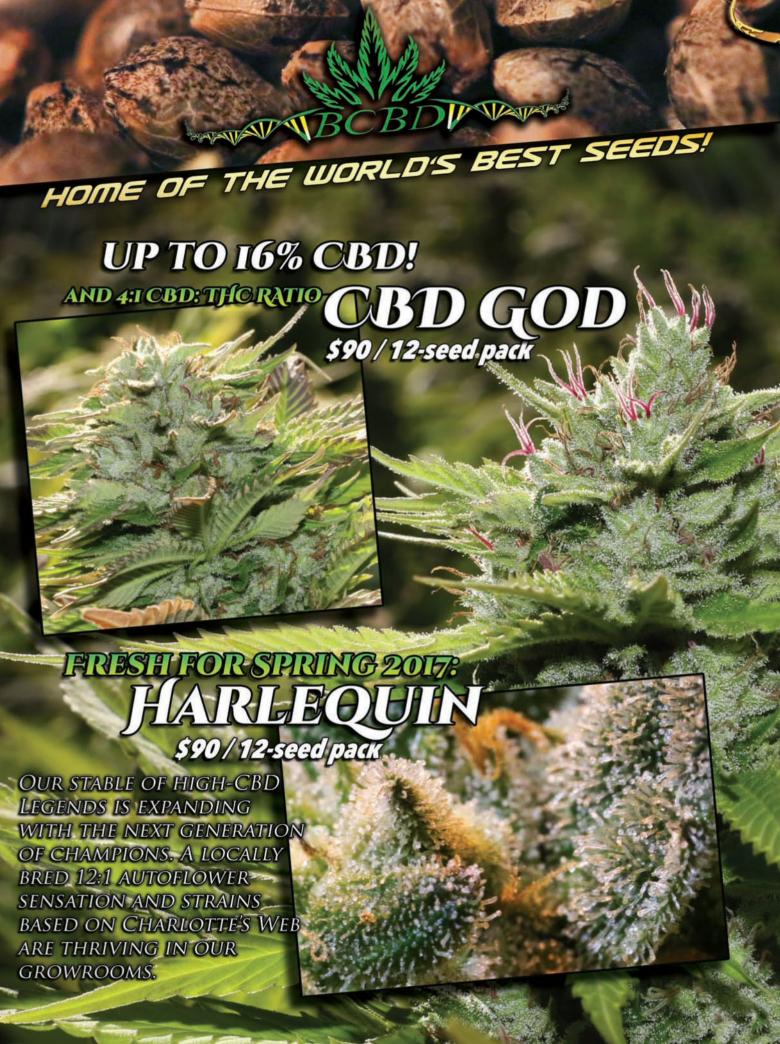
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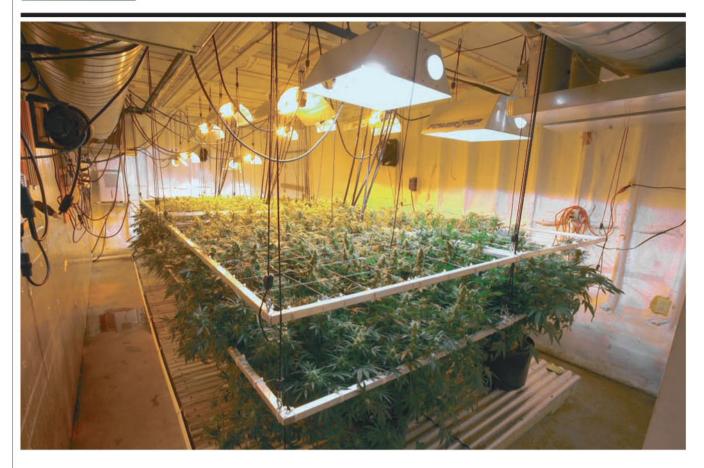
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"It's now time more than ever to work at the local level to expand the testing and research on medical cannabis. It's my hope that the laws are as liberal as possible, and that they work to protect the small farmer and pot patients and health sovereignty first!"

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Voters passed cannabis legalization-adult use or medical-in eight out of the nine states that had a marijuana measure on the ballot in November. But will Donald Trump and his minions try to pull legalization up by the roots? By Madison Margolin

60 Healing Field

47 Weed Wins! So Now What?

In southeastern Colorado, an impressive crop of CBD-rich cannabis has just been harvested. High Times takes you to meet the transplanted marijuana farmers behind this vast acreage of medicine. By Dan Skye

68 New England's Patriot Pot Growers

HT's senior cultivation editor visits four separate gardens in the Northeast, where medical marijuana growers are using tried-and-true techniques to create some of the strongest and tastiest cannabis on Earth. By Danny Danko

83 The Great Green North

Get the inside story of how Justin Trudeau made cannabis legalization a major plank in his run for Canadian prime minister, and what to expect when he pushes forward on that promise this spring. By Kelly Coulter

92 CBD: The Cinderella Molecule

How does the federal government justify its ongoing prohibition of CBD-rich cannabis, a medically effective substance with no adverse side effects that doesn't even get you high? Here's everything you need to know about this miraculous cannabinoid. By Martin A. Lee

101 The High Times Interview: B-Real

We caught up with the hip-hop legend while on tour with Prophets of Rage to discuss his smoking habits, his legacy in the realm of rap and weed, and why the world needs a band like the Prophets now more than ever. By Drew Millard





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Glass Artist of the Month:

Steven Hulsebos

Steven Hulsebos (@stevehglass) began his career operating a smoke shop in Phoenix, AZ. Although he stocked his store with hand pipes, his ultimate goal was to be the artist. Once he got into glassblowing, he started selling his own pipes at the shop—but after he could support himself as a glass artist fulltime, he ditched the retail business altogether.

At first, Hulsebos created patterns to put on the ends of his pipes. "When I focused on patterning, I found my niche in glass," he recalls. Since then, he's spent six years behind the torch. "The greatest thing about art is that you never stop learning," Hulsebos says. "Some of my favorite work is collaboration: When two people have something unique to bring to the table, they can make something that neither would make on their own.

"This has become much more than just a job for me—it's become my passion. I love creating something that other people can enjoy. I think creation is one of the most beautiful things." Check out Steve's work at hightimes.com.





On Instagram

Not all throwback posts are created equal. Take, for example, the Instagram efforts of renowned cannabis breeder, cultivator, author and educator Mel Frank. Winner of the 2016 Dr. Lester Grinspoon Lifetime Achievement Award, Frank has been growing marijuana for the last six decades and often treats his followers to throwback shots of pot gardens past. Here we have a lush guerrilla grow from September 1982, hidden in a wooded area in New York. Follow @ melfrank420 for more!

Smoking Poll

While we're still celebrating a historic election in which voters overwhelmingly approved cannabis in eight states, it's important to remember that growing pains are inevitable on the road to full legalization. Many states with new and existing pot laws are now grappling with the question of how best to quantify "stoned driving" and lawmakers with little cannabis knowledge are currently attempting to set legal limits. *High Times* readers know a thing or two about the effects of pot, so we decided to ask them how they think stoned driving should be addressed.

Most of our respondents (42 percent) answered that they don't think stoned driving is a real problem—unlike drunk driving, a proven killer. The most popular preventive measure was educating people on the effects of pot and driving (25 percent), which narrowly edged out field sobriety tests (24 percent); meanwhile, setting a one-size-fits-all blood-level nanogram limit came in last, with just 8 percent of the vote. *Take our latest poll online at hightimes.com!*





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@JimilsDead: @HIGH_TIMES_ Mag if you are a lightweight maybe don't get behind the wheel but an experienced smoker can drive fine stoned

@rayDaGod1: @HIGH_TIMES_ Mag ppl sitting in jail for selling some weed should be freed and given a grant to start weed dispensary.

@jalm257: @HIGH_TIMES_Mag The Pot TRAIN could still go off the tracks & do a lot of damage. Hopefully it won't derail

@KevinBoutilier0: @HIGH_ TIMES_Mag. Not right, NFL needs to start learning about CBD, benefits can be amazing

@Buddisle: @HIGH_TIMES_Mag Reefer Madness really must go away now, seriously.

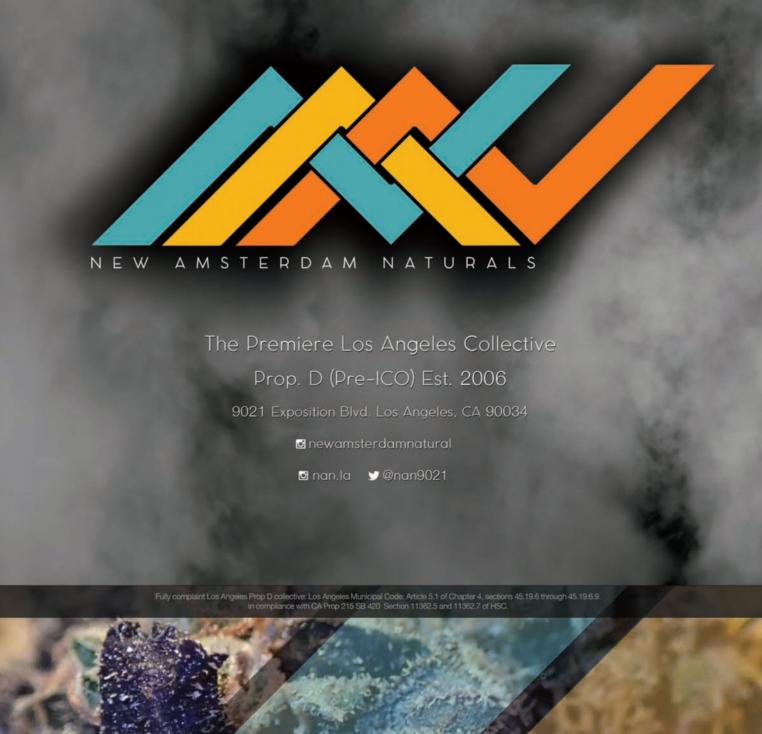
@bayoulevi: @HIGH_TIMES_ Mag I dont like my herb associated with big drug companies especially ones that promoted highly addictive overly prescribed meds

@metatron144: @HIGH_TIMES_ Mag guess u got so much weed u dont kno what to do with it. Throw me sum??

@nj_diver: @HIGH_TIMES_Mag #GovChristie is a do nothing, know nothing lame duck governor. Happy to see him go...

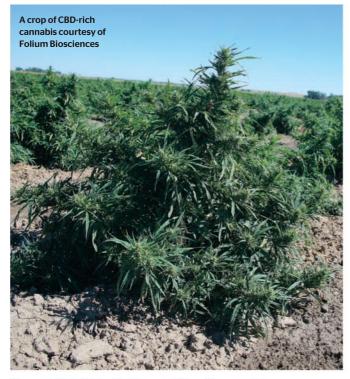
@hannahchan2010: @HIGH_ TIMES_Mag I'm sorry but it's a little offensive to assume that all stoners listen to the same music. I listen to 90's pop not reggae.

@OffandOn13: @HIGH_TIMES_ Mag I've always found outdoor pot to be better tasting.





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High Times March 2017



Is CBD Medicine? Absolutely!

I first heard a comprehensive explanation of cannibidiol, or CBD, at a Patients Out of Time conference in 2008. It's an annual forum designed to educate medical professionals, attorneys and the public about the benefits of medical cannabis.

At this particular conference, I was floored by the data presented. Doctors stated unequivocally that CBD could ease the spasticity caused by multiple sclerosis. Others noted its analgesic properties and its efficacy in treating brain trauma. No longer were the medical benefits of cannabis merely anecdotal; mainstream medicine was now acknowledging its benefits.

Since then, the good news about CBD-rich cannabis has only gotten better. Stories like that of Charlotte Figi, the young girl with Dravet syndrome whose constant seizures were significantly curtailed through her use of CBD oil, are particularly encouraging. When cannabis can save a child's life, who can ever argue with legalization?

In this issue, Martin Lee, the author of *Smoke Signals: A Social History of Marijuana* and the director of Project CBD, offers a thorough profile of cannabidiol, the miracle cannabinoid—including the fact that, as scientific research has shown, the most effective cannabis medicine involves a combination of CBD and THC.

On the legalization scene, we explore the results of the 2016 election. The good news: We now have eight legal states, and four more medical marijuana states! We also take a look at Canada's prospects for legalizing weed nationwide, and *HT* senior cultivation editor Danny Danko checks out the newly legal buds of New England.

We're euphoric about the growing acceptance that cannabis enjoys; may it ever increase. But don't forget for a second that our work is far from over.



PUBLISHER

Mary C. McEvoy

EDITOR-IN-CHIEF Dan Skye

HEAD OF CONTENT

David Bienenstock

MANAGING EDITOR

Mike Gianakos

ART DIRECTOR
Frank Max

SENIOR CULTIVATION EDITOR

Danny Danko

CULTURE EDITOR

Mary Jane Gibson

EDIBLES EDITOR

Elise McDonough

GRAPHIC DESIGNER
Bianca Hughes

COPYEDITORS

Rick Szykowny Mike DiPaola

RESEARCH ADVISOR

Dr. Mitch Earleywine

DIRECTOR OF DIGITAL MEDIA

Emily Cegielski

SOCIAL MEDIA MANAGER

Leo Rechetniak

VIDEO COORDINATORS

Ursula Mann Joe Schaefer CHIEF OPERATING OFFICER Larry Linietsky

CHIEF REVENUE OFFICER

Matt Stang

DIRECTOR OF FINANCE & CONTROL Harry Kanner

CHIEF CANNABIS OFFICER
Nico Escondido

PROGRAM MANAGER

Jackee Stang

IMPLEMENTATION SPECIALIST

Laura Vavoules

EVENT DIRECTOR
Sameen Ahmad

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CONTRIBUTORS

Mike Adams, Paul Armentano, Carrie Doorhy, Mel Frank, Andre Grossmann, Sirius J, Brian Jahn, K of Trichome Tech, Lochfoot, Kevin Mahmalji, Mark Miller, Samantha Nicholas, Harry Resin, Michael Simmons, Bill Wyman

> FOUNDING PUBLISHER/EDITOR **Thomas King Forçade** 1945-1978

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No-Holds Barred Advice and Unconventional Wisdom on Growing and Living One Hell of an Awesome Life



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Pot & Fitness

There's no place in the world where body-shaming and general snobbishness is worse than in the United States ("A Higher Level of Fitness," Jan. '17). Hollywood would have you believe that if you don't have six-pack abs, you're a complete and total loser.

I smoke pot. I'm also a black belt in Wado-ryu karate, and I work out at home with dumbbells and an exercise bike.

Guys, the average man does not need to be in the same shape as a Navy SEAL. If you can walk three miles or bike 15 miles in an hour without blowing like a porpoise or shedding gallons of sweat; if you can do three sets of ten reps with a 100-pound barbell; if you have earned a green belt in karate or its equivalent in any martial art, you're already head and shoulders above Joe Blatz, who does a lot of the "12-ounce curl" but still wants to beat you up because your hair is too long or you're black, white, purple, gay, etc.

Let Mr. February be Mr. February. You have enough to deal with just being you. Your sensei has just given you a hall pass to the dispensary. Pick me up some Girl Scout Cookies while you're there!

 $R.\ Boni$

Sho Dan, American Wado Karate Do Association

Banjo's Song

I really enjoyed the interview with the glass artist Banjo (Dec. '16). I like how he talks about being undecided on his path in life, and how glassblowing has taken him to the level he's at today.

> Matt Cioffi Vermont

Let Your Fire Burn!

I am a person with autistic-spectrum disorder. Growing up as a child on the "wrong" side of the tracks created many problems—I remember the massive sounds of machinery balanced with a household of hostility. When you have problems, imagination often becomes one with memory. I used to rock back and forth as a child, and still do to this day—that's who I am.

I am now overcoming autistic-spectrum disorder in my 34th year of life, and cannabis has helped me over the last decade to at least appear normal in this realm of illusion. It helps slow down my mind when it races at breakneck speed. As a young person, I didn't have a voice and I couldn't make eye



I smoke pot. I'm also a black belt in Wado-ryu karate, and I work out at home with dumbbells and an exercise bike.

contact. Cannabis has changed that. My weakness is now my strength. Determination has enabled me to come to grips with my problems in this world. A spark of determination can ignite and grow into a flame of passion.

Let your fire burn, whether in a jay or a pipe! Humans have made nature illegal, but no law is higher than truth. Let your light shine!

 $Juan\ Matthew$

Flashbacks

While in California in 1968 to '69, I had the good fortune of dropping Orange Sunshine fairly often. It was an excellent, clean acid trip and hence very popular. I particularly remember dropping some and going to see 2001: A Space Odyssey. What a trip! What a movie!

Laura F.

We the People

Re "Killers of the Black Snake" (Feb. '17): I stand with Standing Rock! The Dakota Access Pipeline being built by Energy Transfer is illegally trespassing on the sovereign land of the North Dakota Standing Rock Sioux. The company has been building its pipeline, from which it hopes to earn \$1 billion-plus in profits,

57th St., Suite 920, New York, NY 10107 Email: hteditor@ hightimes.com land, but also on their sacred burial

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> sites. It plans to run the pipeline beneath the Missouri River as well, threatening the water supply of the Standing Rock Sioux, and of millions of people downstream.

> At no point should this be acceptable to any person with a shred of human decency. As a veteran of the US Army infantry with two tours in Kuwait, and as a veteran of the Delaware National Guard Military Police, I find it troubling—no, horrifying—to see what's happening.

I see the police and National Guard in riot gear attacking unarmed protesters with batons, pepper spray, rubber bullets and AR-15 assault rifles. I see military anti-mine vehicles, sound cannons and helicopters being deployed as well. The fact that these police and soldiers are concealing their identities and attacking unarmed Americans with military weapons means that they are indeed

an unauthorized, invading military force with no rights under our Constitution, no rights under our laws even as set forth in the unconstitutional Patriot Act, and therefore should be considered enemy combatants.

The media's complicity in all this speaks volumes to the fact that our government is no longer a properly functioning body with any sense of morality, dignity or, most important, humanity. The soul of our government is completely morally bankrupt and void of any redeeming qualities.

"We the People" have allowed our government to do the very same thing to other nations around the world in our name. "We the People" have allowed the greedy, power-hungry few get away with this and use our blood, sweat and tears for their financial benefit. "We the People" have allowed the media to convince us that our government and its corporate owners are good people. (Guess what? They're not.) "We the People" have allowed ourselves to be manipulated into thinking that we are not equals-that we should hate, fight and kill one another for not looking or thinking exactly the same or for not doing as we're told.

"We the People" are complicit in the bankruptcy of America.

