and they are pumped up, it permeates through the whole building. Without them, there's something missing.

Is there something more that you can do to engage them?
I need to do more, because last year we had a drop-off in our student section. I think it was noticeable. Now, I'm not a marketing expert, I'm a basketball coach. I'm not a ticket salesman, I'm a basketball coach. But I am willing and I am able and I am eager. The first thing we have to do is win.

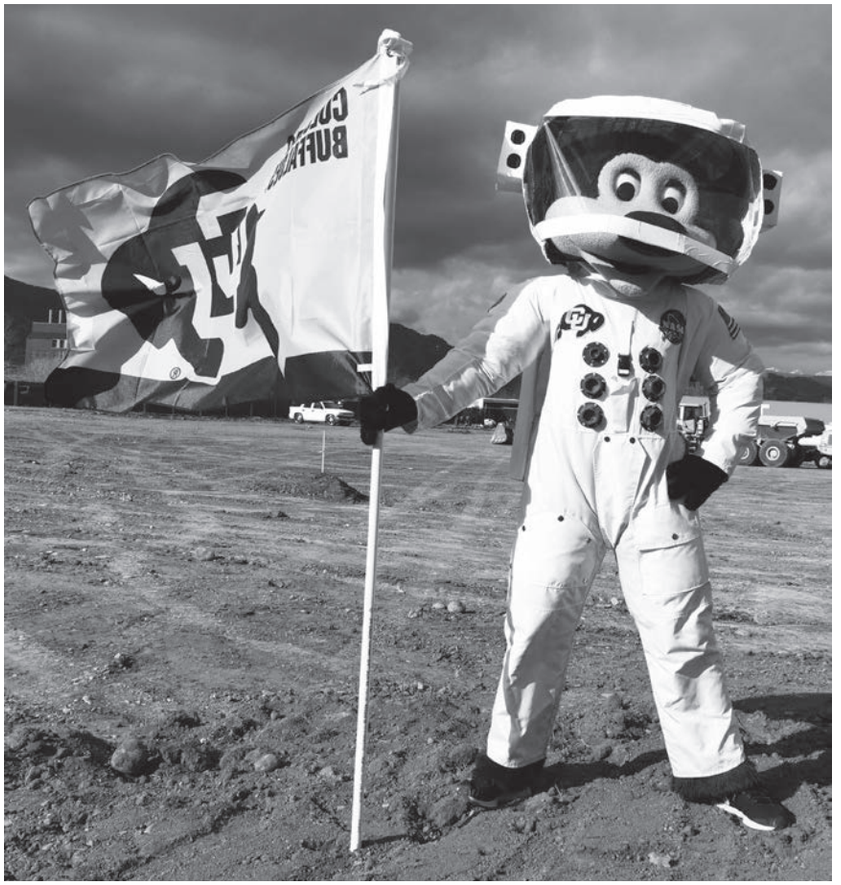
With programs on the rise throughout the CU Athletic Department, how does that impact men's basketball?
I think it's always good to be surrounded by excellence. And I'm extremely happy for all of those programs. That inspires me and it motivates me, and I definitely want to hold up our end of the bargain with men's basketball.

Condensed and edited by Jennifer Osieczanek.

Photo by Glenn Asakawa

CLASS Notes

40s, 50s, 60s & 70s WINTER 2017



Oct. 26, 2017: CU Boulder broke ground on a new, 144,000-square-foot aerospace engineering building on East Campus. Mascot Chip, game as always, suited up for the occasion.

'42 **Phyllis Gates Fenger** (Fren) finished writing *American Red Cross Nurse Beulah Feely 1917-1918*. The book is based on a diary of her cousin, Beulah Feely, a CU Anschutz College of Nursing graduate who was a Red Cross nurse in France during World War I. Phyllis donated the book to the National World War I Museum and Memorial in Kansas City, Mo. In July, Phyllis celebrated her 95th birthday at her home in Carpinteria, Calif.

'51 **Charles Eschenburg** (DistSt; MD'55) retired with wife **Carole Degen** (Nurs'54) to Hobe Sound, Fla. For 37 years Charles was a pediatrician in Delray Beach, where he also was active in the establishment of the Morikami Park and Gardens. Charles and Carole, who've been married for 62 years, have traveled extensively, including a four-month cruise around the world. They have two daughters, three grandchildren and two great-grandchildren.

READ THE OTHER DECADES OF CLASS NOTES ONLINE AT **COLORADO.EDU/COLORADAN**

"ex" indicates a nondegree and the year of expected graduation.

'52 Illinois native **Ralph Abelt** (Acct) is a retired banking executive who worked as CEO of Bank One in Cleveland in the 1980s and '90s. Earlier in life, he served in the U.S. Marines and was an active leader in the Boy Scouts of America in Northeast Ohio. He and wife Patricia are the proud parents of three children: Susan, Christopher and Leslie.

'56 **Alan Feuerstein** (Mktg) is founder and CEO of Web Editorial & Content Management, Inc. Earlier in life, Alan served as an intelligence officer in the U.S. Navy. Alan has lectured at New York University, University of Chicago and elsewhere on the use of the internet in web journalism and business strategy.

'57 After serving as an officer in the U.S. Navy, **George "Geoie" S. Writer Jr.** (Fin) returned to Denver and founded The Writer Corporation, a home building company. He's built more than 12,000 homes across the Front Range, and in 1978 was the youngest honoree as National Builder of the Year by *Professional Builder* magazine. George received the Alumni Association's 2017 George Norlin Award over Homecoming Weekend, which recognizes alumni who have demonstrated a commitment to excellence in their chosen field. Geoie has five children, eight grandchildren and five great-grandchildren.

WE WANT YOUR NEWS!

Write Christie Sounart, Koenig Alumni Center, Boulder, CO 80309, classnotes@colorado.edu or fax 303-492-6799.

'62 **F. Rodney Drake** (DistSt; MD'66) was president of his senior class in 1966. Following graduation, Rodney did a residency in psychiatry and a fellowship in child psychiatry. He is a past president of the Washington Psychiatric Society, the Child and Adolescent Psychiatric Society of Greater Washington and the Baltimore-Washington Psychoanalytic Society.

'64 **Jeannie Thompson** (Zool) writes: "**Jack** (Hist'64; MA'70) and I just returned from a wonderful People-to-People trip to Cuba with Ambassador **Vicki Huddleston** (A&S'64). Vicki led the American diplomatic mission in Cuba in the early 2000s and was our study leader on the trip." Jeannie, Jack and Vicki met with artist Martha Jiménez of Camagüey in her studio (pictured right).