 $Eric\,Allen$





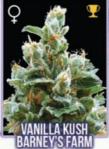
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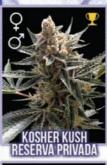


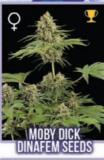










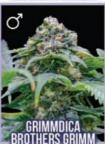




















































































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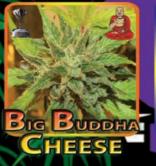








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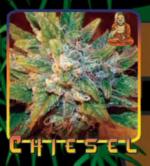












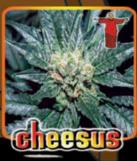


















AUTOFLOWERING SEEDS











Style High Style Stoner social network High There! unveils

cannabis-centric streetwear, p.30



Entertainment

Flosstradamus

The stoner EMD duo share their approach to balancing creativity and cannabis.





Uprooted:America's Medical Marijuana Refugees

Families flee pot-prohibition states in order to use cannabis as medicine. By Elise McDonough

"We would go to jail, our kids would be taken away, and my husband would be a felon instead of a fireman." Amy Dawn Hilterbran's voice cracks as she describes the possible fate her family was facing if they'd remained in Oklahoma, among the reddest of red states, and tried to use cannabis as medicine. Her son Austin suffers from Dravet syndrome; in Oklahoma, he'd tried two dozen different pharmaceuticals that never stopped his seizures. As the dangerous prescription drugs began shutting down his organs, Austin's doctors told Amy there was nothing more they could do.

Rather than watch her son die, Amy decided that she was "gonna do what any parent would do: whatever it takes." Her research on cannabis led her to uproot her family and move to Colorado, where a healing transformation took place: After settling down in Colorado Springs in December of 2014 and beginning cannabis therapy, Austin didn't have a single seizure for three days—a dramatic change from his life in Oklahoma, where he experienced an average of five to 20 grand mal seizures per

day. "It saved his life," Amy says. "Cannabis stops seizures more effectively than pharmaceuticals."

But in order to access this life-saving medicine, the Hilterbrans sacrificed their possessions, savings accounts, family networks and the support services they had relied on. Their older children remained in Oklahoma, which means the family has been divided for all this time. "Nobody should have to leave their home for a plant," Amy says. "We need to legalize fully in all states."

Until that joyous day of nationwide legalization, however, many families are doing just what hers did-desperately journeying to Colorado, Washington, Oregon or any other state with safe access, hoping for a cannabis miracle. In order to help those in need, Amy established American Medical Refugees, an organization that offers support and resources to over 170 families taking the same drastic steps. "Many of these people only get to return home when their child or loved one has passed away," she says. "It's overwhelming how many are coming."

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American Medical Refugees helps new arrivals with caregiver/patient networks, information on how state programs work, job placement and political activism. At least 80 families have settled in Colorado Springs, where Amy is building a community that offers comfort and hope to others in the same situation. "People get here and are living out of their cars," she says. "They've given up everything just to get here."

While AMR doesn't fund relocations for medical refugees, there are a handful of groups that do, including Safe Haven, a project of the Green Cooperative on Resource Education. Founded by Shayne Shackelford, GCORE has helped move eight children so far, including three from a single family who all suffer from a genetic glycogen-storage disease. "Parents are at the end of their rope. Traditional treatments aren't working; it's an emergency situation. So that's what we focus on," Shayne says.

He estimates that the average cost of moving is about \$1,500, which his team raises through GoFundMe campaigns, fish-fry events and the sale of T-shirts. "We work for our donations," Shayne says, "and we're able to do a whole lot for very little."

Seeing the incredible results enjoyed by these kids is reward enough for Shackleford, who tells me the story of Tristan Cahalane, an Irish toddler with Dravet syndrome whose mother, Yvonne,



relocated him to Colorado at the age of two with the help of Safe Haven donations. Speaking to the *Irish Examiner*, Yvonne describes the changes that cannabis brought about in her son: "Tristan was suddenly able to make eye contact and became more alert. He began to babble, repeat sounds and say new words—all of which had vanished since his spate of violent seizures last May, when he stopped talking altogether."

Shackleford says that GCORE would like to help move 20 families per year—and while the recent US election legalized medical or recreational cannabis in eight more states, there's still plenty of work to be done.

To help more children like Tristan access life-saving cannabis therapy, please donate at *greencorepac.com* or visit the Safe Haven 911 Facebook page for more information. *

HIGH FIVE

Outrageously Bad Busts

Pot possession frequently leads to dire consequences. By Mark Miller



Hagerstown, MD

In September, an unidentified 15-year-old girl was pepper-sprayed by cops after she allegedly struck a car while riding a bicycle. Only 105 lbs, she was maced four times, according to her attorney; the cops said it was only once. Officers sprayed her in response to her reaction to being handcuffed inside a squad car. She was charged with weed possession, disorderly conduct and assault.



Durham, NC

Last April, the Durham PD's High Enforcement Abatement Team (HEAT) attempted to enter the home of a black woman named Vera McGriff because they "smelled" pot smoke. McGriff refused to consent to the warrantless search. Eight cops burst in anyway, tasing and cuffing everyone in the residence. The police eventually secured a warrant—four and a half hours later.



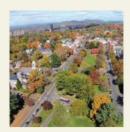
Hillsborough, FL

On August 30, a Hillsborough sheriff's deputy killed Levonia Riggins, 22, who'd been the subject of a month-long investigation. During the raid, Deputy Caleb Johnson led a SWAT team into Riggins's home and cornered him in a bedroom. Johnson "perceived him as a threat" and fired multiple times. Riggins was unarmed. Two grams were found on his body.



Charlotte-Mecklenberg.NC

The September shooting death of Keith Lamont Scott, 43, sparked demonstrations and a federal investigation. The cops claimed that Scott had brandished a firearm, though video footage didn't confirm this. The CMPD later announced that pot possession was a factor in the incident—as if rolling a blunt was sufficient cause to justify using lethal force.



Amherst, MA

A September raid on 81-yearold Margaret Holcomb's garden by state police and the Massachusetts National Guard yielded a single medical pot plant. Troopers descended on the property in a helicopter and multiple vehicles. The plant was cut down and hauled away. Holcomb, unable to afford dispensary weed, had been growing it to treat her glaucoma, arthritis and insomnia.





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Bud Money

New Jersey's embattled governor Chris Christie lashed out against cannabis on his weekly radio show, "Ask The Governor." Responding to a caller who correctly suggested that legalizing and taxing marijuana in New Jersey would benefit the state financially, Christie dished out a hysterically out of touch take. He first attacked the caller, sardonically asking "are you high right now?" before pivoting to tired prohibitionist rhetoric about children. "There is nothing we spend in government that is important enough to allow me to willfully poison our children for that money... That's blood money," Christie said of potential tax revenue raised through legal pot sales.

Christie continued spewing bullshit, erroneously claiming "Every study shows that marijuana is a gateway drug and every study shows that marijuana causes damage." The gateway theory has long been debunked and studies show that cannabis is far safer than alcohol (or even aspirin).

Christie has established himself as one of the country's least effective governors-he spent a remarkable 72 percent of his time outside the state of New Jersey in 2015-and his penchant for lying and bullying his way through opposition has tarnished the governorship. However, he is entering his final year in office. So while he reminded Garden Staters, "You're damn right I'm the only impediment [to legalizing marijuana in New Jersey]. And I am going to remain the only impediment until January of 2018," at least the end is in sight. Hopefully the next governor of New Jersey is more in line with the 60 percent of Americans who support legalizing cannabis nationwide.

NO COUNTRY FOR OLD FASCISTS



Infamous Maricopa County Sheriff Joe Arpaio's 24-year "reign of error" ended mercifully last November, as voters ousted the 84-yearold Republican lawman by electing former Phoenix cop Paul Penzone.

Hailed as a hero by some and the ultimate authoritarian villain by others, Arpaio received national attention for his unapologetic racial profiling and systematic abuse and humiliation of inmates, which included forcing incarcerated men to wear pink underwear. However, it was his legal troubles stemming from his ignoring a federal judge's order to end patrols that targeted Latinos that ultimately did him in. Arpaio's current contemptof-court charge was enough to sway voters to Penzone.

Should Sheriff Joe find himself incarcerated, here's hoping the new regime treats him with more humanity than Arpaio himself provided to inmates. No one wants to see old Joe in pink underwear.



Pot Vs Pills in the NFL

With a growing number of ex-players pressuring the NFL to embrace marijuana as a safe alternative to painkillers, ESPN took the cannabis question directly to current NFL players, with the promise of anonymity.

ESPN surveyed 226 of the roughly 1,700 current players on the NFL's 32 teams. The results were overwhelmingly pro-pot.

When asked if medical marijuana should be legal in all US states, an overwhelming 71 percent said "Yes." And while only 17 percent claim to have used cannabis to treat the symptoms of a concussion, that number would likely be significantly higher if cannabis was not banned by the league.

Sadly, 42 percent of players said they knew a teammate who became addicted to opioids due to the NFL overprescribing pain-killers and 59 percent said they worry about the long-term effects of painkillers.

When asked whether marijuana or painkillers is better for recovery and pain management, 41 percent of players chose pot, compared to 32 percent who prefer pills.



Opioid Overdoses Spread

Reports of drug overdoses linked to a synthetic opioid called carfentanil have swept across North America as the drug used to sedate elephants is proving to be a killer. Carfentanil is reportedly 100 times

more lethal than the synthetic opioid fentanyl, which is itself 50 times more potent than heroin.

During a six-month span in 2016, Broward County, FL reported at least 53 carfentanil-related deaths—compared to 35 deaths associated with heroin and 25 fentanyl-related fatalities over the same period.

According to Broward County chief medical examiner Dr. Craig Mallak, carfentanil "has no margin of safety because it's so potent." Cops and paramedics have been warned about the dangers of coming into contact with the narcotic that is increasingly being mixed in with heroin.

Carfentanil-related overdoses have spread beyond Florida. Ohio and West Virginia experienced a rash of overdoses attributed to the drug during the summer of 2016, several of which proved fatal. Most recently, carfentanil was linked to 15 deaths in Alberta, Canada in the fall of 2016, leading a public health physician to call it "the worst drug-safety crisis in history."



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Mayor Slain in Jail

Philippines President Rodrigo Duterte's bloody war on drugs has expanded to taking down elected officials. Rolando Espinosa, a Philippine mayor, became the latest victim of Duterte's reign when he was gunned down in his jail cell. Officials claim Espinosa and his cellmate were resisting authorities and died in a "firefight" that occurred during a search of their cell. The search allegedly yielded handguns, methamphetamine and marijuana. Espinosa was the second mayor killed by police in the Philippines in just over a week.

Although he denied any direct involvement with narcotics, Espinosa surrendered to authorities after Duterte included him in a list of 150 officials accused of involvement with drugs. During a subsequent raid of his home, police killed six of his bodyguards and claim to have discovered 24 pounds of methamphetamine.

Puppycide

An investigation by *Reason* revealed Detroit police officers killing dogs during drug raids at alarming rates, often without provocation, and in circumstances in which the animal posed no threat.

In just one chilling example, officers executing a search warrant killed three dogs—one of them pregnant—that belonged to Nikita Smith. Cops arrested Smith for pot possession but the charges were dropped when they didn't bother to appear at her court date.

Smith has filed a lawsuit claiming her dogs were killed without justification. One officer named in the suit, William Morrison, had shot 39 dogs prior to the Smith case, according to a police report.

Detroit police killed at least 46 dogs between January 2015 and August 2016. In that 20-month span, there was a grand total of *one cop* bitten by a dog, according to police records

A Justice Department official speculated in 2012 that cops kill as many as 10,000 dogs a year but it's impossible to know for certain as there are currently no reporting requirements for shooting canines.

BIG BOOZE FEARS WEED



If there was ever any doubt about whether the booze industry feared competition from recreational cannabis, look no further than the monetary contributions Big Alcohol made to anti-legalization campaigns in the lead up to last November's election.

In Massachusetts, the Wine & Spirit Wholesalers of MA and Beer Distributors of MA Inc. combined to donate \$75,000 to defeat Question 4, which passed with 54 percent of the vote to legalize pot in the Bay State.

The Boston Beer Company was also unhappy with Question 4's passage, as regulatory filings state that legal marijuana could decrease demand for its "Samuel Adams" brand. **Brown-Forman** Corp, distributors of famed whiskey Jack Daniels, also lists retail reefer as a threat to their financial performance.

In Arizona, the Wine & Spirits Wholesale Association dropped \$10K to defeat Prop 205, which suffered a narrow defeat on election day.

Yet, according to the Distilled Spirits Council, alcohol sales did not decline in Colorado and Washington after those states legalized in 2012.



Quick, swallow your smart phone!

There's an App for That

Now that Massachusetts voters have legalized recreational cannabis, the state faces the question of how to address stoned driving. University of Massachusetts psychology professor Michael Milburn believes he has the answer. A tablet-based app called DRUID (Driving Under the Influence of Drugs) that asks potentially stoned drivers to perform a series of tasks in five minutes.

Tasks include tapping the screen in response to different shapes, following a dot with a finger as it randomly changes direction and standing on one leg for 30 second while holding the device in one hand.

Addressing stoned driving has proven difficult as saliva and blood tests enforcing predetermined nanogram limits are ineffective at indicating intoxication due to marijuana metabolites potentially remaining in the body for up to a month or longer.

While Dr. Milburn believes DRUID can detect higher impairment levels when a participant is initially stoned, he has yet to publish any peer-reviewed studies on his testing.

Public Puffing Under Fire in Denver

When Denver's Initiative 300 was finally declared victorious on November 15 with 54 percent of the vote, it marked the first passage of a US law permitting cannabis consumption in public. Public in the context of Initiative 300 refers to "specifically designated areas." While consuming marijuana at licensed pot stores remains outlawed, businesses like



bars, cafes and restaurants can pursue a license that will allow pot use on site. However, Initiative 300 faces so many obstacles and restrictions, the degree to which it will be implemented successfully remains uncertain.

Two major obstacles to 300 are Amendments 20 and 64 forbidding public consumption of cannabis anywhere in Colorado. There's also a new state law set to take effect in 2017 that denies pot-use licenses to any business holding a liquor license or selling alcohol.

Jordan Person, Executive Director of Denver NORML, believes 300's loopholes could allow for vaping by clever stoners but the measure is hardly shaping up to be what proponents intended.



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30 High Style

Meet Cute With Cannabis

With cannabis use coming out of the shadows, it stands to reason that tokers shouldn't have any trouble meeting that special someone. But just like anything else, you need the right approach to meet your sesh partner for life.

On the rooftop deck of the Green Street Agency, high above Los Angeles, cannabis dating coach Molly Peckler assembled a diverse group of men and women for the inaugural Cannabis Singles Speakeasy event. To

break the ice, her company, Highly Devoted, laid out a spread that included joints, vape pens and delicious treats from the Herbal Chef. With the city stretched out below, the evening was a great way for cannabis-friendly singles to meet in a romantic setting.

High Times sat down with Peckler to get her tips on how to hit it off with a partner who takes hits, too. Here are her top three pieces of advice:

1. Pinpoint why cannabis is important to you. Do you use it to

Smokina singles mingle on an LA rooftop.

reduce pain or anxiety? Does it allow you to focus, connect with others or think creatively? Once vou understand what cannabis does for you, it's much easier to open up about it to other people.

2. Don't get too baked before your first date. This goes for drinking as well. It's one thing to share a joint while you're getting to know each other, but help dispel the stoner stigma by arriving bright-eyed and aware.

3. Have the weed talk ASAP. Some folks can be really

judgmental, so be open about cannabis from the beginning. If your potential new romantic partner looks down on cannabis, it may be just the tip of the iceberg when it comes to your core values not being aligned.

Highly Devoted is currently scheduling more Cannabis Singles Speakeasy events across the US, so if you're looking for the perfect partner to share your stash with, you may get your chance soon. Fritz Meier

Visit highlydevotedcoaching.com



High Times March 2017

sPOTLIGHT

AnnaBís

The founder of AnnaBís designed these elegant accessories after she couldn't find anything to suit her own chic style. Crafted from fine leather with an intricate jacquard interior, these high-quality bags are right at home around high society. Each one is outfitted with a secret compartment and tinv little aroma-locking innovations to safely carry your stash. AnnaBís bags are for the woman who cares about every detail of her lifestyle, including her love of herb. An added bonus when you choose AnnaBís: \$5 from every online purchase will be donated to Realm of Caring, a nonprofit organization for cannabis education and research. \$70 and up, annabisstyle.com



High There! is a social network for the cannabis community-and now, like so many other canna-companies, it's moved into making streetwear. So while you're meeting, chatting and sharing with like-minded weed lovers, you can show off your pot pride with all sorts of clothing and accessories. Choose

from a variety of High There! slogan shirts, including "Ganja Is My Guru," "Coffee and Kush," "Wake and Bake," "#blunt" and "You've Got More Friends Than You Think." The first capsule collection just rolled out, and new additions to the lineup will be following soon. Visit highthere.com



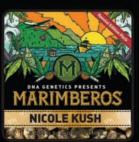












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32 High Buys
High Times March 2017

Fight the Power in Style

As Inauguration Day inches closer, we understand that you might want to exercise your right to protest, so here's some cool gear that will help you prepare and keep you focused on the issues. *By Sophie Saint Thomas*

1. Tec Down Ear Warmers, \$29.95

Unless you're protesting in sunny Los Angeles, where you're also likely to be enjoying a legal buzz, it's going to be cold out there come Inauguration Day on January 20. In particular, anyone traveling to Washington, DC, to protest day one of Trumpland will need these babies to keep their ears warm. Yet the ears of those marching can use protection from more than just the chill. While we've all heard about the gnarly burning caused by getting pepper spray in your eyes, that shit hurts anywhere near your ears as well. Please go tell Mike Pence to stay out of my uterus, but safety first!

2. Made-in-the-USA Jungmaven Hemp Bandana, \$32

In addition to concealing vour identity should you not want your face getting plastered on the news or caught by surveillance cameras (which are everywhere these days), wearing a bandana over your face will protect you if tear gas is used. Unless it's very cold where you live, soak it in water first to breathe through easier. Any bandana will do, but compared to synthetic fibers, hemp is ecofriendlier and easier to breathe through. Stick this in your pocket, then put it on when you're ready to remind politicians that Love Trumps Hate.



3. All Good Coconut Sunstick, \$8.99

Whether it's protesting
Trump, police murders
or the Dakota Access
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long road ahead of us.
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and getting burned so
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fits right in your pocket,
is easy to reapply, and
will keep your pretty face

safe from the sun and ready for more action. Remember, it doesn't matter if it's winter—if it's sunny out, you can burn!

4. Manitoba Harvest Hemp Heart Bar

(Chocolate), \$2.69
You can't fight the powers
that be on an empty
stomach! Stash a few
of these in your bag for
delicious and nutritious
on-the-go energy. Pair
this hemp chocolate
snack with a small carton

of milk—not just because the two go together, but because milk is great for flushing the tear gas out of your eyes should things turn ugly.

5. CamelBak Hydration

Backpack, \$35.99
Save the milk for your tear-gassed eyeballs; water is best for hydration. Above all else, you can't protest if you're not hydrated. Dehydration can lead to dizziness, weakness,

confusion and even death—pretty much everything you don't want to happen at a protest. So strap on one of these puppies and march on, friend!

6. Midland GXT1000VP4 36-Mile, 50-Channel FRS/ GMRS Two-Way Radio

(Pair), \$58.86
It's easy enough for your phone to get broken, stolen or lost while you're simply walking to the bus stop; a rowdy protest is a whole other ballgame. Communication is vital, so if you're separated from your phone—or should the government, the Illuminati or some evil corporation pull a service blackout—that's when walkie-talkies come in handy.

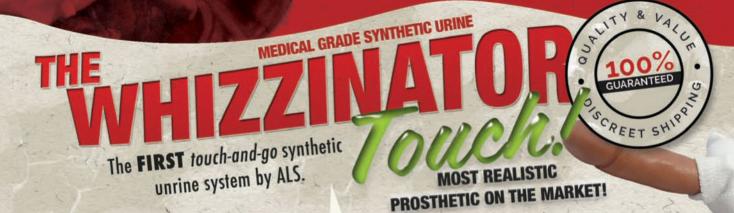
7. HotHands Toe Warmer, \$4.99

It's damn near impossible to do anything-let alone lead the crowd in a "Tell me what democracy looks like / This is what democracy looks like!" chant-if you can't feel your toes. For any protest, march or demonstration, it's vital to wear comfy closedtoed shoes (I love canvas Doc Martens). If you're going to be somewhere cold, like DC or New York, on Inauguration Day, the closed-toed shoe becomes irrelevant if you have to go home due to the fear of impending frostbite. Also useful for hands stuck inside gloves, these toe warmers are made in the USA and last a full eight hours. *

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Controlled Burn

Grungy pop-punkers Big Eyes put fans' gratification ahead of their own. *By Polly Watson*

Big Eyes have good taste—that's evident from their name, ripped straight off the back of Cheap Trick's 1977 power-pop nonpareil *In Color*. It's apparent, too, from their music, brief, spiky songs that blend the brilliant crunch of their Midwestern progenitors with the darker tones of '90s grunge underdogs like L7 and Babes in Toyland, all of it served up with lyrics direct to the point of bluntness.

Helmed by Kait Eldridge, who founded the band at the end of the aughts in New York City, Big Eyes have moved from the Big Apple to Seattle and back again, shedding and gaining members, with Eldridge as the only constant. In that time, they've released three full-lengths and a handful of singles and splits. Their latest, *Stake My Claim* (Don Giovanni, 2016), finds

Big Eyes expanded from a trio to a four-piece, with the shift lending a fuller sound to Eldridge's tightly crafted songs and allowing for heavier riffs, as well as the occasional stinging twin-guitar lead that owes a lot to Thin Lizzy's Scott Gorham and Brian Robertson.

When *High Times* met up with Big Eyes in a Chinatown diner, the band had just cracked a few beers and were discussing the molly someone gave them on a recent tour.

"We all took it right before we went onstage," recalls drummer Griffin Harrison. "I think I could have played for 10 hours."

"I was like, 'I totally get it now—I get why bands took drugs at Woodstock!" Eldridge laughs.

The high lasted through load-out and far into the wee hours. "Weed was the only

thing that made us all fall asleep that night," says bassist Malcolm Donaldson. "I just took a huge hit off the bong and fell right asleep."

For Big Eyes, weed isn't a creative aid or an escape hatch, but rather a way to unwind in the evening or mellow out on a day off. Nobody in the band likes to go onstage baked, since their music is "super on top of the beat," Harrison says. Donaldson's reasoning is a bit more... unusual. "Whenever I get too high, I lose all confidence in my ability not to pee my pants," he explains. "I've never done it, but I'm

constantly afraid that I have."

All four members of Big Eyes grew up in relatively potfriendly households. Harrison recalls being arrested as a teen for smoking in the woods with his pals: "My mom came to get me, and she was like, 'Next time don't bring more than you can eat."

Guitarist Paul Ridenour says he didn't know his folks were amenable to weed until he'd moved out and returned one Thanksgiving to be greeted by his mother, who offered to smoke him down. As the band finish their beers, with Eldridge grabbing a Sharpie to modify her "Hard Life" tattoo to read "High Times" before the weedy photo shoot, Donaldson nods appreciatively.

"That's a good holiday to smoke pot on," he says. "You can really put away the leftovers." *



Lofty Aspirations

Though singer/guitarist Kait Eldridge specializes in short, sharp songs, she can go long when the occasion demands it. Visiting a friend's house as a teen, Eldridge found some laundry dryer tubing. "We decided to make a two-story bong," she laughs.



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Lighters Up!

They came up in Chicago a decade ago. Now Flosstradamus rule the EDM world. *By Mary Jane Gibson*

One sweat-soaked, heart-thumping, body-thrashing show is all it takes to make you a Flosstradamus fan for life. J2K and Autobot leave no stone unturned in their quest to take EDM fans to the edge of sonic ecstasy: With that bass cranked *all* the way up, your bones go *boom*, your eyes sting from the perspiration, and your throbbing muscles attempt to propel you into the next dance dimension.

It comes as a bit of a shock, then, to meet up with J2K and Autobot—Josh Young and Curt Cameruci in real life—and discover them to be, like, *super*-mellow... perhaps thanks to their conscientious wake-and-bake habits. The pair stopped by the *High Times* West Coast office to share a smoke and fill us in on their morning weed rituals before heading over to the Shrine in downtown LA for a blazing show (complete with

lasers and flamethrowers!).

"Greenery everywhere,"
Curt says approvingly, surveying the tableful of nugs, shatter and vape pens on hand for our shoot. Several units of the sleek Orb XL, Flosstradamus's collaboration with Source Vapes, are on display alongside an assortment of atomizers and travel cases. Curt selects a loaded Orb XL, Josh reaches for a fat joint of Mega Wellness OG, and we settle in.

The EDM scene isn't typically associated with weed, but Flosstradamus crossed over easily into cannabis culture. "We were always smokers, you know," Josh says, "but in 2011, we did a song with Danny Brown, 'From the Back,' and he had a line: 'Rolled up the grass / While I pound on that ass... 'We took that lyric, made a song called 'Roll Up' out of it, off the cuff, and it was dope—it spoke to people." This was the jumping-off point that allowed them to create a new space in the weed-music scene, Josh adds. "It was a unique track in the stoner world. There weren't too many stoner songs that weren't just rap, talking about weed. 'Roll Up' was an electronic instrumental dedicated to it."

Cannabis has been a boon for them, in more ways than one. "We travel around 90 percent of our lives, staying up late, and weed brings us back down to reality, in a weird way," Curt says. "It helps with anxiety, helps chill us out. It's been a blessing to find." On the creative side, it helps him let his guard down: "When I'm not high, I'm more cerebral, and everything

"We travel around 90 percent of our lives, staying up late, and weed brings us back down to reality, in a weird way."

meeds to be perfect, *perfect*—but when I'm on weed, I'm just vibing and feeling it."

What's their preferred method of toking? "It's weird," Curt replies, "it depends on the day. I was doing vape pens for a while; then I was into pre-rolls and herb. Right now I'm back to the liquid pens." He flourishes the one he's holding. "I like being able to take a hit every so often—it keeps me at a level high."

And what about the perfect wake-and-bake? "Mine is waking up, smoking something with CBD in it, and then I'll have a coffee with coconut oil mixed in," Curt says. "The weed gets me high, the coffee levels that out, and the coconut oil time-releases it into my system throughout the day."

"I'm the same with weed and coffee together," Josh concurs. "It's an awesome combination. I like to run, so I'll wake up and go for a jog. A lot of people are like, 'How do you get stoned and *jog*?' But it helps me meditate."

With that being said, we adjourn to the rooftop for a sunny smoke sesh. Then Josh and Curt head out for the rest of their perfectly balanced day—a sound check, maybe a quick nap, and then tearing the roof off the Shrine in highdef for a screaming crowd of thousands. Flosstradamus know how to roll. **



Turnt Up

Adding to their stoner cred, Flosstradamus released their 2013 EP *Wake and Bake* on 4/20. Says Curt, "We're known for super-*turnt-up* music, but we had some chill ones too, for our fans to listen to while they wake-and-bake."

SIMPLY HEMP.











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Kitchen-Sink Rock

Hail. hail. NRBO!

My checklist of requirements for the perfect rock'n'roll band: technical mastery of their instruments; the ability to compose unforgettable melodies; lyrics that vary 'twixt open-hearted love odes and clever, more outré subjects; a therapeutic component that leaves the listener a happier, healthier human; and a sacred belief that rock'n'roll will never die, while at the same time incorporating every other influence. Two bands that satisfy my requirements: The Beatles and NRBQ.

This is not just hyperbole—NRBQ's frothing fan base has included Jimi Hendrix, Keith Richards, Bonnie Raitt, The Replacements, Ray Davies and Elvis Costello. To celebrate their half-century of



NRBQ
High Noon:
A 50-Year
Retrospective
(Omnivore Recordings)

spreading joy, joy, joy, joy down in our hearts (yes, they sing children's songs as well), the Q have compiled a five-CD collection that is simply the Best Box Set in the History of Box Sets; for the uninitiated, think of the scrambled egg-lecticism of *The Beatles* (a.k.a. *The White Album*). In addition to NRBQ's own superlative, *sui generis* and delightfully fractured

musicality, their inspirations include Thelonious Monk, The Beach Boys, Sun Ra and Carl Perkins (with whom they recorded 1970's *Boppin' the Blues*)—the proverbial kitchen sink.

In the process of expanding musical palettes, the Q also expanded consciousness, making them an ideal choice for *High Times* readers. ("Wacky Tobacky," their tribute to cannabliss, would be a fine Cannabis Cup anthem.) Theories abound as to why NRBQ have never become commercial giants. (I vote for rank human squaredom.) "We're world-famous," explains keyboardist Terry Adams. "And anybody who doesn't know that has never heard of us!" *Michael Simmons*

MUSIC RECOMMENDATIONS



Leonard Cohen You Want It Darker (Columbia)

The title track of the recently passed singer-songwriter-poet-novelist's final album finds him providing the resigned last word on life, love, and God Him-/Herself. Cohen ruminates on having been a servant to love and the Lord, and while he's not complaining, he does wish that both he and his lovers

had done it better. Most profoundly, and devastatingly, Cohen claims that he's through with love entirely... but is he through with God? That question dangles over these glacially slow tracks, burnished with an organ and Cohen's ever-present female chorus... his own guardian angels. John Payne



Iron Reagan Crossover Ministry (Relapse)

Where thrash and politics meet punk and humor, there is crossover. And supergroup Iron Reagan (featuring members of Municipal Waste and Cannabis Corpse as well as some ex-Darkest Hour dudes) pick up where the kings of the genre left off in the '80s. On their third album in less than five years,

these Richmond rippers deliver 18 short, sharp kicks to the groin, with the names of their targets written into song titles like "Megachurch," "Fuck the Neighbors" and "Parents of Tomorrow." With a new right-wing regime in the White House, Iron Reagan's time has arrived.



Darkthrone
Arctic Thunder
(Peaceville)

On their 17th(!) album, Norwegian black-metal masters Darkthrone forgo the freestyle, punk-infused spirit of their last several records in favor of a darker, more sinister slab of icy riffage. Guitarist Ted "Nocturno Culto" Skjellum handles all the vocals, while splitting songwriting duties with drummer and gadabout Gylve "Fenriz" Nagell. Packed with blistering choruses, savage riffs and killer solos, songs like "Boreal Fiends," "Deep Lake Trespass" and the title track reaffirm the duo's supremacy in the shadowy world of black metal, while hinting at a considerably more vicious future. *J. Bennett*

BOOK RECOMMENDATIONS



Seven Rights for Citizen Slackers Dennis Boaz

Dennis Boo (Seven Rights Publishing) In 1976, lawyer Dennis
Boaz smoked a joint
in San Francisco's Federal
Building in an attempt to
get arrested and constitutionally challenge America's
marijuana laws. The Feds
claimed insufficient
evidence and declined to
prosecute—apparently to
get rid of the pest. But Boaz

has remained an entertainingly irreverent idealist, and this memoir-cum-manifesto relates anecdotes from an interesting life and lays out the author's utopian plans for constitutional reform, targeting the participation of "Citizen Slackers"—those who do little beyond voting, i.e., most of us. Michael Simmons

TV RECOMMENDATIONS



Mary+Jane Created by Harry Elfont (MTV)

Though they don't particularly concern cannabis culture, shows like *Broad City* and the bountifully original *Atlanta* seem natural and authentic in their depiction of tokers. But every frame of *Mary + Jane* is self-consciously insecure. *M+J* just isn't "selling" these two white-girls-next-door as

savvy weed entrepreneurs; the dusty plot devices feel like Band-Aids on a show in need of much greater medical attention. Then again, cultural progress often happens when that which was once taboo becomes ordinary—something that's accomplished perfectly on this show. Ben Berkowitz

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Cannabis and the Election

Despite a sweeping victory for marijuana-law reform, the Feds may be poised to make life a lot more difficult.

THE PARTY OF THE P

John Kagia is executive vice president of industry analytics for New Frontier Data

THE 2016 ELECTION will long be remembered as one that changed the course of US cannabis policy. The passage of marijuana-law reform measures in eight of the nine states that had them on the ballot wasn't only a major victory for advocates of legalization; it will also lead to the single largest expansion of the legal cannabis industry in US history.

California, Maine, Massachusetts and Nevada now join Alaska, Colorado, Oregon, Washington and the District of Columbia as adult-use markets, while Arkansas, Florida, Montana and North Dakota join the 25 states (as well as DC) where medical use is legal. As a result of these victories, more than two-thirds of Americans (68 percent) now live in a state that has either decriminalized possession of small amounts of cannabis, approved it for medical use, or legalized recreational use by adults. (In terms of straight-up legalization, slightly more than one-fifth of Americans, or 21 percent, now live in a state that has legalized adult use.) The addition of California's 39 million residents to the adult-use market and Florida's 20 million residents to the medical market are especially noteworthy, since these populous states will play a key role in driving new cannabusiness opportunities.

With the addition of eight new states, the total US medical and adult-use market is projected to grow from \$7.9 billion in 2016 to \$21.2 billion in 2020. Of that growth, fully one-third of the 2020 revenues, or \$7.4 billion, is expected to come from states that voted to legalize in this election cycle.

Even so, these sweeping victories belie the potential challenges that the industry faces at the federal level. President-elect Donald Trump has adopted a strong position on states' rights and has generally been supportive of medical cannabis. However, his views on legalizing recreational use are far more uncertain, and his nomination of Alabama Senator Jeff Sessions as attorney general—which would make the conservative GOP

Projected 2020 Market Sales for Newly Legalized States



The total US medical and adult-use market is projected to grow from \$7.9 billion in 2016 to \$21.2 billion in 2020.

legislator responsible for enforcing federal cannabis law—could pose a serious challenge to the industry.

Discussing marijuana at a Senate hearing in April 2016, Sessions flatly asserted that "this drug is dangerous. You cannot play with it; it's not funny; it's not something to laugh about ... and [lawmakers must] send that message with clarity, that good people don't smoke marijuana."

If approved as head of the Justice Department—which is not certain, since Sessions has a long history of making controversial remarks—the senator's vocal opposition to cannabis suggests that the Trump administration may adopt a much more antagonistic approach to legalization than was seen under Obama.

One of the cannabis industry's immediate concerns is that a Trump White House will do away with the Cole memorandum, which defines eight marijuanarelated enforcement priorities for the Justice Department and indicates that cannabusinesses operating legally within their states should not be prosecuted under federal law.

If the new administration does scrap the Cole memo—or any of the other executive actions that have offered protection or operational cover for cannabusinesses in medical and recreational states—the impact on the industry could be significant. The perception that the federal government will no longer defer to state law may make investors more reluctant to fund cannabis-related businesses, entrepreneurs less willing to start or expand them, and patients less willing to participate in medical cannabis programs. It may also make state legislatures more wary of advancing legalization measures for fear of running afoul of the federal government and its new hardline position on cannabis.

Thus, the full impact of Trump's election remains to be seen. While the results of November's state-level legalization initiatives were nothing short of seismic, the appointment of key federal officials with a long history of opposing marijuana-law reform may constrict the growth of the cannabis industry at a critical point in time.

Until the president-elect releases clear guidance concerning his administration's marijuana-law policy, cannabusiness investors, owners and operators, as well as recreational and medical users alike, should pursue a dual strategy: 1) remain optimistic, but 2) plan for the possibility of life under newly aggressive federal enforcement.