'67 After a 42-year-long career in the oil and gas industry, **Svein Hasund** (MechEngr) dedicates much of his time in retirement to volunteering for CU Boulder. Svein received the Alumni Association's 2017 Leanne Skupa-Lee Award over Homecoming Weekend. The award recognizes passionate volunteers who serve CU and the Alumni Association. He and wife Pauline have been married for more than 50 years.

Marilyn Amelia Moore (MPE) was inducted into the Lebanon, Mo., Sports Hall of Fame. She competed in six sports from 1958-62 at Southwest Missouri State [now Missouri State University]. Marilyn was a pioneer in establishing girls sports programs in the public schools of Springfield.

Photo by Casey A. Cass

MARILYN AMELIA MOORE (MPE'67) WAS INDUCTED INTO THE LEBANON, MO., SPORTS HALL OF FAME.

She taught physical education and coached for 30 years at Hillcrest High School. Marilyn writes that retirement has brought time for RV travels throughout the U.S., working out at the gym, golfing and volunteering at church. She enjoys life in the Ozarks.

John E. Popovich Jr. (A&S; Law'71) retired after 31 years as a district court judge in the Seventeenth Judicial District in Colorado. In October, he received an award for judicial excellence from the Colorado Judicial Institute. John lives with his wife, Nancy, in Westminster, Colo.

'68 After CU, **Ron Scott** (Mktg) spent 14 years in the private sector, including a stint as general manager of Hotel Boulderado. He returned to CU in the '80s and served as the Buff Club's development director and as assistant athletic director, helping to raise $14 million for the Dal Ward Athletic Center. Ron received the Alumni Association's 2017 Alumni Recognition Award over Homecoming Weekend. The award recognizes alumni who connect, contribute and celebrate their CU pride through their extraordinary service to the university.

'70 **Lorrie Shepard** (MEdu; PhD'72), a distinguished professor and dean emerita who has been with CU for more than 40 years, received the Alumni Association's 2017 George Norlin Award over Homecoming Weekend. The award recognizes alumni who have demonstrated a commitment to excellence in their chosen field.

'71 **Tom Nelson** (Pharm) and **Linda McDermott Nelson** (Mktg'74) sold Pucci's Leader Pharmacy in Sacramento, Calif., after 37 years of ownership. Tom writes that in their retirement years they hope to visit all 59 U.S. National Parks and spend time with their two grandchildren.

'72 Over Labor Day weekend, the CU Men's Rugby Club celebrated its 50th anniversary with an alumni reunion in Boulder. The weekend's highlight was a match pitting alumni against current CU players. About 40 alumni from all five decades played in the match, including **David Bennet** (DistSt), who played for CU in the spring of 1969. Read more and see some photographs at colorado.edu/coloradan. Search the terms "rugby" and "reunion." Planning for the next rugby reunion, in 2018, has already begun. Email curugby@colorado.edu for details.

'75 **Barbara Cooke** (Psych; MBA'81), Los Angeles Forever Buffs chapter leader since its founding in 1988, received the Alumni Association's 2017 Leanne Skupa-Lee Award over Homecoming Weekend. The award recognizes passionate volunteers who serve CU Boulder and the Alumni Association.

'77 **Yusur Wajih Al-Madani** (MEngl; PhD'82), associate dean for academic affairs at Kuwait University, received the Alumni Association's 2017 George Norlin Award over Homecoming Weekend. The award recognizes alumni who have demonstrated a commitment to excellence in their chosen field.

Paul Criscuolo (Econ) has worked for 40 years in the beverage industry in the U.S. and Asia. He is the CEO of Aged Whiskey Man Consulting LLC, a Massachusetts company serving distilleries. Paul and wife Rhonda live in Massachusetts.

ADVENTURE DENTIST

JOHN WARNER HAS CLIMBED and skied mountains in the United States and abroad, raced motorcycles and mountain bikes and, by the way, also served as a mayor, search-and-rescue volunteer, orchestra backer and dentist-of-mercy in Guatemala.

If life is what you make of it, **Warner** (Bio'73) knows the drill.

As a CU Boulder student, Warner liked the natural sciences and initially planned to pursue medical school. But as an undergrad, he happened to work with a group of CU dentists who were pioneering a protocol to stimulate dental-bone growth using bone marrow that Warner harvested from cadavers. He went on to dental school instead, at CU's School of Dental Medicine, and later opened a practice in Breckenridge.

When Warner and his wife, Carre, moved there, Breckenridge was a lot smaller and his practice didn't keep him too busy. Civic engagement filled the gap. He led the Breckenridge Music Institute and volunteered for the Summit County Search and Rescue Group. He also founded the Summit Huts Association, a nonprofit that rents backcountry cabins, and served multiple terms on the town council and as mayor.

WARNER CHANNELS HIS ENERGY INTO COMMUNITY SERVICE.

After Hurricane Katrina in 2005, he provided free dental care in New Orleans' Ninth Ward. Later, he volunteered similar services in Guatemala.

The Guatemalans Warner treated lived far from dental clinics. Many had never seen a dentist. His patients sat on bags of grain while he mostly pulled teeth and filled cavities. He did this without basic diagnostic tools, such as an X-ray machine.

Like many Coloradans, Warner, who spent much of his childhood in Denver, answers to yet another calling: The outdoors.

He and some buddies have skied hut to hut in Austria, France, Switzerland, Italy and Canada. They've trained at Mount Rainier and climbed Denali and Aconcagua — North and South America's highest peaks, respectively.

Living at 9,600 feet gives Warner an edge at altitude, he said.

Recently, he completed the Double Triple Bypass, a cycling event in which he rode 220 miles and climbed 22,000 feet in two days.

He's also a seven-time finisher of the Elk Mountain Grand Traverse, a midnight ski race from Crested Butte to Aspen. In 2015, he and teammate Jack Wolfe became the oldest team — combined age: 123 — to complete the race.

In his mid-60s, he skied the Cristo Couloir, which tumbles down the southern flanks of Quandary Peak, a fourteener. He also skied down Torreys Peak, descending a route no more than 50 yards wide in spots, with rocks lining both sides.

That might sound like a daredevil stunt; Warner insists he's careful.

"I don't want to make a mistake," he said, adding that he doesn't want his former search-and-rescue colleagues to have to collect his body.

When not pushing limits on skis, peaks or bikes, Warner channels his energy into community service. It's "helped me professionally," he said, "and helped me be a better person."