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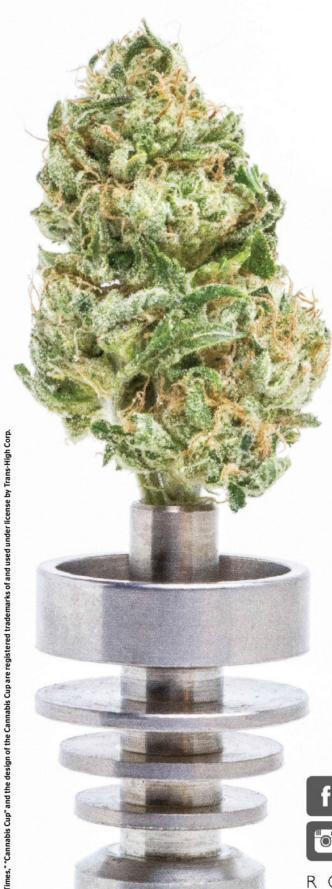
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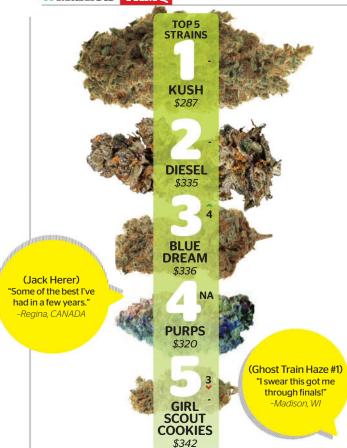






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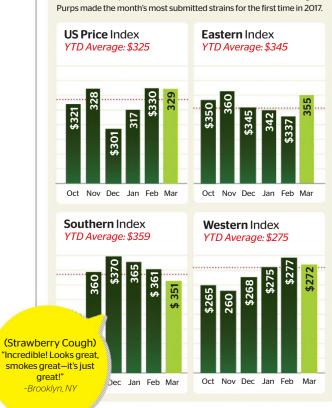
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MARKET ANALYSIS

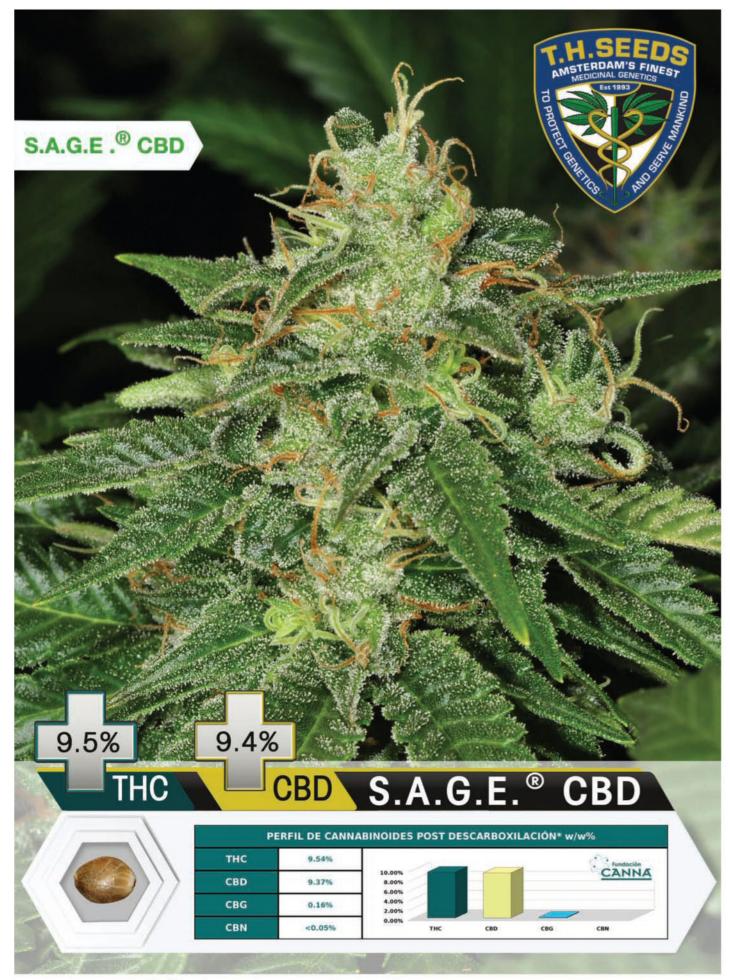
Prices by the ounce

While the Southern and Western Price Indices experienced drops this month, the Eastern Price Index closed March \$18 above its previous month's average and \$10 above its year-to-date average. The US Price Index held steady this month and finished within \$5 of its YTD average. Purps made the month's most submitted strains for the first time in 2017.



STATE CITY		STRAIN	PRICE
ALABAMA	Birmingham	Blueberry	\$360
ARIZONA	Tucson	Trainwreck	375
CALIFORNIA	Lake Tahoe	SVF Kush	200
COLORADO	Colorado Springs	Skywalker OG	300
CONNECTICUT	Stamford	East Coast Sour Diesel	350
DELAWARE	Newark	Blue Dream	380
FLORIDA	Augustine	Fire OG	170
GEORIGA	Atlanta	Purple Haze	360
HAWAII	Kauai	Chemdog	400
ILLINOIS	Chicago	Critical+	360
INDIANA	Indianapolis	White Widow	380
IOWA	Des Moines	Bubblegum	350
KENTUCKY	Bowling Green	Girl Scout Cookies	300
LOUISIANA	Baton Rouge	Granddaddy Purp	260
MAINE	Naples	Blueberry Headband	240
MARYLAND	Baltimore	Chemdog	400
MASSACHUSETTS	Boston	Deathstar	380
MICHIGAN	Ann Arbor	Master Kush	330
MINNESOTA	St. Paul	Northern Lights	360
MISSISSIPPI	Oxford	Tahoe OG	400
MONTANA	Bozeman	Blue Dream	280
NEVADA	Reno	Girl Scout Cookies	350
NEW JERSEY	Trenton	Grape Ape	400
NEW YORK	Brooklyn	Strawberry Cough	380
NORTH CAROLINA	Raleigh	Haze	375
OHIO	Cincinnati	Hydro	300
OKLAHOMA	Oklahoma City	Master Kush	300
OREGON	Portland	Tahoe OG	200
PENNSYLVANIA	Philadelphia	Grape Ape	260
SOUTH DAKOTA	Pierre	Green Crack	250
TENNESSEE	Nashville	Mango	380
TEXAS	Lubbock	Blue Dream	460
UTAH 	Salt Lake City	Headband	350
VERMONT	Burlington	Jack Herer	330
VIRGINIA	Richmond	Sour Diesel	400
Washington 	Seattle	Sour OG	250
WISCONSIN	Madison	Ghost Train Haze #1	375
INTERNATIONAL			
CANADA	Regina Toronto	Jack Herer God's Gift	C\$15

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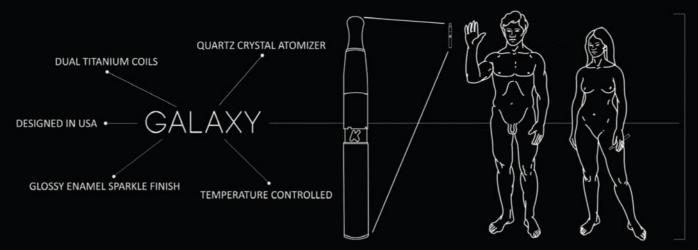


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eep in the mountains of Northern California, cannabis blooms among the redwoods, farmers live in rustic cabins with meandering dirt driveways and padlocked wire gates, and there's a quiet filled with both "an urgency and a void," according to Mendocino grower Justin Calvino, who serves on the board of the California Growers Association. Up here in NorCal, amid the skyscraper-tall trees, where cell-phone service fails, the air smells of fresh dew and fresher bud, and off-the-grid growers quietly tend their crops, the absence of everyday society, of the government, of the mainstream, is a celebrated way of life.

But at the same time—and at any given moment—helicopters can swoop down without warning, and law-enforcement agents can seize the plants, bust the farmers, and leave broken families in their wake.

That's been going on for decades, of course, but it could all soon change following the passage of Proposition 64, the Adult Use of Marijuana Act (AUMA), a California ballot initiative to legalize cannabis that won with 56 percent of the vote in November.

"Prop 64 is like a spaceship that's landed," Calvino says. So now everyone is struggling to make sense of California's intricate puzzle of state and local medical and adult-use laws.

At first glance, Prop 64 may seem like 62 pages of impenetrable legalese, which it essentially is-so let's humanize it. For growers like Calvino, a father of seven, Prop 64 invites more competition into the industry and increases the financial burden of staying compliant, but it also offers the prospect of full protection under the law. For someone like 37-year-old Corvain Cooper of Inglewood, currently serving a life sentence on nonviolent marijuana-conspiracy charges, Prop 64 retroactively reduces his felonies to misdemeanors, giving him a real hope of returning home to his daughters in the foreseeable future.

Legalized It

Nine states voted on cannabis in this election cycle (see the map above), with eight passing either medical marijuana or full legalization. Serious questions remain about how the new presidential administration will handle this issue, but

the momentum nationwide clearly favors legalization continuing to spread and take root.

Experts agree that California's win was the most significant in terms of ending the national War on Weed. Boasting 12 percent of the US population and the sixth-largest economy in the world, California has long been a national and even global trendsetter, including as the first state (in 1996) to legalize medical marijuana.

"How much further does it push the movement forward to have California legal?" asks Tim Blake, a Mendocino County-based grower and founder of the Emerald Cup. "It's like going over the top of the roller coaster-they can't stop it now; there's no turning back." And all that mojo is especially important given the unpredictable nature of the incoming Trump administration, says Amanda Reiman, a marijuana-law expert for the Drug Policy Alliance, who adds that it's vital to have a state as influential as California voting to legalize pot, because it can now serve as a buffer against potential pushback from the federal government.

Reiman and other advocates point



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out that Prop 64 was written to be a "gold standard." Beyond legalizing the possession of up to an ounce of cannabis and the cultivation of up to six plants at home for adults 21 and over, the proposition also creates a fully regulated recreational cannabis industry, including a 15 percent retail tax that's projected to garner at least \$1 billion in annual revenue (along with \$100 million in annual savings), which will fund research on legalization and medical marijuana, DUI protocols, support for communities disproportionately damaged by the War on Drugs, environmental cleanup from illegal grows, and drug prevention, treatment and education for young people. The law also reduces a number of marijuana felonies to misdemeanors and misdemeanors to infractions, and allows people like Cooper to have their sentences reduced retroactively or their criminal records scrubbed altogether. Under Prop 64, anyone 17 or younger will now face only a non-fined infraction for any marijuana violation, and at age 18 their record is sealed.

Cannabis cultivation will also be placed under strict new environmental and sustainability regulations. "Some of the farming practices that come out of

"They're all worried about big business coming in, but big business is already here"

the cannabis community could transform agriculture as we know it in a regenerative way, beyond just the organic model," says Sarah Bodnar, the campaign manager for Measure AF, a failed Mendocino initiative that would have set up a regulatory model to parallel Prop 64. Because cannabis will now be more closely regulated than any other crop, with strict standards imposed on water use and other cultivation practices, it should be easier to apply similar environmental regulations and practices to other crops in the state.

Prop 64 also sets up 19 different kinds of licenses for various types of cannabusiness—growing, manufacturing, distribution and retail—while prohibiting large-scale corporate cultivation for the program's first five years to give smaller operators a chance to establish themselves.

A Hazy Future

Sean Parker, the former Facebook president and co-founder of Napster, has been Prop 64's greatest supporter. He donated more than \$7 million to what he described as a "sensible reform-based measure that protects children, gives law enforcement additional resources, and establishes a strong regulatory framework for responsible adult use of marijuana—one that will yield economic benefits for all Californians."

After Parker, the second-largest source of support was the Drug Policy Alliance, headed by Ethan Nadelmann and funded largely by financier George Soros. The DPA contributed \$4.5 million to the initiative, while Soros himself donated about \$4 million.

The greatest financial opposition came from Smart Approaches to Marijuana (SAM), an anti-legalization group led by prohibitionists Patrick Kennedy, Kevin Sabet and David Frum. Sabet warns that legalization means "foolishly going down the path of another Big Tobacco."

Despite the fact that eight out of nine states voted in favor of weed, Sabet claims to be optimistic. "The overarching lesson was that if we could raise enough money early, we can win," he





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said, referencing SAM's only success, in Arizona, where a legalization initiative fell short with 48 percent of the vote. In an "action statement" on the 2016 election, SAM declared that it had raised \$1 million in pledges for a new Marijuana Accountability Project, which promises "to keep state officials and the industry more accountable—by making sure data is collected, municipalities are empowered to ban stores in their neighborhoods, and the industry pays for their damage. SAM will also explore legal options against the industry, and we will continue to engage in states with stakeholders around the issue, as well as with the new US Congress and Presidential Administration."

Nor is SAM the only group looking to legal action in the wake of Prop 64's success. Some local jurisdictions will seek temporary or indefinite bans on commercial cultivation and sales (though they can't ban possession or personal cultivation).

Reiman predicts that pushback will also come from law-enforcement groups, including attempts to block a provision in Prop 64 that guarantees equalemployment rights in the pot industry to those with prior felony convictions

Anything marked "Humboldt grown" must be verified by a third party to back up the claim.

for non-violent marijuana crimes. Law enforcement may also try to implement a nanogram limit on THC content in the blood in order to target potential DUIs. Such a move would negatively impact people who use cannabis more often, especially medical patients, Reiman

Chris Conrad, a court-qualified expert witness on cannabis, also predicts pushback on the local front, in addition to statewide legislative amendments. "The Teamsters and the alcohol lobby are against legalization," Conrad notes, "so what I see going forward is, they'll try to stop non-medical licenses from being made available in different areas."

Meanwhile, even many within the cannabis community questioned whether Prop 64 was the best way to legalize. Growers were split on the issue, and now that the initiative has passed, some

will try to have it amended. Indeed, the California Growers Association never officially endorsed it.

"I was very much for Prop 64 personally, because at the end of the day, I've been watching my friends and myself get arrested for 45 years," says Tim Blake, the Mendocino grower. "They're all worried about big business coming in, but big business is already here... People have to really learn how to grow organically, to grow the finest cannabis they can—to make a name for themselves, make a niche—and they'll be okay."

That's what Justin Calvino is doing. He founded the Appellations Project, which aims to label high-quality cannabis, much like fine wine, according to where it's grown. Uniquely, Prop 64 allows for such labeling of cannabis products, so that anything marked "Humboldt grown" must be verified by a third party to back up the claim.

The Appellation Project is looking to set up 11 different grow zones within Mendocino County alone, creating unique monikers like "Anderson Valley Pineapple." These appellations denote a strain's *terroir*, or the regional influences of the soil and climate, as a way to demarcate its quality.





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Growing Pains

Growers are also headed to the state legislature to forestall the threat of monopolies. Many hope to extend Prop 64's five-year ban on big business entering the state's cannabis industry. And Mendocino grower Casey O'Neill wants the legislature to restrict people from holding multiple types of licenses.

"Larger capitalized businesses are able to own licenses in each segment of the industry, allowing them to be vertically integrated," O'Neill says. "I think it's bad policy. It creates a more efficient supply chain, [but] inefficiencies create more jobs and more opportunities for small independent operators. [Vertical integration] also becomes ripe for abuses, like pesticide problems. It's a supply chain that's opaque—a recipe for corporate conglomeration and consolidation."

O'Neill speculates that legalization may actually encourage the black market: With criminal sanctions reduced for breaking the law, people may violate it more brazenly. "So long as there's a demand from states where [cannabis] is illegal, someone will produce it," he says. At the same time, some California consumers may want to avoid paying a 15 percent tax on weed.

Seeking a viable niche, small growers like O'Neill and Calvino say they're looking into the micro-business licenses offered under Prop 64, which would allow them to vertically integrate a garden of 10,000 square feet or less into something like a bud-and-breakfast, with onsite cultivation, processing, tours, sales and consumption allowed. "There are a lot of great farmers out there," Mendocino regulatory supervisor Dan Hamburg says, "but how many of them are business people? I want as many as possible to survive."

"It's no fault of anyone's that we've had to live in this criminal context for the last several decades," says the Drug Policy Alliance's Amanda Reiman, "but we have to move toward regulation if we want to see the market we all want to see. That can be scary," she acknowledges. "A lot of it comes from fear of the rules changing, and figuring out how to be a winner in this new landscape when [industry folk] have mastered doing it in the old ways."

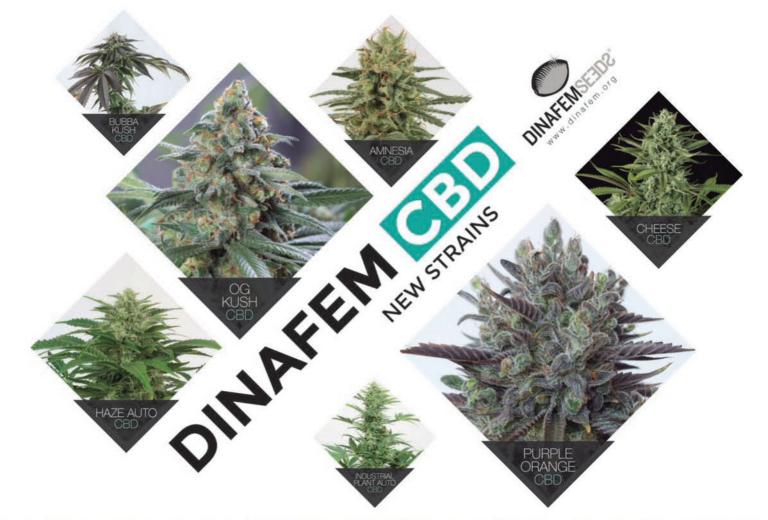
In the coming months, regulators will work to reconcile the adult-use and medical provisions under AUMA with the Medical Cannabis Regulation and Safety Act (MCRSA), passed by the state

legislature in 2015, so that California emerges with two parallel systems—one for medical use, the other for recreational—that aren't in conflict with one another. Over the course of the next year, licenses will be granted and other regulatory issues smoothed out so that the state's recreational cannabis industry can be up and running by 2018.

But creating that industry is secondary to the personal freedom that legalization returns to the public, Reiman points out.

"The fact of the matter is that, if you want to sell something in the commercial market in the US, there's a book of rules that goes along with that-but that's not why we have legalization," she insists. "It's not so people can get licenses and have businesses. We have legalization so the person walking down the street doesn't get stopped and go to jail; so the smell of marijuana isn't enough for a cop to stop you and ask what you're doing; or to make it so they can no longer take a child out of a home or you can't get a job [because of cannabis use]. We're misallocating our attention to the business side, when it's really about the personal-freedom side. The business side is what we create in order to supply the product that we've decided is not a crime to have." *







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The medical marijuana industry is growing every minute. Legal marijuana is the fastest-growing industry in the U.S. and a slew of other businesses are jumping on the bandwagon as well. At present, 23 U.S. states allow medical-marijuana use, while 7 have legislation pending to issue licenses for it.

4 states and Washington, D.C. have legalized cannabis outright, while another California referendum in 2016 will allow recreational use in a state that was the first to permit medical marijuana use way back in 1996. It is estimated that medical marijuana is already a multibillion-dollar industry (without counting recreational sales).

While a great deal of information and misinformation appears daily on the Internet, novices and more advanced growers alike are always looking for a source of reliable information which can serve to improve their yields, both in terms of quality and quantity. A whole community of growers inhabit the growers' forums and are always looking to perfect their growing skills, without having to wade through hours and hours of irrelevant or misleading forum posts.

GMU is a bold step in a better direction, and by elevating the general level of education among growers, the quality of marijuana, especially as medicine, will skyrocket worldwide. This isn't just for connoisseurs. It's for children with epilepsy, as well as adults suffering from the effects of chemotherapy, chronic pain, and glaucoma. Thousands of YouTube videos help document the impressive results of therapeutic cannabis use.

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HEALING PIELD

With the arrival of vast crops of CBD-rich cannabis, farming in southeastern Colorado is beginning to take on a whole new dimension.

Story & photos by Dan Skye



he Rocky Mountains are behind me somewhere, nowhere in sight. The Kansas border is 100 miles ahead. This is the western edge of the Great Plains, the vast expanse of prairie in America's heartland that stretches from Texas to beyond the Canadian border.

On this early fall morning, I'm meeting Craig Neal and his wife Celena at their home in Rocky Ford, a farming community of about 4,000 known primarily for growing juicy melons. Craig and Celena aren't your average country farm couple. They weren't raised in farm families, and they aren't natives of Colorado either.

They're both originally from Florida. But Craig went to college in Colorado and eventually went on to work as a pot grower in a Denver dispensary. So how did he wind up in sleepy Rocky Ford?