*By **Clint Talbott** (Jour'85)*

Read a longer version of this story in Colorado Arts & Sciences Magazine *online. Search the terms "Warner" and "dentist."*

Photo courtesy John Warner

CLASS Notes

80s & 90s WINTER 2017

Oct. 26, 2017: CU Boulder broke ground on a new, 144,000-square-foot aerospace engineering building on East Campus. Mascot Chip, game as always, suited up for the occasion.

'81 The National Association of Corporate Directors and *Puget Sound Business Journal* announced **Colleen Birdnow Brown** (MBA) as 2017 Director of the Year.

Over Labor Day weekend, the CU Men's Rugby Club celebrated its 50th anniversary with an alumni reunion in Boulder. The weekend's highlight was a match pitting alumni against current CU players. About 40 alumni from all five decades played in the match, including **Pete Doody** (Engl), **Rich Frankenheimer** (Econ), **Dean Niro** (CivEngr'88), **Shane Brown** (AeroEngr'95; MS'99) and **Dan Hernandez** (InfoSys'98). Read more at colorado.edu/coloradan. Search the terms "rugby" and "reunion." Planning for the next reunion, in 2018, has already begun. Email curugby@colorado.edu for details.

READ THE OTHER DECADES OF CLASS NOTES ONLINE AT **COLORADO.EDU/COLORADAN**

'82 **Susan E. Seabrook** (Hist) joined the tax practice group of Eversheds Sutherland as a partner in the law firm's Washington, D.C., office. Susan was previously a partner in Buchanan Ingersoll & Rooney PC's D.C. tax controversy practice.

'83 In August, **Carol Pope** (Engl) of Petersburg, Ill., retired from the 4th District Appellate Court, to which she was named in 2008. Carol was a clerk to U.S. district judge J. Waldo Ackerman in Springfield, Ill., before becoming Menard County's state attorney in 1984. She and husband Al have two sons and four grandsons.

'84 North Carolina native and former NFL running back **Lee Rouson** (A&S) visited the McMichael Youth Football Camp last summer in Mayoden, N.C., to share some of his sports experience. While playing for CU in 1981, Lee earned Freshman All Big Eight honors. He played for the New York Giants from 1985 to 1991 and the Cleveland Browns from 1991 to 1992. Lee works as a motivational speaker for Sports World Ministries, traveling to U.S. schools and churches. He and wife Lisa have four children.

Chett Rubenstein (Acct) is a group lead and principal architect at Cloud Technology Partners. CTP was recognized as the world's leading enterprise cloud consulting firm and successfully completed a merger with Hewlett Packard Enterprise. In addition to helping large enterprise clients with cloud architecture, Chett oversees development efforts for the internal portfolio of software that supports overall service delivery.

Following the death of their son Corey Walgren at age 16, **Doug Walgren** (InfSys) and wife Maureen started a nonprofit in his honor. The mission of Corey's Goal is to honor Corey and his love of hockey by supporting hockey programs through gifts and open dialogue about how disciplinary practices in schools can better support the emotional well-being of students.

'86 **Nancy Daw Kane** (Dance) was appointed editor-in-chief of *National Dance Society Journal.* She is lead author of the article "Comparisons of Personality Dispositions and Genetic Inferences in Groups of Performing Artists," published in June in the *International Journal of Music and Performing Arts.*

Stephen Martin (MusEdu), former band teacher at Denver's D'Evelyn High School, was inducted into the Colorado Bandmasters Association's Hall of Fame. Steve and wife Roxanne have two daughters and two grandchildren.

Troon, a golf course management company in Scottsdale, Ariz., appointed **Tim Schantz** (PolSci) president.

'88 **Ellen Weihe Gorsevski** (Hum) was named chair of the communication department in Bowling Green State University's School of Media and Communication. Ellen writes that she and her husband are celebrating the four-year anniversary of the international adoption of their two wonderful children.

'89 **Michelle Ator** (PolSci) of Friday, Eldredge & Clark, LLP in Little Rock, Ark., has become a fellow of the American College of Trial Lawyers. She is the fourth woman in Arkansas to achieve this accomplishment since the organization's inception in 1950. The September induction ceremony took place during the ACTL Annual Meeting in Montreal, Quebec.

Marti Nault Schuham (Engl) climbed Mount Kilimanjaro in early September. She and husband Rick live in Illinois.

'91 **Kevin Keelan** (Mktg) was hired as a senior account executive at Virsys12, a healthcare technology firm based in Denver. Kevin and wife Kathleen have three children.

After CU, **Bart Lone** (MusEdu) taught music in Colorado public schools for three years. In 1994, he and wife Jeanette joined the U.S. Army Bands and were initially stationed in Bamberg, Germany. Jeanette left the army to raise their sons, Jason and Brandon. Bart served 21 years and retired in September 2015. Upon Bart's retirement the couple purchased two businesses in Grand Lake, Colo. — Grand Lake Wine & Spirits and Cabin Quilts & Stitches.

Lisa Mutschler (Law) opened the Denver-area real estate brokerage Expert Real Estate. She practiced law earlier in her career.

'92 **George Brauchler** (Econ, PolSci; Law'05), district attorney for Colorado's 18th Judicial District and a colonel in the Colorado National Guard, announced his run for state attorney general. In August he accepted the Freedom Award from the Department of Defense, the highest recognition of employers for their support of employees who serve in the National Guard and

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Photo by Casey A. Cass

MICHAEL WIRTH (CHEMENGR) HAS BEEN NAMED CHAIRMAN AND CEO OF CHEVRON CORPORATION.

Reserve. George and wife Marcia have four children.

'93 New Mexico native **Michael L. Connor** (Law), former deputy secretary of the Department of the Interior, joined Boston-based law firm WilmerHale. He focuses on environmental compliance, natural resources and Native American law. While not an enrolled member of the Taos Pueblo tribe that his grandfather was part of, Michael is considered the first person of American Indian ancestry to hold one of the Interior Department's top two posts.

'94 **Jennifer Alsever** (Jour) has spent the past two decades building a career in journalism, writing for the *Denver Post* and, for the last 13 years, as a freelancer for *Fortune Magazine*, *The New York Times*, *The Wall Street Journal, Inc. Magazine*, *Wired* and *Fast Company*. In 2017, Jennifer plunged into fiction, releasing the first two novels in a young adult trilogy, *The Trinity Forest Series*. Jennifer writes that she still freelances and lives in the mountains just outside of Vail. She enjoys reading, writing, mountain biking, skiing and yoga.