"I'm a networker," Craig says simply. "I've met lots of people throughout the cannabis industry and made some valuable connections."

When Colorado went fully legal, allowing the retail sale of recreational pot, hordes of entrepreneurs searched for a doorway into the new industry. "It was the Green Wave," Craig says. "Everybody wanted to cash in. I was fortunate to run into the people at Folium Biosciences, who were looking to establish brand identity with CBD-rich cannabis.

"I also happened to know farmers who were looking to stretch out beyond the local agriculture," he adds.

Long story short, the folks at Folium invited him down to their headquarters in Colorado Springs. Craig knew that he had both the contacts and the know-how to make their dreams a reality. "Because really," he explains, "growing CBD-rich cannabis is no different from growing traditional marijuana."

He was offered a position—director of grow operations—but this was no leisurely transition. Folium was hot to get started instantly. In a matter of days, Craig quit his job, packed up his things and headed to Rocky Ford with Celena.



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WHC1 is a highly hybridized strain, bred rigorously to reduce the THC content. It's remarkable for its 59:1 ratio of CBD to THC and its overall CBD content, which has been measured between 8 and 18 percent.

While industrial hemp crops do contain CBD, the amount is far less than the CBD-rich cannabis harvested by Folium. Huge crops of industrial hemp are required in order to extract only a small amount of CBD. Also, industrial hemp is a bio-accumulator—meaning the plant naturally draws toxins from the soil. Consequently, CBD products derived from industrial hemp may contain contaminants.

But Craig explains that WHC1 is a highly hybridized strain, bred rigorously to reduce the THC content. It's remarkable for its 59:1 ratio of CBD to THC and its overall CBD content, which has been measured between 8 and 18 percent. It's a registered strain with the Colorado Department of Agriculture, and the oil that Folium Biosciences is producing has proved to be extremely effective in treating children with epilepsy.

Folium has become the largest vertically integrated producer of CBD-rich hemp oil in the world. Its proprietary engineering process isolates and removes unwanted compounds and generates maximum potency,

In Colorado, the official state designation for CBD-rich cannabis is "CBD hemp"—plants with less than 0.3 percent THC. It can be confusing: Although industrial hemp and marijuana are of the same species, they have nothing in common agriculturally. Industrial hemp crops are notable for their long, thin, bamboo-like stalks, while the CBD-rich plants in the Folium fields—a strain dubbed WHC1—are short and squat, no higher than 3 feet.



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thereby ensuring a full-spectrum oil that includes high levels of CBD and terpenes, ensuring a consistent, pure product.

At Folium's headquarters in Colorado Springs, over a million clones are prepared in indoor grow operations and greenhouses for the fields. Craig and Celena oversee the crops in conjunction with the farmers.

Last year, Folium harvested 110 acres in partnership with Diamond A Farms in nearby La Junta. This year the harvest was a bit less, due to the Department of Agriculture's refusal in the spring to accept Google Maps as a proper submission of a farm's planned acreage. So Folium contracted with other local farmers to grow 45 acres of CBD-rich cannabis in 2016. However, in the coming year, over 500 acres are being primed for cultivation.

Obviously, Craig and Celena have their hands full. They're in the fields or at the mammoth production facility, a former Wal-Mart, where the crops are dried and prepared for transport to processing facilities. Though both are native Floridians, they say that life on the farm has been a blast.



"We were already homebodies," Celena tells me. "We were never much for going out. We love it out here—the quiet—and we know we're doing something good, something that benefits people who are very sick."

But there's a stigma to deal with, too. Craig and Celena are newcomers, involved in an enterprise that many of the locals still believe is the equivalent of drug trafficking. Around town, they get pointed at and talked about-but nothing overt. Of course, this past year they did run into farmers who wouldn't even consider leasing their fields to Folium due to the nature of the crop. Craig says it's not all that surprising, considering the conservative nature of the community. Still, it is somewhat puzzling: Why would a farmer who's having trouble paying the bills refuse to grow a legal crop—one that's a proven moneymaker?

"In time, that will change," Craig says. "Once they recognize the simple economics." *

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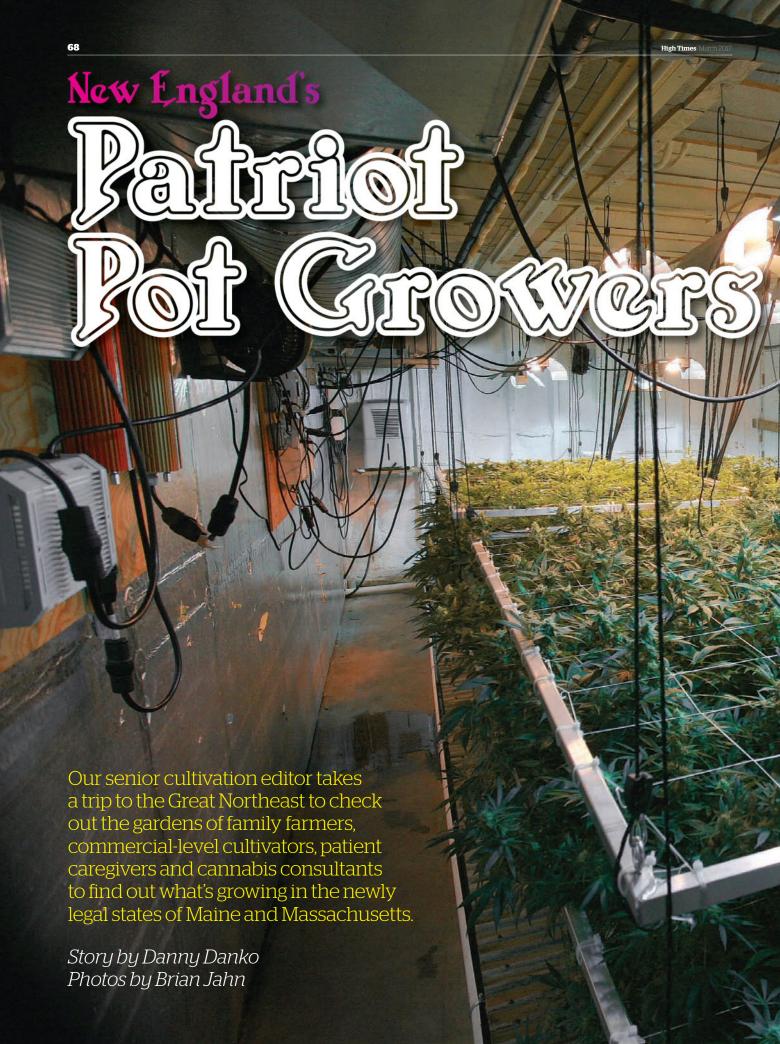
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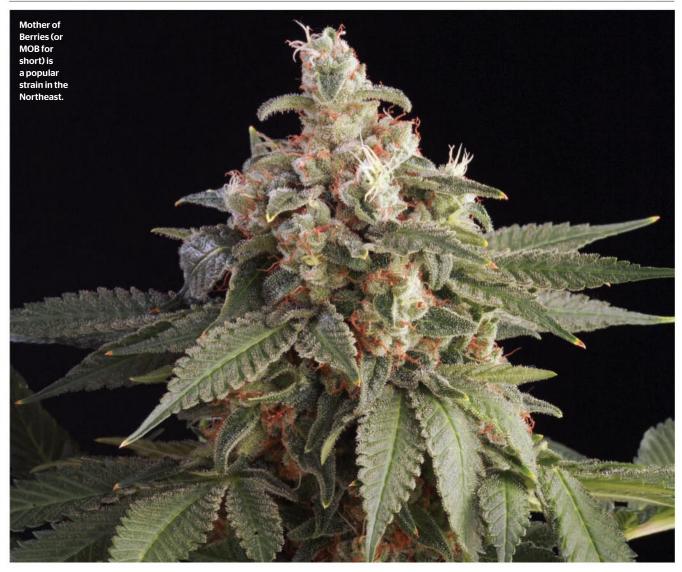
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Migs in Maine

The first garden we toured on our trip to New England is run by a gentleman who calls himself Migs. He's a Maine caregiver with a patient collective run by and for medical marijuana patients. Although Migs is concerned about what the new adult-use law will do to Maine's medical marijuana system, he's keeping his hopes up and staying ready for anything.

Migs's grow is a drain-to-waste drip system with plants in 15-gallon containers that are fed five times a day. The nutrients are custom-built on a foundation of Cutting Edge Solutions products for the base, as well as supplemental teas. Corrugated roofing is used to hold up the pots and drain the used nutrient solution away. The plants remain in their vegetative stage for a full month before flowering is induced.

The medium here is made up of 50% peat, 40% coco and 10% grow stones. A scoop of worm castings and a half-scoop of stone meal (basalt) are added as well.

This results in a very loose and airy mix that allows plenty of oxygen to get to the roots, and Migs never lets it dry out completely. A unique custom-made double-trellis system employs two levels of aluminum tubes strung across the canopy with netting. The plants are trained into the first row of tubes for the grow, and then trained into the second row above it to support their heavy buds during flowering.

The CES nutrients are supplemented with a biweekly tea brew hand-fed to every plant. The tea consists of cold-pressed seaweed, a "shitload" of worm castings, blackstrap molasses and beneficial bacteria. The tea is oxygenated for 24 hours using an air pump and air stones, and the molasses is added for only the last hour of brewing. Prior to harvest, the "Little Guy" performs a 10-day flush with 5 gallons of RO (reverse-osmosis) filtered water per day.

We visited Migs before Maine's recent

vote to legalize the adult use of cannabis, but I reached out to him after the results were in to get his response. "The cannabis culture is volatile at best," Migs said. "There's very little solid ground to stand on, and one always has to be ready for new regulations and potential pitfalls. It's not a business for those who are weak at heart or lack the willingness to adapt. With Trump, Jeff Sessions, and our Governor Paul LePage's attempts to put the brakes on Prop 1 [Maine's legalization initiative]—and with it passing by less than 1 percent, with talk of a recount—it's tough to say what will happen next.

"With the new federal regime rallying against cannabis," Migs continued, "it's now time more than ever to work at the local level to expand the testing and research on medical cannabis. It's my hope that the laws are as liberal as possible, and that they work to protect the small farmer and pot patients and health sovereignty first!"





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Port City Relief

Next, we took a short ride closer to Portland to meet up with the good folks at Port City Relief, one of Maine's premier cannabis providers, assisted by TopCrop Consulting. Nick Messer, Kevin Young and the rest of the crew showed us around the facility, and I was impressed by their professionalism and the cleanliness of their grow and processing spaces. All of the various cultivation and laboratory environments were tightly controlled, sterile and completely hygienic.

As we strolled through the facility, Nick and Kevin explained their cannabis-production philosophy. Serving as two of the three co-presidents of the Maine Marijuana Processing Association, they're looking to establish standards that protect medical cannabis patients. Their goal is to produce organically grown, medicinal-quality cannabis, extracts and edibles without the use of toxic pesticides or PGRs (plant-growth regulators).

The plants at the Port City Relief facility are started in cloning rooms. After rooting, they're moved to the vegetative rooms, where six SolisTek 1,000-watt

metal halide (MH) digital lights hang above 20-gallon containers filled with coco blend, perlite and paramagnetic rocks. These plants are hand-fed with Biobizz nutrients during their two months in the vegetative stage, until they develop thick trunks and abundant branches for bud sites. The containers sit on corrugated metal over movable rolling beds, and the nutrient solution drains to waste.

The plants go into their flowering stage under 1,000-watt Gavita high-pressure sodium (HPS) lights. All of the grow areas are controlled using technology from Lifesprings Microclimates, which creates customized systems to suit commercial farmers' needs. Lifesprings is head-quartered in Auburn, ME, but provides services nationally, including HVAC, odor control, lighting, CO_2 injection, decontamination and more.

As we inspected the immaculate processing area, Nick and Kevin demonstrated some rosin-press techniques for us. High-powered hydraulic presses literally squeeze the essential oils right out of the flowers or dry-sifted gland heads. The oils ooze out and are a dabbable

alternative to solvent-based extracts like butane hash oil, or BHO.

I followed up with Kevin after the trip to find out what the Port City Relief crew thought about the changes coming to their state. "Maine has had one of the best medical cannabis programs in the country since its establishment in 1999," he told me. "We don't want to see it disappear like Seattle's program. We would like to see the two coexist, as with Colorado's medical cannabis program, so we can care for patients. I feel bad for the 3,000-plus caregivers that have put their heart and soul into building a small business; we hope to protect them and ourselves. Maine has one of the worst economies in the United States. The recreational marijuana program could generate new brands and over \$150 million in taxable dollars each year. This allows the consumer to have a larger selection of product, and the tax dollars generated can be used to build schools, infrastructure, drug rehab and social programs.

"Maine will be a leader of the cannabis industry in New England no matter how the laws play out," Kevin added. "Come up to Vacationland and see for yourself!"

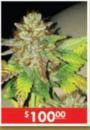


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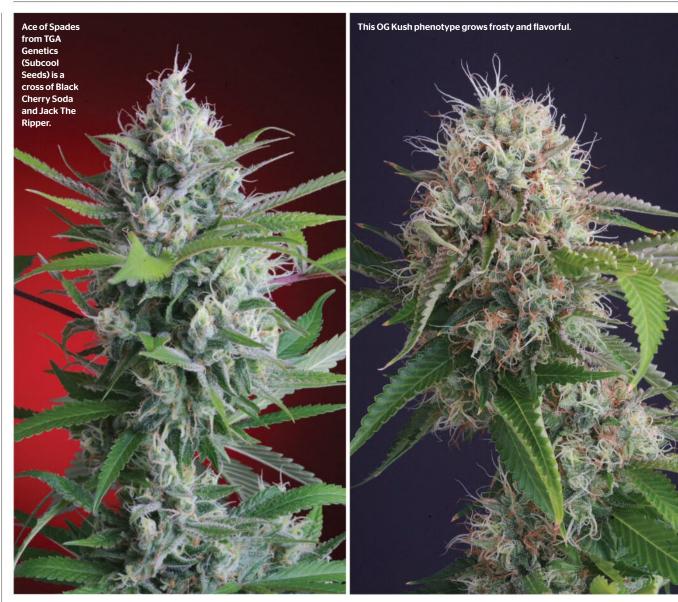
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Buzz's Garden

Further on up the road, we meet with Buzz and his family, who all participate in tending a perpetual-harvest medical marijuana grow. As a caregiver and patient, Buzz says, "I've been keeping us fed for five years legally." He also keeps everything as organic as possible, telling me: "I try to stay veganic, but every once in a while, I play with some poop!"

Buzz's medium starts with the classic Sunshine Mix #4, to which he adds earthworm castings, humisoil, greensand, alfalfa and kelp meal. The plants are hand-fed General Organics nutrients and Vegamatrix's Hard-n-Quick foliar spray, and they're grown in 3-gallon buckets with a one-month vegetative time under MH and T5 fluorescent lighting. Then they move into the flowering rooms to bloom under air-cooled HPS bulbs and get Vegamatrix's Big-n-Sticky as an additive.

How does the perpetual-harvest system work? Under Maine's medical marijuana law, Buzz is allowed to have six plants apiece in their various stages: six in the cloner, and another six in early veg, mid-veg, late veg, early flower, mid-flower, late flower and harvest.

"Ultimately," Buzz tells me, "we aim to harvest one plant per patient every 8-10 days and always have the same turnaround... never too much, and as earthy and clean as we can. We try to recycle everything and tread lightly—patients before profits." His advice for beginning growers is to learn from their mistakes and keep trying. "We have had some impatient patients!" he jokes.

The plants in Buzz's garden get a 10-day flush with filtered water right before harvest. Then they're trimmed wet and hung up to dry. Once the branches snap instead of bending, the buds are snipped off and put into jars for curing.

"It's weird to me that we're refugees from just down the road," Buzz points out concerning his setup. "In New Hampshire, if we had one plant, we'd be felons. Here, up to 99 is a misdemeanor, and we're less than 10 miles away!"

Regarding Prop 1, Buzz acknowledges that "many growers voted against it, thinking that it favors big business instead of the local economy. A lot of us are scared to lose our livelihoods. Washington State's medical system seemingly fell apart from their adult-use law, and now they're complaining about overregulation, high taxes and exorbitant licensing fees. Plus Trump coming in throws a serious wildcard into our future as well. There's a ton of confusion, anxiety and some excitement up here. Time will tell."









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Eric from MassCannabis Consulting

The final stop on our trip was in Western Massachusetts, another state whose voters recently legalized marijuana for adult use. We were there before the election, so the garden we visited was a medical one run by Eric Vallee, a multiple Cannabis Cupwinning grower.

Eric and his collective of friends have been bringing home trophies regularly for their flowers and concentrates, including a 2015 first-place win in Michigan for Best *Sativa* Flower with their Strawberry Banana; a shared first-place win for Best Non-Solvent Extract at the 2015 World Cannabis Cup in Jamaica with their Strawberry Banana Hand-Pressed Rosin; and yet another first-place win in the 2016 SoCal *Indica* Flower category with Grape Stomper OG, just to name a few.

Eric runs the consulting company
MassCannabis Consulting and works
with his buddies Jason Bates, breeder
and owner of Mass Genetics, and Peter
Molle, its manager. Eric also co-owns Nerd
Creations with his friend Lorenzo, and
they've won multiple awards worldwide
for their concentrates as well.

Despite this hectic résumé, "I'm just a grower," Eric says, "but I do a little consulting on the side. Most of all, I love pheno-hunting for keeper mother plants



from seed crops. Smokers and dabbers love the Strawberry Banana and Tangie we grow from Crockett Family Farms, and extract artists especially love our Kosher Kush pheno that we grow from DNA Genetics, as they've been getting 24 to 27 percent returns!"

Eric regularly harvests 10 pounds of medical cannabis from a space that has just 16 plants under four 1,000-watt HPS lights with a two-and-a-half-week vegetative time. He does this using two eight-site Under Current recirculating hydroponic systems from Current Culture. You can practically see the plants growing before your eyes

when you dial in this sophisticated and highly aerobic setup. The 16 plants—four under each light—are fed with General Hydroponics' Flora Nova three-part nute system along with some GH additives.

I asked Eric about his future plans in light of the newly legal landscape in Massachusetts. "Hopefully, with the lifting of prohibition here and in other parts of New England, the social stigma will lift and business will pick up," he replied. To that end, he and his bud brothers are focused on breeding projects for their seed companies and looking to one day expand into a bigger marijuana marketplace. **



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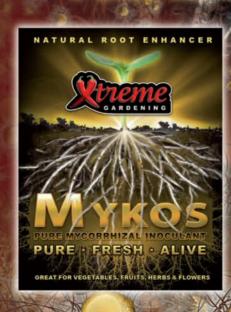
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n April 20, 1968, Pierre Elliot Trudeau became the 15th prime minister of Canada. He had charisma, style and intelligence and was a much-sought-after bachelor known for dating movie stars, musicians and other women of considerable influence. He eventually married a beautiful young woman from British Columbia named Margaret Sinclair. A free-spirited child of the '60s-someone who literally wore flowers in her hair-Margaret captured the hearts of the Canadian public, especially after the couple had three sons who were also adored by Canadians. It was a magical time for the nation.