'95 In October **Bonnie Burton** (Engl, Jour) released *J.K. Rowling's Wizarding World: Movie Magic Volume Three: Amazing Artifacts*. The book features behind-the-scenes information and interviews with cast and crew about the props featured in all eight Harry Potter movies and in *Fantastic Beasts and Where to Find Them*. Bonnie is a contributing writer to CNET.com, *Make* magazine and *Journal of Alta California*. She lives in San Francisco.

'96 For just over 18 years, **John Augenblick** (MechEngr) has been with energy technology company Qnergy. John redesigned an engine that has been used in conjunction with solar dishes and is being redesigned to provide power in remote locations. The generator is being used in Europe, Asia and America. In his spare time he coaches youth hockey and lacrosse. He and wife Xaviara live in Utah.

'97 **Jeff Osterkamp** (MEngr), a senior Ball Aerospace executive and past chair of the advisory council for the engineering college's BOLD Center, received the Alumni Association's 2017 Alumni Recognition Award over Homecoming Weekend. The award recognizes alumni who connect, contribute and celebrate their CU pride through their extraordinary service to CU Boulder.

In September, the Banc of California announced the hiring of **Jason Pendergist** (Comm; MBA'00) as its executive vice president and head of real estate banking. Jason and wife Juliana have two children and live in California.

Alanna Rizzo (IntBus; MJour'03) finished her fourth season as the Los Angeles Dodgers' broadcaster for SportsNet LA. Alanna also is a passionate dog rescue advocate.

'98 Colorado native **Tim Barr** (Mktg) joined McCarthy Building Companies, Inc.'s Denver office as director of business development.

In July, **Andrew Hamilton** (CompSci) set his third Nolan's 14 record — a run over the 14 summits over 14,000 feet in Colorado's Sawatch Range, from Mt. Massive to Mt. Shavano — with a north-south time of 53 hours, 42 minutes. Andrew also holds a 2003 record for riding a bicycle from base to base of all of Colorado's fourteeners. He and girlfriend Andrea Sansone met while hiking a fourteener.

'99 In August, Vail Resorts named **Geoff Buchheister** (Fin) Keystone Resort general manager. Geoff was a three-time NCAA All-American racer on the CU ski team and grew up in Winter Park, Colo.

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PROFILE MARGOT HIRSCH

MAKING GUNS SAFER

Guns are controversial in America. There's no escaping that fact.

There's also no doubt that gun violence is widespread and catastrophic. October's mass shooting in Las Vegas, which killed 58 people at an outdoor country music concert and injured hundreds of others, is one gut-wrenching example.

Margot Hirsch (Class'82) believes there's a way to minimize the violence without wading deep into the fraught debate about legislative gun control.

"We aren't advocating to take guns away or to infringe on Second Amendment rights," said Hirsch, president of the Smart Tech Challenges Foundation, a nonprofit group that fosters innovation in firearm safety and raises awareness about smart gun technologies. "In fact, gun owners are our primary audience: They want to keep their families safe, too. This is all about new technology that would make firearms safer and help keep them out of the wrong hands, especially children."

Founded in 2013, the San Francisco Bay Area-based foundation favors a market-based — that is, not government-mandated — approach to gun safety. It has granted $1 million to entrepreneurs honing commercially viable smart guns and gun-safety solutions.

In general, smart guns are equipped with a safety feature restricting their use to specific individuals, as through biometric technology. Related safety innovations include various types of safes, locks and holsters.

"We still have a ways to go, but a future where we can prevent up to 20,000 injuries and deaths is possible, and that's exciting," said Hirsch, who previously had a 25-year career in corporate sales.

Annually, there are 20,000 injuries and deaths in the United States from accidental shootings and teen suicides alone. In all, there are 33,000 gun deaths domestically, according to the federal Centers for Disease Control.

"What most people aren't aware of is that of the 30,000-plus gun deaths per year, two-thirds are suicides," she said.

Given the emotionally charged nature of the gun debate, even Smart Tech's free market-based efforts to curb gun violence have found opposition, according to Hirsch, who said she and her colleagues underestimated the "pushback from the NRA and the gun lobby."

Additionally, she said, it's been harder than anticipated to raise capital for "innovators who are trying to bring these technologies to market."

The market for guns is not small. Americans own approximately 350 million of them and buy 10 million during "quiet" years, when there's no widely publicized mass shooting.

It's Hirsch's hope that investing in smart-gun technology will appeal to those who see an opportunity to make money while helping to make positive social change.

Many people, she said, simply don't know about the potential of smart-gun technology.

*By **Clint Talbott** (Jour'85)*

A longer version of this story is available in the online Colorado Arts & Sciences Magazine. *Search "Margot Hirsch."*

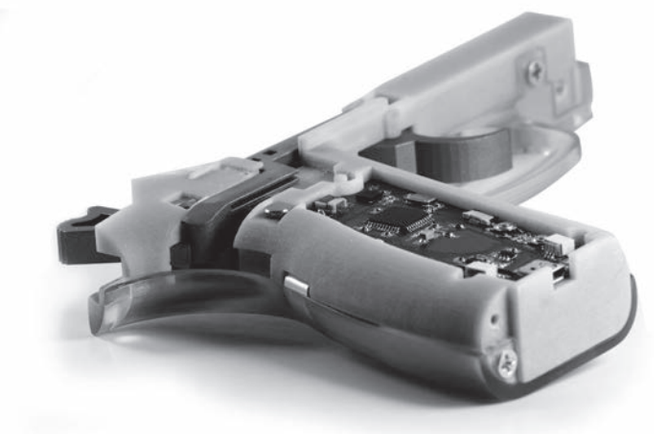

Photo courtesy Margot Hirsch

CLASS Notes

00s & 10s WINTER 2017

While traveling in Italy, Chancellor Philip P. DiStefano ran into **Jonathan Levy** (PolSci'06) and his wife, Jamie Garfinkel, who were on their honeymoon.

'00 **Sara Alan**'s (PolSci) debut young adult novel, *A Messy, Beautiful Life*, was released by Entangled Teen in October. The story is inspired by Sara's personal experience with a rare bone cancer in her twenties. She also is half of the comedy duo The Novelistas, which performs about writing and teaches performance to writers. Sara lives in Colorado with her husband and daughter.

In February, **Rebecca Neumann** (PhDEcon) won a Governor's Financial Literacy Award in Wisconsin for her efforts to increase financial literacy among the state's citizens. Rebecca serves on the board of directors for SecureFutures, an organization that empowers teens through financial education.