Now, almost 50 years later, Justin Trudeau—the eldest son of Pierre and Margaret—is serving as Canada's 23rd prime minister, and for some, the magical times have returned. On April 20 of this year, at the UN General Assembly's special session on drugs, Trudeau's government announced a plan to legalize cannabis. That move would make Canada among the very first nations to fully end pot prohibition on the federal level—a major step on a long journey that actually began back in the late 1960s, when Trudeau's father had an impromptu meeting with John Lennon and Yoko Ono.

The former Beatle and his wife were holding an anti-Vietnam War protest at the Hotel Elizabeth, a grand hotel in the heart of Montreal named after Queen Elizabeth II, the monarch of Canada. Dubbed a "bed-in," the couple's strategy for raising awareness of the power of love consisted of staying in bed for a week while inviting peace activists and the media to join them. It was during the bed-in that "Give Peace a Chance" was recorded with a roomful of antiwar dignitaries, including Timothy Leary and Dick Gregory. John and Yoko had already conducted a similar protest in Amsterdam, and they'd selected Montreal as a safe space: somewhere outside the United States (which Lennon was barred from entering at the time because of his 1968 pot bust in England), with a culture friendly toward artistic expression.

The bed-in touched off a media frenzy not only because of John and Yoko's ingenious means of protesting the war, but also because celebrity sightings in Canada were exceedingly rare. And it attracted the attention of Prime Minister Pierre Trudeau, a progressive free-thinker who would eventually give Canada its own Bill of Rights (adopted in 1982, and known as "the Charter"), which remains



Trudeau acknowledged that he's smoked pot five or six times in his life including after being elected to Parliament.

the backbone of many freedoms we hold dear as a nation today. Since its passage, the Charter has allowed, among other things, the legalization of abortion, gay marriage and medical marijuana.

Given their outsize personalities and shared political goals, it's not surprising that the fateful meeting between the Canadian prime minister and the activist musical couple lasted much longer than the allotted 10 minutes. Neither party shared what they discussed with reporters, but Lennon did say that "if all world leaders were like Prime Minister Trudeau, we would have world peace." And given his recent arrest for possession, the issue of marijuana prohibition was clearly on Lennon's mind at that time—so is it possible that the exchange of ideas between these visionary individuals planted seeds that are finally coming to fruition in Canada today?

If so, history's slow arc toward cannabis justice began back in 1968, when, a year after becoming prime minister, Pierre Trudeau set up the Le Dain Commission to study drug use in Canada, with a focus on marijuana. John Lennon, Yoko Ono and Timothy Leary were all interviewed by the commission, whose report was finally released in 1972 and proved to be well ahead of its time.

"The Le Dain Commission does *not* conclude that marijuana is harmless," Trudeau's blue-ribbon panel of experts announced. But "reliance on the 'hazards' theme to curb marijuana smoking has proved fruitless or worse in the past and is unlikely to prove more effective in the future... The conclusion we draw from the testimony we have heard is that it is a grave error to indulge in deliberate distortion or exaggeration concerning the alleged dangers of a particular drug, or to base a program of drug education upon a strategy of fear."

Unfortunately, those findings enraged then-President Richard Nixon, the architect of America's modern War on Drugs, whose administration pressured Canada and many other nations to crack down hard on cannabis. As a result, the report's recommendations were put on hold for a very long time.

Fast-forward to the fall of 2012, when a small group of cannabis activists met with Justin Trudeau in his office on Parliament Hill. At the time, Trudeau was a youthful MP without any official ambition to become our next prime minister (though there were rumors).

The NORML Women's Alliance of Canada had come together the previous year, inspired by a similar group in the United States and with the shared mission of empowering women to push for legalization and an end to the destructive War on Marijuana. As long-time cannabis advocates newly organized under that banner, we arrived for our meeting with Trudeau anxious, but also fully resolved and ready to be heard. Our timing was perfect, but we knew we had a very small window to capture his attention for our cause, as would be the case with any other politician on Parliament Hill actually willing to meet with us. So our persuasion campaign was centered on a simple strategy of highlighting the way that pot prohibition harms communities and families-the same arguments that female reformers in the United States had used so effectively to roll back alcohol prohibition generations earlier.

Still, despite all our experience and preparation, I admit to feeling the weight of the moment when we found



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ourselves face to face with the first son of Canada's modern political dynasty. Justin Trudeau is a very tall man, but his voice is gentle. When we sat down in his small parliamentary office on that crisp fall day, he immediately advised us "not to worry," because he was all in favor of decriminalization. I was sitting across from him, and I began to shake my head in disagreement. Decriminalization had been touted by Prime Minister Jean Chrétien of the Liberal Party back in 2002, and it was a safe position: Even some Conservatives had publicly supported different models for decriminalizing cannabis, including ticketing. As activists with one clear shot at making our case, we didn't want to argue for anything less than legalized cannabis.

Then I saw the look of shock in Trudeau's eyes—I was still shaking my head "no" to decriminalization—and so, in order to de-escalate any disagreement, I smiled at him before launching into our arguments as to why decriminalization was insufficient.

"Al Capone would have loved it if alcohol had only been decriminalized," I pointed out as we settled into the conversation. We moved on to discussing the harm that prohibition inflicts on families and communities. That struck a chord with him: Trudeau's concern for the safety of children was paramount. In retrospect, I see where our argument aligned with his political strategy: The Conservative government had chosen as one of the themes of its prohibition cam-

"When the joint went around the room, I usually passed it around to the next person," Trudeau said.

paign the "danger to the young mind" posed by cannabis. And so we talked about the "harms of prohibition as being more dangerous than any perceived harms of cannabis" to show that only by regulating it could we truly protect children.

The meeting, which lasted about 45 minutes, ended with our giving him a copy of a private members' bill that would remove cannabis from the federal Controlled Drugs and Substances Act, as well as some of our educational handouts and a copy of *The Union*, the highly acclaimed documentary by filmmaker Adam Scorgie. Trudeau was

very interested in the film, its teaching potential and the fact that it was made by a Canadian, and he promised to watch it "right away."

During our meeting, he also discussed his own experience with cannabis, including his mother's use and her struggles with mental illness. Indeed, there wasn't a person in the room whose life hadn't been affected by prohibition, and we left feeling that we'd made a real impact, but unsure if it would ever translate into actual policy.

Then, in the summer of 2013, Trudeau was elected as the leader of the Liberal Party in a landslide, and for the first time he plausibly appeared to be on his way to becoming our next prime minister: He had the legacy and the looks, and he was something of a political rock star. He also had some secrets that he was about to make public. The Liberal Party had adopted a legalization policy at its biannual convention prior to his leadership win, and though it's been rumored he didn't support the policy at the time, there's really no way of knowing how he actually voted. What is clear is that Trudeau had decided to come out of the closet regarding his own cannabis use. as he explained in a candid (and gutsy)





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interview with the Huffington Post.

Trudeau acknowledged that he's smoked pot five or six times in his life—including after being elected to Parliament. "It has never really done anything for me," he told the Web publication via e-mail. "When the joint went around the room, I usually passed it around to the next person," though "sometimes throughout my life, I've had a pull on it... Sometimes, I guess, I have gotten a buzz, but other times no. I'm not really crazy about it."

Trudeau also described himself as not much of a drinker (he has never smoked cigarettes, and doesn't even drink coffee). But he said that his choice to try a toke or two every once in a blue moon was personal, and that adults should be allowed to make their own decisions.

"I'm not someone who is particularly interested in altered states," he said, "but I certainly won't judge someone else for it. I think that the prohibition that is currently on marijuana is unjustified."

In the *Huffington Post* interview, Trudeau also talked about his youngest brother Michel, who'd been arrested for possession before dying in an avalanche in the wilds of British Columbia at the tragically young age of 23. He also talked about our meeting with him and how our arguments helped sway his attitude toward legalization.

"Trudeau was approached by a group called NORML Women's Alliance of Canada who said pot was too easy to access for teenagers," wrote Althia Raj, the Ottawa bureau chief for the *Huffington Post* Canada. "It was easier to buy than cigarettes and booze, they said. They wanted marijuana regulated, controlled and legalized."

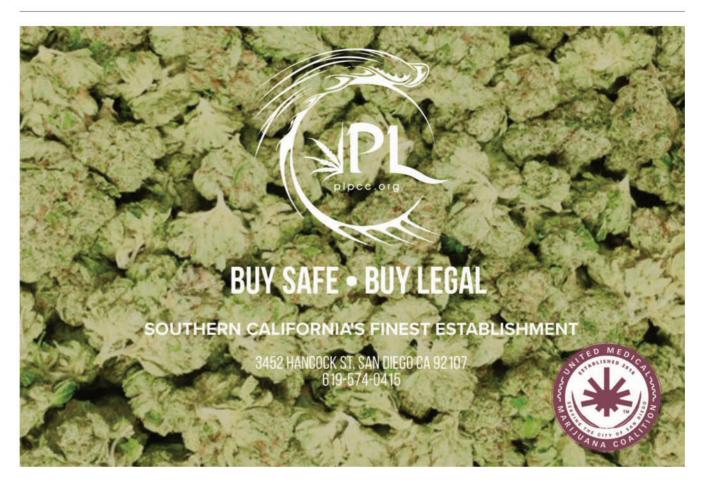
Obviously, it was beyond gratifying for us to hear the future leader of our country citing our organization and its policy arguments in such a way, and to this day, when Trudeau talks about the issue, he references the same points we discussed during our meeting. But I'm not sure he didn't have his sights set on cannabis legalization all along. After all, he grew up with a very healthy understanding of what the War on Drugs was all about; his father, his mother, his brothers and his peers were all ahead of the curve on this issue. I think we just gave him the ammunition he needed to bring it home.

I've had the opportunity to speak with Prime Minister Trudeau many times since our first meeting, and I believe he wants all the good that will result from a thoughtful and responsible change in marijuana policy. Canada now has an incredible opportunity to show the way for other national governments to legalize cannabis—but only if we do it right.

Canada's legalization process is well under way, but the waters are still murky. The recommendations from a federal task force studying the issue will likely be adopted and introduced in Parliament this spring. In the meantime, all sectors of the cannabis industry are moving quickly to adapt; stocks in the legal medical marijuana sector are on fire; and entrepreneurs and artisans have already begun building their brands and planning their empires.

And it all started with a conversation between John Lennon, Yoko Ono and Pierre Trudeau that was probably not so much about cannabis as it was about war and peace and Canada's role in the future. This really *is* about war and peace, and how Canada can help bring an end to the destructive War on Marijuana.

So if the Canadian government does introduce a bill to legalize cannabis this spring, here's hoping that it happens on April 20: That seems to be a good day for the Trudeau legacy. \checkmark



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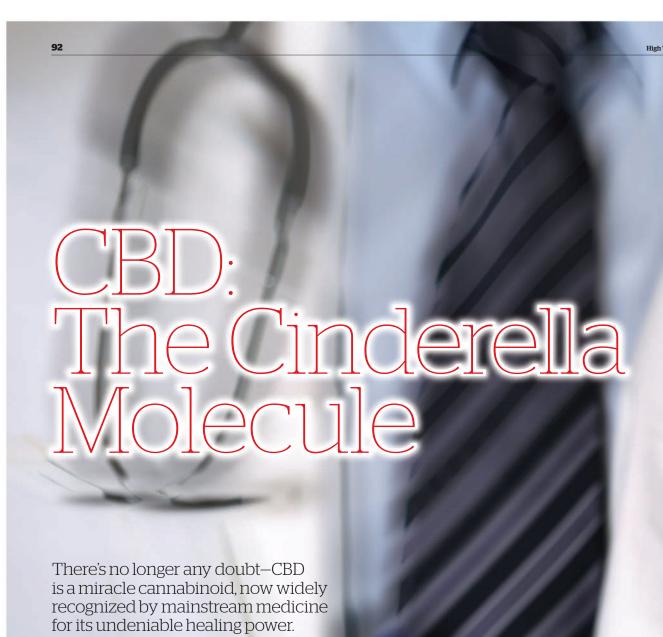


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By Martin A. Lee

"This changes everything!"

That was the immediate reaction of Bay Area journalist Fred Gardner as he stood in the office of Steep Hill Laboratory in Oakland and eyed a chromatogram showing the unusual cannabinoid content of a hitherto unknown marijuana strain. The year was 2009, and the strain of interest, an oddity called Soma A-Plus, didn't top the charts for THC (tetrahydrocannabinol), a.k.a. the high-causer, unlike the several thousand other bud samples that Steep Hill had previously tested for California's medical marijuana dispensaries and growers.

Soma A-Plus was the first of a handful of soon-to-be-discovered strains imbued with a significant amount of cannabidiol (CBD), a compound with intriguing medical properties. One of these strains, Women's Collective Stinky Purple, tipped the scales at over 10 percent CBD by dry weight, with little THC. This genetic anomaly wasn't hemp—it was a drug plant, a high-resin, CBD-rich marijuana strain brimming with medicated goo. But anyone who smoked it or consumed it as an edible wouldn't get high, because CBD isn't psychoactive. In fact, CBD can actually lessen or neutralize the THC high, depending on how much of each compound is in a given strain or product.

Traditionally, cannabis grown for hashish contained roughly equal amounts of THC and CBD. Starting in the late 1970s, however, cannabis genetics changed as renegade breeders in Northern California catered to the consumer demand for stonier THC-dominant varietals. Consequently, CBD nearly vanished from the grassroots gene pool in the Emerald Triangle, America's cannabis breadbasket.

When Californians passed Proposition 215, the 1996 ballot measure that legalized cannabis for medical use statewide, few people knew about CBD. It wasn't on anyone's radar, except for a small group of scientific pioneers who were probing marijuana's molecular mechanisms and healing potential. Early studies indicated that CBD had noteworthy anti-inflammatory, anti-tumoral, antipsychotic and anticonvulsant properties, with no known adverse side effects.

Fred Gardner had been covering the CBD science story in *O'Shaughnessy's*, the journal of cannabis in clinical practice. In 2010, he and I launched Project CBD, an educational nonprofit that reported on the entire CBD phenomenon: the research, the patients, the doctors, the new strains and products, and the business angles. From the start, we sensed that CBD could be a



game-changer for the medical marijuana movement, that it might be the key to liberating marijuana from the confines of the drug-abuse paradigm. How could the pretzel logicians in the Drug Czar's office justify the ongoing prohibition of CBD-rich cannabis, a safe medicinal substance with no adverse side effects and that doesn't even get you high?

The advent of CBD-infused products meant that a lot more people including those who aren't into getting stoned—would be open to using marijuana for health reasons. Not everyone enjoys the THC high; some folks get edgy and anxious on weed. CBD-rich cannabis could be the answer for those who want to experience marijuana's health benefits without the buzz. We referred to it as "CBD-rich" (rather than "high-CBD") cannabis to get away from the stoner connotation. That designation has since been adopted by medical scientists in peer-reviewed publications.

A Tipping Point

The serendipitous rediscovery of CBD in Northern California would eventually upset everyone's applecart—cops and stoners alike—and usher in a new era of cannabis therapeutics. The crucial tipping point came in the summer of 2013, when CNN broadcast Dr. Sanjay Gupta's special on medical marijuana, which featured the now-famous case of Charlotte Figi, a young girl from Colorado who suffered from Dravet's syndrome.

Little Charlotte was having hundreds of epileptic seizures a week, and pharmaceutical medications weren't helping. Her parents thought they had run out of options, but then they heard about a boy with Dravet's syndrome in California who responded well to CBD-rich cannabis oil. They found a high-CBD/low-THC strain at a Colorado cannabis dispensary, and it worked like a charm for their daughter, reducing her seizures to a couple a month. That strain is now called Charlotte's Web in her honor.

Suddenly, the CBD genie was out of the bottle. A national television audience was stunned by what they saw and heard: Marijuana, once slandered as the "assassin of youth," could save the lives of desperately ill children. And what's more, kids and grownups didn't have to get stoned to get better. The idea that it might be possible to access the therapeutic upside of marijuana sans the euphoria or dysphoria produced by THC would prove irresistible to a lot of people after the CNN special.

But along with a growing awareness of cannabidiol as a potential medicine, there has also been a proliferation of misconceptions about CBD-rich cannabis, a remarkable botanical that has befriended humankind since before the written word. Cannabis has a rich history as a source of fiber, food and medicine in many countries going back thousands of years. But our ancient connection with this plant, and our knowledge of its utility as a versatile folk medicine, was broken by marijuana prohibition. Thus, we've had to recreate a rapport with cannabis and relearn how to use it for maximum therapeutic benefit.

Some might wonder: Why not just spark a fattie and inhale? That seems to do the trick for a lot of people. Actually, it's gotten a lot more complicated now that there are potent cannabis-oil extracts with different ratios of THC and CBD to choose from, as well as various ways to administer them. Figuring out how to harness the curative qualities of cannabis is still a work in progress. It's the driving force behind the great laboratory experiment in democracy known as medical marijuana that's been unfolding state by state in recent years.

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The Big Breakthrough

For a long time, the illegality of marijuana has acted as a deterrent to scientific research in the United States. Ironically, it was President Ronald Reagan who advanced our understanding of the scientific basis of cannabis therapeutics when he escalated and militarized the War on Drugs in the 1980s. The Reagan administration poured tens of millions of dollars into research that would prove once and for all that marijuana damages the brain—or so they thought. After all, this was the "evil weed," and it was an article of faith within the Drug War establishment that smoking marijuana causes brain damage.

But rather than showing how marijuana harms the brain, the Reagan administration ended up subsidizing a series of studies that culminated in the discovery of the endocannabinoid system, which actually *protects* the brain when activated by plant cannabinoids like THC and CBD. This major scientific breakthrough opened up whole new vistas in the understanding of human biology and went a long way toward explaining how and why cannabis is such a multifaceted medicine—and why it's the most popular illicit herb on the planet.

By the mid-1990s, the endocannabinoid system had emerged as a hot topic among scientists around the world, who shared their findings in highly technical, peer-reviewed journals and at annual meetings of the recently formed International Cannabinoid Research Society. There ensued an avalanche of scientific data attesting to the jaw-dropping therapeutic potential of CBD and other cannabis compounds.

A 1998 preclinical study funded by the National Institutes of Health became the basis for a US government patent on the antioxidant and neuroprotective properties of CBD and THC, which were found to limit "neurological damage following ischemic insults, such as stroke and trauma." Both compounds were described as having "particular application... in the treatment of neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease and HIV dementia."