In August, Vail Resorts named Chicago native **Taylor Ogilvie** (Hist), currently the general manager of Wilmot Mountain in Wisconsin, as the new vice president of the company's urban ski areas. In addition to overseeing Afton Alps in Minnesota and Mt. Brighton in Michigan, he will continue working as the general manager at Wilmot Mountain.

Nicole Tobin (Art, Eng, Fren) and **Brian Wooton** (Acct'96) married in 2016. Nicole writes that the couple welcomed son Everett Wooton to the world in 2017 and will be sure to show his CU pride in his CU onesie. The couple lives in Fort Collins, Colo., where Nicole works at CSU.

'01 Scottsdale, Ariz., law firm Rose Law Group has named **Laura Bianchi** (PolSci) director of its cannabis department. Laura will continue to serve as the director of its business/corporate transactions and estate planning departments.

Over Labor Day weekend, the CU Men's Rugby Club celebrated its 50th anniversary with an alumni reunion in Boulder. The weekend's highlight was a match pitting alumni against current CU players. About 40 alumni from all five decades played in the match, including **Dan Bludeau** (Hist'01), **Jeff Sorenson** (MCDB, BioChem'01), **Eric DeKruif** (AeroEngr'03), **Chad Slaby**(Comm'03), **Marc McGinn** (Bus'04) and **Charlie Barkmeier** (Econ'15). Read more at colorado.edu/coloradan. Search the terms "rugby" and "reunion." Planning for the next reunion, in 2018, has already begun. Email curugby@colorado.edu for details.

Olympic runner **Kara Goucher** (Psych) has launched a post-workout recovery fashion line with the athletic apparel company Oiselle. Kara graduated from CU with three Division I NCAA championships in cross-country, the 3000m and 5000m. Kara and husband **Adam Goucher** (Comm'98) have a son, Colton.

'02 **Catherine Guzelian Bazile** (Mus, PolSci), formerly a member of the energy group at Holland & Hart LLP in Denver, has opened a private practice, Summit Energy Law LLC, in Englewood, Colo. The firm will specialize in matters pertaining to oil and gas title and transactional work.

Tucker Hamilton (AeroEngr) and **Aaron Frey** (AeroEngr'02; MS'03) are both F-35 test pilots at Edwards Air Force Base in California. Tucker and Aaron are two of a handful of people testing all three variants of the F-35 Joint Strike Fighter. Aaron is a major in the U.S. Marine Corps; Tucker serves in the Air Force. The friends grew up together in Evergreen, Colo., and played basketball on the same middle school team.

Emmy-award winning producer **Alexis Martin Woodall** (Film) was nominated for a 2017 Emmy for her work on *Feud: Bette and Joan*. Alexis has won Emmys as a member of producing teams for *The Normal Heart* and *The People v. O.J. Simpson*. She and husband Dave recently opened a restaurant, Red Herring, in Eagle Rock, Calif.

'03 After working with film studios in Los Angeles after graduation, **Mike Callahan** (Film) transitioned to the wine industry. He joined Chamisal Vineyards in California as a winemaker in 2014 and has helped start a sustainability project there. Mike writes that he stays busy with various winemaking projects, one of which involved partnering with OneHope wines to produce wines for charity.

James Robertson (Mktg), an attorney at California-based law firm Downey Brand, was named a 2017 Top Lawyer by *Sacramento Magazine*.

'04 Film editor **Nick Houy** (Art) won the 2017 Emmy Award for Outstanding Single-Camera Picture Editing for a Limited Series or Movie for the miniseries *The Night Of.* Nick lives in New York.

PRODUCER **ALEXIS MARTIN WOODALL** (FILM) WAS NOMINATED FOR A 2017 EMMY FOR HER WORK ON *FEUD: BETTE AND JOAN.*

READ THE OTHER DECADES OF CLASS NOTES ONLINE AT **COLORADO.EDU/COLORADAN**

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Photo courtesy Chancellor Philip P. DiStefano

In August, attorney **Patrick A. Salvi II** (Mgmt) won a record-breaking $148 million jury award for a young woman who was paralyzed when a pedestrian shelter outside O'Hare International Airport collapsed on her in 2015. It is the most a jury has awarded in a personal injury case against the city of Chicago, the *Chicago Tribune* reported.

'05 In August, Massachusetts native **Kendra Tupper** (MCivEngr) was named Boulder's new chief sustainability officer. She worked as the city's energy services manager for the past three years.

Lindsey Levick Zai (IntlAf) joined the Low Impact Hydropower Institute in Massachusetts as a program coordinator. Lindsey brings with her previous conservation experience, including her time with The Wilderness Society in its Washington, D.C. and Boulder offices.

'06 On Aug. 25, Colorado 18th Judicial District Chief Deputy District Attorney **John Kellner** (Law) accepted the Freedom Award from the Department of Defense, the highest recognition of employers for their support of employees who serve in the National Guard and Reserve. John is a major in the U.S. Marine Corps Reserve.

In October, Tennessee governor Bill Haslam appointed **Mary Wagner** (PolSci) as a Circuit Court trial judge for Shelby County, Tenn. Mary is currently the youngest such judge in the state.

'07 Former Marine Corps captain **Siddhartha Rathod** (Law), a defense attorney and founding partner of Rathod Mohamedbhai LLC in Denver, received the Alumni Association's 2017 Kalpana Chawla Award over Homecoming Weekend. The award recognizes outstanding career achievement, as well as significant contributions to the community or the university within 15 years of graduation.

'08 On Sept. 9, **Kate Goltz Moulton** (Psych) and **Kevin Moulton** (Biochem, MCDBio'08) were married at the Sunrise Amphitheater in Boulder. The couple dated for 11 years after meeting their junior year at a party on The Hill. Officiant **Jared Leidich** (AeroEngr'09) also graduated from CU.

'09 **Teju Ravilochan** (IntlAf), a *Forbes* 30 Under 30 social entrepreneur and co-founder of the Unreasonable Institute, now known as Uncharted, a Denver-based incubator for entrepreneurs, received the Alumni Association's 2017 Kalpana Chawla Award over Homecoming Weekend. The award recognizes outstanding career achievement, as well as significant contributions to the community or the university within 15 years of graduation.

'10 After graduating, **Tiffany Gambardella** (MusEdu) took a job teaching music at Lompoc Valley Middle School in California, where she's in her fifth year of teaching. She connected with **Wayne Asbury** (MusEdu'72), a music teacher retired from the school and fellow Buff. Tiffany enjoys that they both attended college at CU and ended up teaching at the same middle school in California.