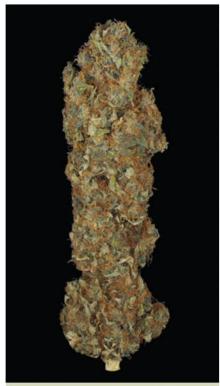
And that's just for starters when it comes to cannabidiol. Some highlights from the exploding field of cannabis therapeutics:

CANCER: Scientists at the California Pacific Medical Center showed that CBD reduces breast-cancer-cell proliferation, invasion and metastasis in human-cell-line experiments.

DIABETES: Israeli researchers reported that CBD "lowers incidence of diabetes in non-obese diabetic mice."

EPILEPSY: British scientists noted that CBD exerts anticonvulsant effects in animal models of epilepsy.

MOOD DISORDERS: Brazilian investigators explored CBD's potent antipsychotic and anti-anxiety properties.



S.A.G.E. CBD A Bubbling Source of Healing. By Green Born Identity

After residing deep in the shadow of its more famous companion THC for a very long time, CBD (cannabidiol) is rapidly conquering both the medical world and the breeder and grower community. Every seed company striving to keep pace must carry one or, ideally, several CDB-rich varieties in its portfolio.

In the case of T.H. Seeds in Amsterdam, the company decided to work with breeder Shantibaba and his CBD Crew, a highly experienced team in the field of CBD-rich strains. In collaboration with them, T.H. Seeds developed two new CBD-rich strains based on their popular S.A.G.E. and La S.A.G.E. varieties.

One of the goals was to create a strain with a 1:1 CBD/THC ratio. Shantibaba decided that, because S.A.G.E. and La S.A.G.E. rank among the highest-THC strains ever tested, with nearly 0 percent CBD, they'd be a perfect match for achieving that goal. So the S.A.G.E. and La S.A.G.E. original mothers were put through a rigorous continued on page 96

ACNE: The *Journal of Clinical Investigation* reported in 2014 that "CBD has potential as a promising therapeutic agent for the treatment of acne vulgaris."

IRREGULAR HEARTBEAT: The *British Journal of Pharmacology* disclosed in 2010 that CBD suppresses stroke-induced cardiac arrhythmia in animals and reduces the extent of brain damage.

STEM-CELL NEUROGENESIS: German scientists discovered that CBD stimulates the growth of new brain cells in adult mammals.

ANTIBACTERIAL: According to a 2008 report in the *Journal of Natural Products*, published by the American Chemical Society, CBD "showed potent activity against a variety of methicillin-resistant Staph (MRSA) strains." The World Health Organization has identified antibiotic-resistant bacteria as a major global health crisis.

MAD-COW DISEASE: There is no known cure for mad cow, a deadly infectious brain disease transmitted by misshaped proteins called "prions." But French scientists reported in the *Journal of Neuroscience* that "CBD may protect neurons against the multiple molecular and cellular factors involved in the different steps of the neurodegenerative process, which takes place during prion infection."

Mad-fucking-cow disease??

And the list goes on and on: rheumatism, PTSD, depression, gut issues, obesity, alcoholism, liver disease... Extensive preclinical research and mounting anecdotal reports suggest that these and many other conditions may be responsive to CBD-rich remedies.

The Power Couple: CBD and THC There's a lot of excitement about cannabidiol-with good reason. Thus far, however, clinical trials that could "prove" CBD's therapeutic utility have gotten short shrift in the United States because of the War on Drugs. Consequently, most of what scientists know about CBD is based largely on preclinical lab research—animal studies, molecular probes, test-tube experiments and so on-rather than human studies. Some of this research has yielded important insights into the endocannabinoid system and its crucial role in health and disease. But data from animal models are not always applicable to human experience.

Outside the United States, CBD-rich remedies have been subjected to rigorous



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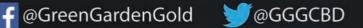






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CBD and THC are the power couple of cannabis therapeutics; they work best together. CBD and THC amplify each other's curative qualities by activating different receptors in the brain.

clinical trials and approved for therapeutic use in more than two dozen countries. Sativex, a sublingual cannabis spray that contains equal amounts of CBD and THC, is available by prescription (though not yet in the US) for treating the neuropathic pain and spasms associated with multiple sclerosis. GW Pharmaceuticals, the British firm that produces Sativex, determined that a combination of CBD and THC is more effective than either compound alone for pain management.

Simply put, CBD and THC are the power couple of cannabis therapeutics; they work best together. CBD and THC amplify each other's curative qualities by activating different receptors in the brain. This synergistic dynamic is all-important for medical patients. It's the reason why THC is key to maximizing the therapeutic potential of CBD, and vice versa.

Cannabis-oil concentrates with varying CBD/THC ratios are available in medical marijuana dispensaries, so patients can adjust or eliminate the psychoactive effects to suit their needs. When present in roughly equal amounts, CBD will prolong the THC buzz while lowering the ceiling on THC's psychoactivity. These days, cannabis patients also have the option of healing without the high by using a CBD product with only a small amount of

THC. But a low-THC oil or flower, while not intoxicating, isn't necessarily the best treatment modality.

One's sensitivity to THC is a major factor in determining the optimal ratio and dosage of CBD-rich medicine. There's no single ratio or dose that's right for everyone. Cannabis therapeutics is personalized medicine; patients may need to experiment, dial in and, if need be, adjust their treatment regimen until they find their own sweet spot with the right balance of CBD and THC. In essence, the goal is to administer consistent, measurable doses of a CBD-rich remedy that includes as much THC as a person is comfortable with.

If you're lucky enough to live in a state with a robust medical marijuana program, there are lots of possibilities if you want to use CBD-rich cannabis without smoking it. CBD-rich cannabis—like the stony stuff—comes in many non-smokeable forms: edibles, lozenges, beverages, gel caps, sublingual sprays, tinctures, topical ointments, transdermal patches, suppositories and more. But all of these different choices can be confusing, especially for those who are newcomers to cannabis.

Product safety is also a major concern given that the marijuana industry is still largely unregulated. Unfortunately, many cannabis farmers use pesticides and

S.A.G.E. CBD

continued from page 94 year-long breeding process, including lab tests. In the end, two new CBD-enriched stable hybrids were created. Then Shantibaba gave 100 test seeds of both S.A.G.E. CBD and La S.A.G.E. CBD to T.H. Seeds' grow master, known as the "T.H. Seeds Farmer." He grew them out and was duly impressed by their homogeneous and vigorous growth and bloom performance.

Lab tests then proved that Shantibaba's initial assumption was correct: The samples scored some of the highest 1:1 CBD/THC ratios ever tested, with the Canna Lab in Spain finding 9.4 percent CBD and 9.5 percent THC. Also, the strains maintained the high terpene content and outstanding flavor of their famous mother plants. Breeding mission accomplished!

The German master grower known as "the Doc" had thus far not grown any CBD strains. He'd read and heard great things about CBD and was highly interested in its medicinal benefits, so he decided to run a test grow with T.H. Seeds' new S.A.G.E. CBD strain. It's a well-balanced sativa/indica hybrid that requires eight to nine flowering weeks to mature, yielding 450 to 500 grams per square meter. T.H. Seeds recommends leaving it in the veg stage for no longer than three weeks, as the plants tend to stretch considerably in the flowering stage; otherwise, growers who opt for a longer veg stage are well advised to apply a training technique. S.A.G.E. CBD possesses all of the properties that have made the original S.A.G.E. so popular worldwide: It produces big, dense buds coated with tons of trichomes and packed with that unique S.A.G.E. flavor with continued on page 98

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dubious plant-hormone boosters to increase the cannabinoid content and crop yield. Patients should look for CBD-rich products that have been lab-tested and verified as free of mold, pesticides, solvent residues and other contaminants. It's also better, if possible, to avoid cannabis oil that has been extracted with butane, hexane or other toxic solvents; opt for safer extraction methods, such as food-grade ethanol or supercritical CO₂. A high-quality CBD-rich product should include only high-quality ingredients: no corn syrup, trans fats, preservatives or other artificial additives. Products should have clear labels showing the quantity of CBD and THC per dose. And keep in mind that the CBD/THC ratio is not an indication of how much of each compound is actually in the product.



Industrial Hemp

What about CBD oil extracted from industrial hemp? Internet storefronts are peddling unregulated hemp-derived CBD products to all 50 states, despite the fact that cannabidiol has not been approved by the Food and Drug Administration as a dietary supplement. For many people, particularly those living in states where medical marijuana is not yet legal, hemp-derived CBD may be their only practical option for now, even though it's technically still a Schedule I controlled substance.

The federal government arbitrarily defines hemp—as distinct from marijuana—as a cannabis plant with 0.3 percent THC or less. However, what actually distinguishes hemp from marijuana is the resin continued on page 130



continued from page 96 a strong touch of sandalwood.

For his test, the Doc germinated three feminized S.A.G.E. CBD seeds. They sprouted perfectly well, and the Doc let them remain in the veg stage for three and a half weeks-half a week longer than recommended-due to the presence of other strains in his growroom. In the course of the grow, it became obvious that two of the plants were sativa-dominant, exhibiting very robust growth; at the end of the veg stage, their heights were 56 and 59 cm. The third plant was smaller, at 39 cm, apparently subject to a stronger indica influence. But all three plants displayed a uniform bushy structure, with lots of strong side branches.

In the flowering stage, the smaller plant still leaned toward the indica side, with its flowers developing a somewhat lower calyx-to-leaf ratio than the two sativa phenos, which grew into lush plants with lots of exceptionally big, fat buds surging from many side branches. They resembled regular S.A.G.E. plants; it was impossible to determine by appearance alone that they were the CBD version. In terms of aroma. they also resembled the original S.A.G.E., giving off that sweet and spicy odor reminiscent of sandalwood. Surprisingly, the smaller plant smelled like a mixture of 4711 perfume and grapefruit-very unusual and very delicious, too. It turned out to be extremely resinous as well, even slightly outperforming the two sativa-type plants, which also had a very frosty appearance.

At 52 days of flowering, the smaller plant matured very early—four days before the official ripeness window of 56 to 63 days opened up. The second plant became fully ripe after 63 days, while the Doc harvested the third plant after 66 days. The three plants finished at heights of 72, 98 and 100 cm. After the drying process, the Doc wasn't too surprised to find that the two *sativa* phenos had delivered true bumper harvests: 92 and

114 grams on the scales. The small plant yielded less—a solid 55 grams. Unfortunately, that special 4711-and-grapefruit smell weakened considerably during the drying stage, giving way to a more earthy, woody aroma. However, it was still subtly perceivable.

The Doc was eager to find out exactly how much CBD and THC his three plants had produced. He sent three samples to the Canna Lab in Spain. Before he got the results, he held a S.A.G.E. CBD vaporizer session with two friends. One of them suffers from phantom-limb pain; the other was going through a thorax drainage, which caused him serious pain that even a doctor-prescribed opiate couldn't alleviate. Their plan was to test the three samples on three consecutive days, one per day.

The Doc and his friends were all highdosage THC users, so it was no surprise that they were only slightly buzzed by the three S.A.G.E. CBD samples, experiencing a certain mild head effect for not much longer than half an hour. But a tremendous high isn't what medical users look for in a CBD-rich strain; strong medicinal effects are what's important. In this regard, all three samples did an amazing job: The phantom-limb pains of the Doc's one friend fully disappeared for a duration of two to three hours (depending on the sample tested), while the thorax patient was totally flabbergasted when he found that he could move his upper body virtually without pain. They attributed the highest medicinal potency to the third S.A.G.E. CBD plant. The Doc and his friends also remarked on the superb flavor of the three samples, which delivered a smooth, clean smoke and a fresh, organic, sweet-and-

In light of their similar appearance, the Doc assumed that the two *sativa* phenos would yield similar test results as well, and that the smaller plant with a stronger touch of *indica* would *continued on page 130* Long-trusted for superior cannabinoid oils of unrivaled quality.

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B-REAL

THE HIGH TIMES INTERVIEW

VER SINCE CYPRESS HILL DROPPED THEIR FIRST ALBUM IN 1991, THE CALIFORNIA HIP-HOP CREW HAS BEEN ARDENT ADVOCATES OF ALL THINGS GREEN AND SMOKEABLE, DROPPING STONER STAPLES LIKE "DR. GREENTHUMB," "Hits From the Bong," "Stoned Is the WAY OF THE WALK" AND OUR PERSONAL FAVORITE, "HIGH TIMES." THE GROUP'S UNIQUE SOUND, ANCHORED BY PRODUCER DJ Muggs's bong-shakingly hefty INSTRUMENTALS AND B-REAL'S DEXTEROUS HIGH-PITCHED RAPS, PUSHED HIP-HOP INTO HERETOFORE UNPRECEDENTED LEVELS OF ECCENTRICITY, MENACE AND MURK-OFTEN WITHIN THE SPAN OF THE SAME SONG.

MEANWHILE, B-REAL HAS BECOME A STAPLE OF HIS HOME STATE'S LEGAL WEED INDUSTRY, RELEASING CANNABIS CUPWORTHY STRAINS AND PARTNERING WITH ROOR FOR PHUNCKY FEEL TIPS, WHICH GIVE DISCERNING TOKERS AN ALTERNATIVE TO FIDDLING WITH CARDBOARD JOINT TIPS. HE'S ALSO A TIRELESS ADVOCATE FOR LEGALIZATION, SPEAKING KNOWLEDGEABLY ABOUT THE VARIOUS ECONOMIC, SOCIAL AND MEDICAL BENEFITS THAT A FULLY LEGAL MARIJUANA INDUSTRY CAN BESTOW. HELL, WE THINK SO MUCH OF THE GUY THAT WE NAMED HIM AS OUR "STONER OF THE YEAR" BACK IN 2014.

STILL, DON'T GET IT TWISTED: JUST BECAUSE THE 46-YEAR-OLD RAPPER LIKES TO TWIST UP A FAT ONE DOESN'T MEAN HIS RADICAL POLITICS ARE LIMITED TO POT. JUST LOOK AT PROPHETS OF RAGE, THE PUGNACIOUS NEW SUPERGROUP THAT FINDS B-REAL AND CHUCK D FROM PUB-LIC ENEMY FLOWING OVER MOSH-INCITING INSTRUMENTALS COURTESY OF TOM MORELLO, BRAD WILK AND TIM COM-MERFORD FROM AGIT-METAL FIREBRANDS RAGE AGAINST THE MACHINE. THE GROUP FORMED IN RESPONSE TO THE INCREAS-INGLY ORWELLIAN POLITICAL AND SOCIAL CIRCUMSTANCES FACING OUR NATION, AND THEIR STATED GOAL IS TO ROCK OUT AND KICK ASS UNTIL THE REVOLUTION COMES.



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How much do you smoke these days?

[Laughs] Too much. Too much for my own good.

What's your preferred smoking method?

I used to be all about the bong hits, but now I like smoking joints. And I'll say the only way to smoke a joint is with a Phuncky Feel Tips. For years, people had been smoking joints with these cardboard crutches, and that just wasn't flying for me anymore, you know? And so we came up with the idea of having a high-quality tip on your joint and we went with it. So I'm now back on joints.

Has smoking helped you bond with any of your collaborators?

Sometimes it does. Every once in a while, when another artist you know does smoke, you can bond with them through smoking. For some, it lessens the tension and helps with the creativity level.

That's interesting—I feel like, with Prophets of Rage, the whole point is creating this sense of tension and cathartic release.

Yeah, exactly. It's sparking thought, waking people up—not to be hostile, but to be aware and become part of the political process. To be part of the change. Like Tom Morello always says, the world ain't going to change itself—you've got to get up and do something about it. Our goal with this music is to inspire people to do that and entertain them at the same time.

Prophets played Cleveland the night of the Republican National Convention. What was that like?

We played near the RNC, and we did a peaceful demonstration and march. Everything was cool—people got to say what they wanted to say, and the police let us march peacefully. We got our message across, which was important.



"It's sparking thought, waking people up—not to be hostile, but to be aware and become part of the political process. To be part of the change."

I think it's times like this where you need a group like Prophets of Rage.

Dangerous times call for dangerous music. We've got to wake people up and say, "Hey, times are changing right now, and who knows which way this will go? You need to get involved and become part of the process."

It seems like the music you made with Cypress Hill is the commonality that makes the group really work: Chuck D from Public Enemy represents the hip-hop side of the equation, while Tim Commerford, Brad Wilk and Tom Morello from Rage Against the

Machine come from a much more rock-oriented perspective. Meanwhile, Cypress Hill alternates between those two genres fairly freely. You forge a cohesion, in a sense.

Yeah, you know it. Our groups have all been pretty much connected with each other in some form for 20 years or so. So it's just great that we were able to come together and do this and bring this message and this music back and spread it again—and have fun while we're doing it. Cypress Hill were definitely influenced by Public Enemy, and when Rage Against the Machine came out, we became fans of them.

So to be able to come together with both bands that we have so much respect for is just a dream scenario.

Cypress Hill has made music with Tom Morello before, right?

Yeah, Tom produced two songs on our album *Rise Up*, actually. He produced "Shut 'Em Down" and "Rise Up"-so, like I said, we've had pretty much a friendship going back for over 20 years. We worked with Brad Wilk from Rage, too, on our Skull & Bones album; he played drums on "Can't Get the Best of Me." We're all very happy with the way it's turning out. It's been really cool playing together like this and becoming a real, actual band and not just doing these one-off projects.

So now that Prophets of Rage have released their EP *The Party's Over*, is there a fulllength album in the works?

Yes! We plan to work on some new music when this tour is over and we get a little bit of a break, get a chance to catch up at home and be with our families for a bit. We do intend to get in there and try and figure out an album of original songs. People are definitely reacting to what we're doing here, so I think a lot of people want to hear what we would do on an entire album of original music. And I'd like to hear it, too, because I'm fans of the guys I'm in the band with.

How would you define "political hip-hop" as a concept?

Before Public Enemy and Boogie Down Productions came out, it was Melle Mel from Grandmaster Flash and the Furious Five. From him, it went over to Chuck D and KRS-One. It was very inspiring: It woke people up in hiphop, and it got people to think about who they are in the culture and what they want for the future, you know? It helped instill pride and self-esteem in our communities



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"The violence, the brutality and the injustices that were present when Cypress Hill first dropped hasn't changed; it's just that through technology, we're exposed to it now more than ever."

and raise their spirits. And when Rage Against the Machine came out, they did that same thing times a thousand times a million, you know what I mean? I think people have been hungry for that, and I think that's why people are reacting the way they are to Prophets of Rage—because we're bringing that feeling back, that attitude, that essence.

How do you feel the nation has changed since Cypress Hill's first album dropped?

Well, what's changed is technology, pretty much—it's made some things great, made some things worse. The violence, the brutality and the injustices that were present when Cypress Hill first dropped hasn't changed; it's just that through technology, we're exposed to it now more than ever.