'11 **Michael Bishof** (MPhys; PhD'14) and Cynthia Pekron recently welcomed their third son, Ignatius "Indy" Charles Bishof. Indy was born in August in Elmhurst, Ill. He joins big brothers Casimir Patrick and Ronan Thomas.

'13 In June, former Buffs track and field athlete **Aric Van Halen** (Film) competed in the steeplechase at the USA Track and Field Championships. Last year he made it to the Olympic trials. Aric lives in Boulder.

'16 Filmmaker **Eric Stewart** (MFA) is working on *Off Country*, an experimental documentary film and oral history archive that examines the nuclear landscapes of three regions in the West — the former Rocky Flats Plant, the White Sands Missile Range and the Nevada Test Site.

'17 In September, **Rudy von Berg Jr.** (Mktg) and his father, Rodolphe von Berg, competed in the Ironman 70.3 World Championship in Chattanooga, Tenn. It was the first time that a pro (Rudy) and his father competed in the same 70.3 championship. Rudy placed 13th overall; Rodophe placed 2nd in the 60-64 age category.

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PROFILE JILL SEUBERT

ONE SECOND

By Aug. 5, 2012, **Jill Seubert** (PhDAeroEngr'11) and her team at the Jet Propulsion Lab (JPL) in Pasadena, Calif., had done everything possible over years, months and hours to ensure their calculations and directions were correct. As Curiosity, NASA's Mars lander, approached the red planet's atmosphere, all they could do was wait.

Their main task was to make sure a satellite orbiting the planet was in a position to communicate with Curiosity.

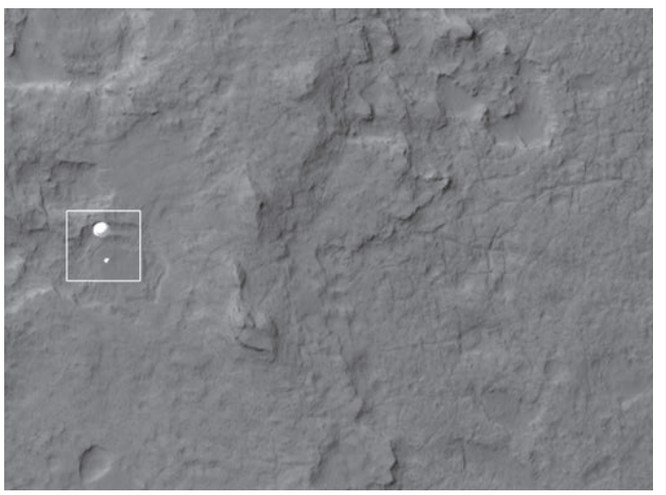
"That's hard enough to do," said Seubert, 34, one of the operation's navigation and mission design engineers, "but we were also challenged to take a picture of Curiosity right as its parachute opened."

The window of opportunity would last one second.

Curiosity sent immediate confirmation of its landing — a photo of Mars' surface from its own camera — but it would be hours before Seubert's team's picture of the descending craft would transmit.

Once it did and she saw the tiny parachute's swell floating above massive Martian terrain, relief and elation swept over her.

"I can't believe that I was one of the many people that played a role in making that picture happen," she said.



The image (right) made *The New York Times*.

Seubert grew up in a scientific household in Sugarloaf, Penn., the daughter of an engineering professor and a mathematics teacher. She avidly consumed adventure stories, both fictitious and historical, from Indiana Jones to Ponce de Leon.

"I always thought that quicksand and piranhas were going to play a much larger role in my adult life," she said. "It wasn't until I was in a room and there are images being broadcast back from Curiosity and my eyes are some of the first human eyes seeing [them], it hit me: I am one of those explorers."

After studying aerospace engineering at Penn State University, Seubert worked for the Air Force Research Laboratory, where she was introduced to the world of spacecraft navigation. Her trajectory to CU was settled during a campus visit, when she connected with aerospace engineering professor Penina Axelrad, her future adviser.

She also met future husband **Carl Seubert** (PhDAeroEngr'11), an Australian with similar career ambitions. Today Carl also works at JPL.

These days Seubert is at work on two new Mars missions. Insight, launching in 2018, will land and then drill into the surface, gathering seismic, thermal and other data. Mars Science Mission, launching in 2020, will rove Mars' landscape measuring surface materials and caching samples, primarily seeking signs of ancient life.

Seubert also is deputy principal investigator for the Deep Space Atomic Clock — an unprecedentedly stable and accurate space-suitable clock intended to aid spacecraft navigation and autonomy.

Her highest hopes remain an explorer's.

"I'd love to be part of the mission that does find evidence of life, whether it be ancient life or current life. To finally be able to answer the question, 'Are we alone or are we not alone?'"

*By **Beebe Bahrami** (MCDBio'86)*

Photo courtesy NASA/JPL-Caltech/Univ. of Arizona.

In Memoriam

Lillian McCollum Hale (PE'40)
Ann Rayner Wood (Psych'40)
Margaret Springstead Archambault (PE'41)
Edna M. Falk (Engl'41)
William F. Dobbs (ChemEngr'43)
Eric E. Conn (Chem'44)
Philip R. Denham (MechEngr'44; MA'48)
Jean Scogin Prodger (Jour'44)
Glenis Sonnenberg Schmidt (DistSt'44)
Leroy R. Cain (MechEngr'45)
Maurice H. Gardner (CivEngr ex'45)
Dorothy Hoover Landrum (A&S'45)
M. Alan Brown (Chem'46)
Thomas A. Hanzo (A&S'46)
Muriel Blumenthal Holmes (A&S'47)
Jenny Marshall Jankovsky (A&S'47)
Amos B. Ownbey (DistSt'47)
Philip G. Serafini Jr. (A&S ex'47)
Patricia Bramson Condren (Zool'48; MA'50)
Keith J. Ebner (CivEngr'48)
Lois Rowe Petre (Soc'48)
Marjorie Ellen Pryor (Math'48)
William H. Walter (AeroEngr'48)
Gordon E. Bangs (ChemEngr'49)
Erwin C. Cramp (ChemEngr'49)
Lewis E. Hiigel (MusEdu'49; MS'50)
Robert M. Twedt (MBiochem'49; PhDMicro'52)
Arthur S. Boss (A&S'50)
Robert C. Brictson (Jour'50; MA&S'53)
Ronald K. Brown (Mktg'50)
Gloria J. Domann (A&S'50; MJour'76)
Richard C. Funk (Mgmt'50)
Joe O. Horace (Mgmt'50)
Aileen Kelly Mumford (A&S'50)
Georgia Woelbing Vavra (Soc'50)
Evelyn Fisher Wagner (Engl'50)
C. Owen Allen (Jour'51)
Glenn E. Cottrell (MechEngr'51)
Keith C. Jones (MechEngr'51)
Phyllis Forsling Miller (Advert'51)
Kenneth H. Neldner (MA&S'51)
Robert C. Olson (A&S ex'51)
Margaret Ellison Richards (A&S ex'51)
Jerome V. Whisler (Pharm'51)
Carroll L. Chilton (Mus'52)
Mendel F. Cohen (A&S'52; MA'58)
Edythe Patton Cottrell (Edu'52)
Norma E. Dalton (MPE'52)
Joan Cooley Kiefer (A&S'52)
John M. Miller (A&S ex'52)
Mildred Kroeger Norstadt (Nurs'52)
George W. Powell (Acct'52)
Donna Betasso Smith (Advert'52)
Eugene N. Catalano (ArchEngr'53)
Gerald D. Dyer (PE'53)
Robert M. Saucerman (Advert'53)
Altona Fowler Alexander (BusEdu'54)
John C. Reinhardt (MechEngr'54)
Richard E. Burnett (MEdu'55; EdD'63)
Leonard B. Hartwich (ArchEngr'55)
Mary VanWinkle Nelson (Edu'55)
Betty Korslund Sherrill (HomeEcon'55)
Roscoe M. Bolt Jr. (Mgmt'56)
Jerome S. Desanto (Geol'56)
Jane Haas Gillenwaters (A&S ex'56)
Mary L. Hovland (Nurs'56)
Laurin R. Johnson (A&S ex'56)
Sue Sivers Pfutzenreuter (Mktg ex'56)
Harvey A. Averch (A&S'57)
Bill B. Chandler (Mgmt'57)
Fred M. Greenberg (Mktg, Pharm'57)
Margaret Heinricy (MusEdu'57)
James P. Jackson (Law'57)
Barbara Rathgeber Jacob (A&S'57)
William L. Jones (Law'57)
Mary Mahoney Maxwell (A&S ex'57)
John G. Peterlin Jr. (MechEngr'57)
Rush B. Studinski (Mgmt'57)
Beverly Erwin Wilson (A&S'57)
C. Merrill Hough (MA&S'58)
Karen Leonhard Kelsch (Mus ex'58)
Richard H. Pearl (Geol'58)
Henry C. Smith Jr. (ElEngr'58)
Thomas L. Canino (IntlAf'59)
Pauline Thellin Dahlquist (A&S ex'59)
Jay I. Dyer Sr. (MA&S'59)
Dale C. Farmer Sr. (MPE'59)
Susan Spence Liberty-Warwick (Psych'59)
Donna Carl Oster (Nurs'59)
Leo R. Smith (CivEngr'59)
Clarence W. Watkins Jr. (A&S ex'59)
Lois M. Deer (A&S'60)
Jerald R. Hirsch (MusEdu'60)
Billy E. Wood (ChemEngr'60)
Mary J. Armstrong (MA&S'61)
Donald L. Foiani (ElEngr'61; MA&S'62)
James L. Gardner (A&S'61)
Lewis L. Gay (AeroEngr'61)
Lou Gomez (A&S'61)
Mary V. Harrison-Ranson (A&S ex'61)
John O. Maberry II (Geol'61)
Allen L. Mandel (A&S'61)
M. Eugene Norman Jr. (A&S'61)
Thomas A. Siratovich (A&S'61)
Isaiah Trice (MPE'61)
Margaret E. Walsh (MNurs'61)
K. C. Eapen (PhDA&S'62)
Howard C. Greenwood (Law'62)
James R. Heffley (Law'62)
Lawrence W. Ketter (AeroEngr'62)
Richard A. Rossmeisl (EngrPhys'62)
William D. Thomas (A&S ex'62)
Noel E. Wilson Jr. (MMgmt'62)
Wolfgang H. Berger (MGeol'63)
Leslie O. Carson (A&S'63)
Jeff D. Chalk (PhDPhys'63)
Harry W. Gandy (Fin'63; MBA'64)
Shirley Holaway Troyer (A&S'63)
Ronald T. Adams (A&S'64)
Charles O. Bush (MechEngr'64)
James M. Daily (DBA'64)
Ardis E. Kirby (A&S ex'64)
Walter Nilsen (MusEdu'64)
Sandra Fuchs Stein (Edu'64)
Aubrey D. West (Hist'64)
Mary Mummery-Imhof (Nurs'65; MS'68)
Mary Phillipp Pollart (MusEdu'65)
John H. Read (CivEngr'65)
Ronald G. Smith (A&S'65)
William W. Willis Jr. (PolSci'65)
Roy T. Wortman (MHist'65)
James R. Sinley (A&S ex'66)
Paul R. Taylor (MPE'66)
John W. Braden Jr. (A&S'67)
M. Edward Burns Jr. (Acct'67; Law'72)
Brian N. Johnson (Hist'67)
John H. Waller (MElEngr'67)
Ralph T. Will (PhDBus'67)
Rudolf Kreb (Ger'68; MA'71)
Joseph F. Meyer (Engl'68)
Barbara S. Walker (A&S ex'68)
Eugene G. Berthod (A&S ex'69)
Judith I. Dveirin (Nurs'69)
Gary G. Ferguson (PhDPharm'69)
Mary Shields Graham (DistSt'69)
Randall A. Karsh (Acct'69)
Michael W. McNierney (Engl'69)

To report a death, call 303-541-1290 or 800-405-9488, email records@cufund.org or write Records Management, 10901 W. 120th Avenue, Suite 200, Broomfield, CO 80021. Please include date of death and other relevant information.

Photo by Glenn Asakawa

Madeline J. Bean-Nelson (MEdu'70)
John D. Harper Jr. (MPubAd'70)
Wesley W. Potter (Geog'70; MBio'74)
Gerald M. Snyder (MHist'70)
Stan B. Stanfill (Law'70)
Robert W. Stout (ArchEngr, RelEst'70)
Jon J. Wiegardt (A&S ex'70)
Willard S. Rutledge (PolSci'71)
Myron L. Solid (EdD'71)
John A. Collom (Engl'72; MA'74)
Dennis R. Devor (Fin'72; MPubAd'76)
William G. Porte (Mktg'72; MBA'73)
Henry L. Harris (MTeleCom'73)
Michael G. Noakes (A&S ex'73)
Robert D. Taylor (PhDAcct'74)
Russell H. Yeany (EdD'74)
Harriet H. Earley (MEdu'76)
Barry S. Engel (Acct'76)
Charlotte Wertz Garcia (MEdu'76)
Joseph J. Koch (MPubAd'76)
Lawrence S. Skiffington (PolSci'76)
Walter K. Christy (EdD'77)
Steven M. Kolesar (Geol'77)
Susan Schaw Pommer (Econ'77)
Beverly Esenwein Seeds (MEdu'77; MA'89)
Fay Jeffries Tracy (Anth'78)
James M. Wood (Phil'78)
Guido P. Meyer (EPOBio'79)
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Letters

WINTER 2017

ALL ABOUT RALPHIE

The story on Ralphie was fun to read. Since you invited readers to supply more details, you may be interested in how Ralphie got her name. She was named after **Ralph Wallace** (Hist'68), who I think was the CU junior class president at the time. Whether he campaigned for the distinction, let alone this form of immortality, is debatable. My acquaintance with Ralph arose as we competed for the attentions of the same Southern belle when we all attended St. Aidan's Episcopal Church just off campus. Again, thanks for the great story and the wonderful memories it provoked for some of us.

Kirk Rider
(Engl'67)
Grand Junction, Colo.

TOP The opening illustration of our fall 2017 issue, by Drew Litton.

BOTTOM Trading card Ralphies, also from the fall issue. Test your knowledge!

EDITOR'S NOTE

THERE ARE SEVERAL TALES IN CIRCULATION ABOUT THE ORIGIN OF RALPHIE'S NAME. IF YOU'D LIKE TO SHARE YOURS, WRITE US AT EDITOR@COLORADO.EDU.

The Ralphie Issue [fall 2017] is fantastic! Thank you for doing such a great job!

Nancy Kane
(Art'86)
Brooktondale, N.Y.

As a CU alumnus I recall with nostalgia Ralphie's running at CU football games in the 1980s during my wonderful undergraduate years. But it's nearly 2020: This 1960s-era practice befits neither CU nor buffalo, which are not pets. Today's Ralphie would be better served by being visited in her natural habitat by CU students and the public at a natural environment educational venue. It could feature the bison's important role in both Native American history and in CU's football history. Free Ralphie!

Ellen W. Gorsevski
(Hum'88)
Bowling Green, Ohio

I was not aware that the current issue of the *Coloradan* was going to be "The Ralphie Issue." I would have submitted the Ralphie story that beats all others. Thanks for rekindling the memory of all our beautiful mascots.

In 1969, as a member of the Golden Buffalo Men's Marching Band, I happened to find myself in the north end zone of Folsom Field, alone with Ralphie prior to our pre-game performance. It was a surreal moment, but I was immediately drawn to her trailer. There we were, alone in front of 50,000 people with what felt like a spotlight on us. I went over and pressed my eye to the grate, and she did likewise while wagging her tail. There we were, our eyes mere inches from each other. I will never forget that big, beautiful eye and that tiny tail! I felt compelled to say something. I said, "You are a beautiful and magnificent creature, Ralphie. Thank you for sharing your planet with us." She replied, "You are a kind and gentle soul, Joe. You come with good intentions." I so longed to enter her trailer and give her a big hug.

Up to that moment, I did not know anything about spirituality or animal communication, but I have since learned a lot about both. That incident started me on a spiritual journey with the universe that continues to this day. I remember her words, and have striven to be the kind and gentle person she recognized and to be true to my soul. It started with my becoming an ardent protector of animals, something that continues to this day. I have struggled to overcome my ego, which is, indeed, a lifetime battle. I have always considered that moment in my life to have been a gift from God.

Joe Felice
(Span'72)
Aurora, Colo.

OPEN SPACE IN AURORA

I always enjoy **Paul Danish**'s (Hist'65) column, but this time he goofed. He said that without its open space, Boulder would look like Aurora! Has he been to Aurora, the third-largest city in Colorado?

Aurora has 14 open space areas with a total of 5,414 acres — he could Google it.

Charlotte Faris
Aurora, Colo.

GETTING SOCIAL

A sampling of readers' online reactions to the fall issue:

Upon seeing Drew Litton's Ralphie cartoon depicting the buffed-up mascot in a cape, **Shelly McCune Greenwood** (Bus'81; MEdu'00) responded on Facebook: "She's looking great for her age!"

After reading **Andrew Daigle**'s (PhD Engl'16) story on Buffs' senior tailback **Phillip Lindsay** (Comm, Soc'17), @rensch025 tweeted: "Nice little write-up on @I_CU_boy [Lindsay] in the *Coloradan*. Class on and off the field! #gobuffs.

On Facebook, CU Boulder staff member Michelle Bell said, "Humble, positive, talented and kind...He makes all of us so proud!"

Responding to the Q&A with Ralphie Runner **Rachel Edson** (Soc'18), Facebook commenter Debra Price wrote, "We were very honored to be invited to one of Ralphie's practices recently, where I met Rachel. She clearly loves Ralphie and what she's doing. Both Rachel and Ralphie are great ambassadors for CU."

SOCIAL BUFFS

On Halloween, an eerie mist clung to the Flatirons. **Mark Malin** (EnvCon'83; PhDSpan'96) wrote on CU's main Facebook page: "How many other campuses have a view like that? None!"

LIST OF 10

10 MOVIES MENTIONING OR FILMED IN BOULDER

1. ***The Big Short,*** **2015**
2. ***Enlighten Up!,*** **2009**
3. ***The City of Your Final Destination,*** **2009**
4. ***Catch and Release,*** **2006**
5. ***About Schmidt,*** **2002**
6. ***Cannibal! The Musical,*** **1996**
7. ***American Flyers,*** **1985**
8. ***Sleeper,*** **1973**
9. ***Downhill Racer,*** **1969**
10. ***The Glenn Miller Story,*** **1954**

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Coloradan

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Photo by Glenn Asakawa

THEN

1918

The United States entered World War I early in 1917. University students and professors across the country enlisted. Campuses became military training grounds.

When peace came in late 1918, an estimated 1,000 Coloradans were among the dead, including 55 CU Boulder alumni. Their names are inscribed in the University Memorial Center and carved into the walls of what today is the economics department building.

1

ROTC Band on the quad.

2

Medical detachment. Many fraternity houses were converted to barracks and medical facilities. This house was likely the medical group's home.

3

Student Army Training Corps linemen and concrete workers. East side of Gamble Field (current site of the UMC).

4

Outside barracks, east side of Gamble Field, near the old engineering shops.

Photos courtesy CU Heritage Center