I feel like Cypress Hill doesn't get enough credit when people think of political rap. You were the first Latino rap group to go platinum, and one of the first Latino rap groups, period. You guys became superstars by saying, "Yo, we're Latino—we're saying what we want to say, we're saying it how we want to say it, and you're going to like it." That's a huge political statement in and of itself.

Yeah. But the thing is, we didn't take it that way at the time. We took it as, we're just being who we are—unfiltered, uncensored—and it didn't matter what other people thought of us at that point. To this day, it still doesn't, but that was our thing: We were going to say what we wanted to say.

And a lot of people get this confused about Cypress Hill. Some people always thought we were just a pot band and all we're about is talking about smoking weed—but that's not the truth of it at all. I mean, if you listen to any Cypress Hill album, there might be one or

two, maybe three songs that are straight up about marijuana or marijuana culture. The rest is about the life that you live in the streets, in society, in the community, how people get by in our life and our times. We talk about life experiences, but a lot of that gets lost in the midst of the other side of who we are-because we are legalization activists. But you're right: We stand in the middle of Public Enemy and Rage Against the Machine and just fill in those spots in between-because we do do the hip-hop shit and we do do the metal stuff. And what we talk about is very similar; it's just not as in-your-face.

You mentioned that people often view Cypress Hill as a "pot band." Do you feel pigeonholed by that term at all?

The fact is, we stand for the legalization of marijuana, and even though we also stand for

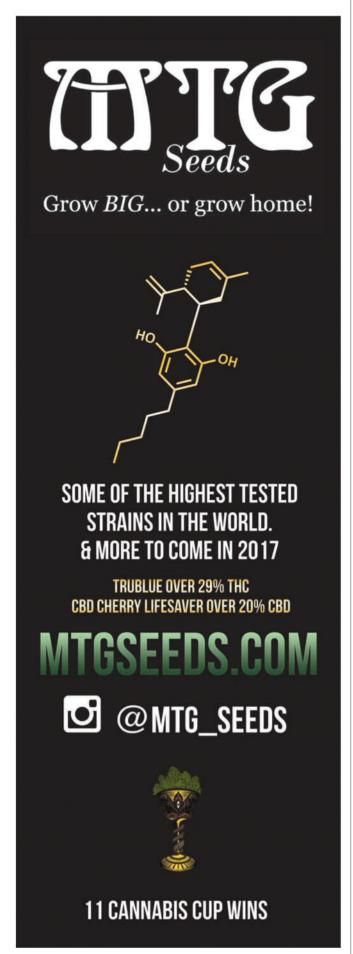


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more than that, weed is what always gets thrust out there before anything else.

It's undeniable that Cypress Hill have played a part in the mainstreaming of marijuana culture.

We took a chance and talked about our passion—we believe in legalization, and we brought more awareness to that movement. We got with activists like Jack Herer, who taught us what it means to be an advocate for this culture. We took the knowledge he gave us and spread it, helped this culture move forward instead of remaining suppressed.

You can draw a line straight through hip-hop history and find B-Real at all these different points. After you pioneered so much with Cypress Hill's early work, you were on Dr. Dre's "East Coast Killas," which united these huge artists from the East and West during a time of so much enmity between the coasts.

Frankly, I was surprised to get a call from Dre—the Doc! The Surgeon!—and when he told me what he wanted to do, I was 100 percent down. I mean, you're not going to say no to Dr. Dre. So I went in the studio and he happened to like the verse, and before you know it, it became a single. It became a big song, so then we had to do a video. And then, you know, they decided to paint me red in this video [laughs]. I'd never had anybody put body paint on me or anything like that before—but again, how do you say no to Dr. Dre?

You've also emerged as a huge influence on hip-hop's current generation—guys like A\$AP Ferg and Danny Brown, whom you've done tracks with.

I mean, you know, the fact that they would honor me by having me on a song is just fucking awesome, because I'm a fan of both of them. I love A\$AP Ferg's delivery—it's different every time, and he always comes up with some hot shit. And same with Danny Brown. Hearing their shit just sparks me, like: "Fuck! These guys are dope!"

What's your favorite album to get high to?

My favorite album to smoke weed to? Hmmm... *Dark Side of the Moon.*

How about a favorite political album?

Exodus, by Bob Marley and the Wailers.

In addition to Prophets of Rage and Cypress Hill, you're also in a group called Serial Killers with Xzibit and Demrick, and you've done two records with Berner. Do you enjoy that group dynamic?

You know, I've been trying to go solo my whole life [laughs]. I'm just fucking with you. I've been fortunate enough to land in some pretty cool situations. Cypress Hill is the foundation-that's where everything starts. The records I've done with Serial Killers are some of my favorites, and it's so fun working with Berner because he's great at picking music to rock to. I've ended up in great situations, and here I am with Prophets of Rage, which is one of the greatest situations-it makes me feel like I'm dreaming.

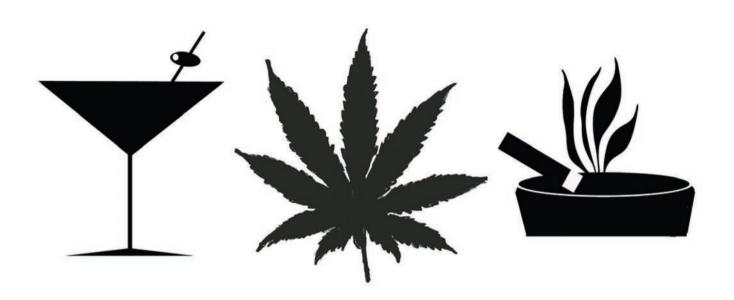
You're not just an advocate for marijuana culture; you're an active participant. You've released acclaimed strains like Dr. Greenthumb's Tangie and Jet Fuel, and you're in the process of opening a dispensary in Santa Ana.

My partner and I won a lottery in the city, so we're allowed to open one. Right now, we're getting our smoke, looking at blueprints, getting our business together and working to get it open. We're trying to open it in the first quarter of 2017.





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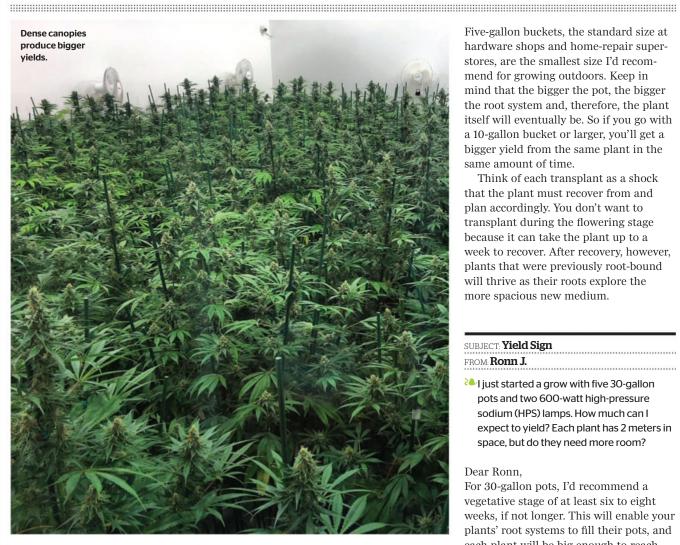
Proper breeding, light cycles, transplant shock, grow tents and more...

Send your cannabis cultivation questions to @deardanko or deardanko@hightimes.com



110 Dear Danko

Danko Tip: You can reuse hydroponic grow rocks (a.k.a. hardened expanded clay pellets) as long as you clean them properly between grows.



SUBJECT: Light Cycles

FROM: Darick

i'm wondering about light and dark times for every stage of growth. Right now I'm giving my plants eight hours of darkness.

Dear Darick,

During the vegetative stage, give your plants at least 18 hours of light and six hours of darkness. You can raise it to 20 hours of light and four hours of darkness if you wish and heat and electricity aren't a concern. I don't recommend a constant 24-hour light cycle during the vegetative stage, because I believe the plants need some time in the dark to rest and use up the light and food they've been storing.

The light cycle during the flowering stage should be 12 hours on and 12 hours off. Be sure never to interrupt the dark cycle with any amount of light, as this will stress and confuse the plants

and make them act in undesirable ways. DJ Short recommends an 11-hour-on/13hour-off cycle for sativa-dominant plants to reveal all of their nuances. This may be a slightly more advanced technique. but it can save you an hour's worth of electricity per day and is worth trying out if you're interested.

SUBJECT: Transplant Shock

FROM: Dan M.

l started my plants indoors this year, then transplanted them into 5-gallon buckets. I was just going to leave them there, but then I decided to transplant them again into the ground. They were very sad after that. Next year, will the 5-gallon buckets be good enough, or do I need something bigger? I live in upstate New York.

Dear Dan.

Five-gallon buckets, the standard size at hardware shops and home-repair superstores, are the smallest size I'd recommend for growing outdoors. Keep in mind that the bigger the pot, the bigger the root system and, therefore, the plant itself will eventually be. So if you go with a 10-gallon bucket or larger, you'll get a bigger yield from the same plant in the same amount of time.

Think of each transplant as a shock that the plant must recover from and plan accordingly. You don't want to transplant during the flowering stage because it can take the plant up to a week to recover. After recovery, however, plants that were previously root-bound will thrive as their roots explore the more spacious new medium.

SUBJECT: Yield Sign

FROM: Ronn J.

I just started a grow with five 30-gallon pots and two 600-watt high-pressure sodium (HPS) lamps. How much can I expect to yield? Each plant has 2 meters in space, but do they need more room?

Dear Ronn.

For 30-gallon pots, I'd recommend a vegetative stage of at least six to eight weeks, if not longer. This will enable your plants' root systems to fill their pots, and each plant will be big enough to reach its full potential. Assuming you go with a two-month veg and use the proper topping and training techniques (and depending on the strain, of course), you should be able to yield about 8 ounces per plant, for a grand total of approximately 2.5 pounds from your five plants. Basically, that adds up to about a gram per watt, which is a great yield from a relatively small space. Good luck!

SUBJECT: Best Hydroponic Method

FROM: Greenleaflovers

l have a question about hydroponic grows: In your opinion, what's the best setup? I've done a little research, and it seems that aeroponic systems produce the quickest results when it comes to growth and getting oxygen and nutes to the roots, but it looks like they may experience more problems and setbacks as well.



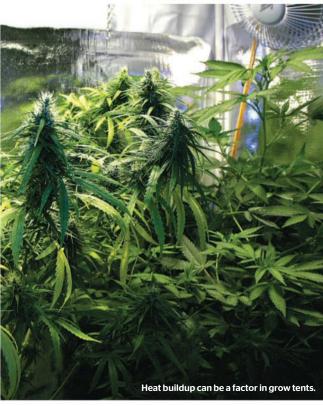
Danko Tip: Keep the hydroponic nutrient-solution temperature in your reservoir somewhere between 65°F and 70°F.

Dear Greenleaflovers,

Growing hydroponically is like driving a racecar, whereas growing in soil is more like taking a lazy ride in a comfy old Cadillac. The reason I mention this is because there are different types of racecar driving, and the same is true for hydroponics.

Passive hydro systems that are hand-watered are fairly easy to manage on the difficulty scale, while aeroponic and deep water culture (DWC) systems require constant monitoring and adjusting. The advantage of these types of dialed-in systems is the explosive growth rate: You can practically watch the roots grow when they're misted with a fine nutrient solution at the proper temperature, pH and food levels.

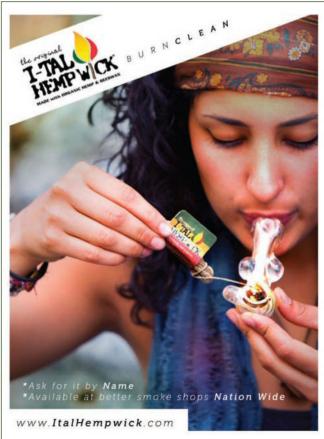
However, you have to find the technique that's right for you. Growing in soil is much more forgiving, so if you're a person with a green thumb and have had success with container growing in the past, do yourself a favor and don't try to master hydroponics. However, if you're more technically inclined and prefer a lab-like environment, hydroponics might be the better choice.

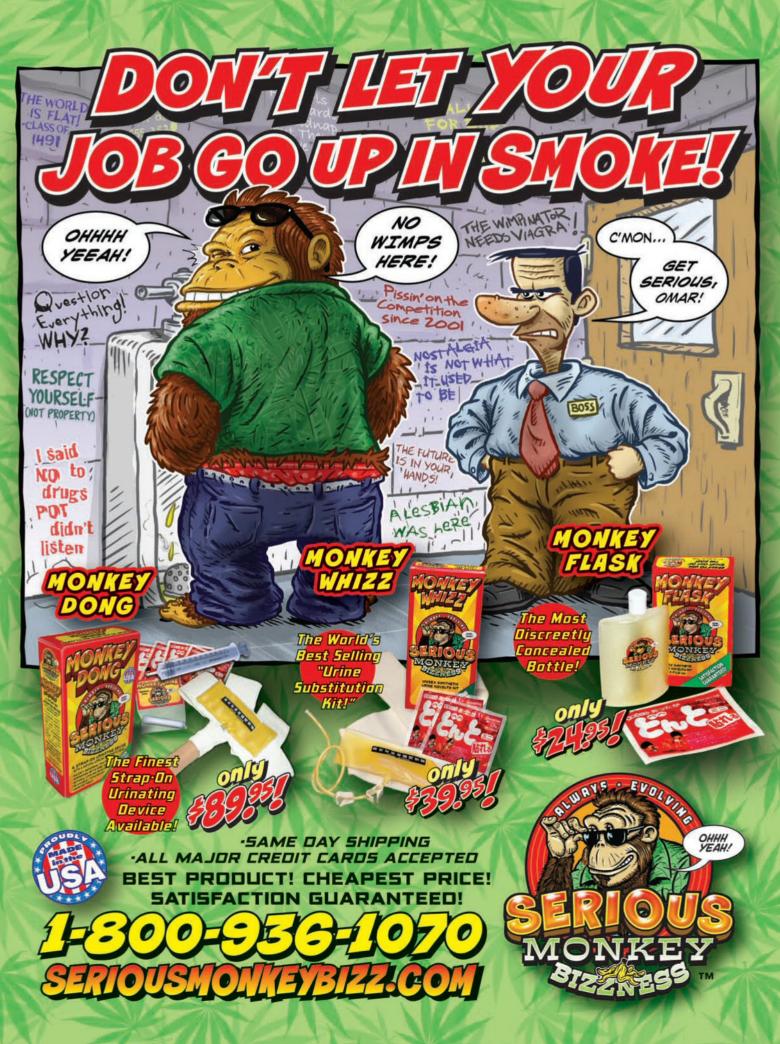


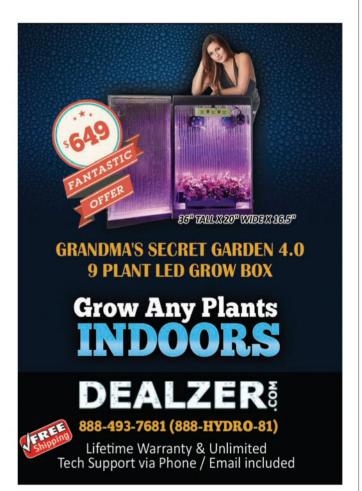


I live in Oregon and grow in my own home under the OMMP (Oregon Medical Marijuana Program). I've had very good results; so far, each grow is better than the last. I was looking at the Oregon Department of Justice website and discovered that someone growing for themselves under the OMMP can have their six medical plants in flower and can also have four recreational plants in flower. Wow–10 at once, and all of them legal. I can also have as many











Danko Tip: Apply a rooting gel or powder to the cut ends of your clones for a more successful rate of rooting.

plants in transition, and I use feminized seeds. I happen to live in one of the counties (Klamath) that opted out the cannabis business. We do have two medical dispensaries for those unable to grow for themselves, but any decent grower that was servicing our area has moved to a friendlier county where they can practice their trade.

One last point: I'm able to sell my excess to a dispensary. I am 64, disabled, and have been planning on selling my excess for extra income. I now use a 48" x 48" grow tent. I would like to use this one for vegging and buy another tent and light for flowering. I've been trying to find out what's the best-size tent and lights for what I want to do, but without much luck. Can you help?

Dear Ross.

It sounds like, for your purposes, an 8' x 4' grow tent would work perfectly as your flowering room. The 4' x 4' tent you now have can become your vegetative space, where you'd keep your mother plants, clones and seedlings; then they can move into the larger tent to bloom. I would hang two 400- or 600-watt high-intensity discharge (HID) lights in the flowering tent, depending on how much heat you can handle and remove. Obviously, the 600-watt lights will produce more heat, so you'd have to vent more of that hot, spent air if you chose them. But you will yield more from the 600-watt lights if you can keep the temps in the proper range.

SUBJECT: Caterpillar Damage

FROM: Dave

l was admiring my two auto-flowering plants in their first week of flower (growing and budding like gangbusters and really looking good), when I saw that one of the plants had been "girdled" at its base. I lifted the bottom leaves to get a better look, and the whole plant just fell over! It broke completely through right where it was damaged.

I'm growing in a DWC system, and the medium is HEC (hardened expanded clay) pellets/hydroton. Within the next five minutes or so, I'll be in my growroom disassembling my setup to take a look at the roots, etc. I have no idea what I'll find—bugs, worms, maggots, miniature beavers? What do you think the problem is, and how do I prevent it in the future?

 $\ensuremath{\mathsf{PS}}\xspace$ At this point, the other plant doesn't show any damage at its base.

Dear Dave.

There are a few things that could have caused your plant to fall over at the base of its stem. Look for chew marks on the leaves or signs of stem-boring caterpillars or cutworms. Was there a hole where the plant broke? If so, then you probably have stemboring caterpillars. To get rid of them, you can use parasitic wasps, which lay eggs inside the caterpillars; they then become food for the wasps' children. Praying mantises are also quite effective on these types of pests. Treating the plant with a spray of neem oil can also help.

If the damage wasn't caused by pests, you could have an issue with a pathogen or mold. Remove the dead plant immediately and treat the surviving one with a fungicide spray. Hopefully, the problem won't spread to the remaining plant and you won't have to deal with it again. \slash

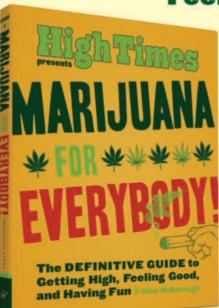
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116 Gear High Times March 2017



Hot Products

What's new for cannabis cultivators and connoisseurs

Vaping Away

\$99.95

drdabber.com

Some vape pens start off working great but deteriorate quickly. The stylish Aurora Vape Pen from Dr. Dabber stands the test of time. It has magnetic connections for the battery and ceramic mouthpiece to avoid clogged threads, and the quartz-on-quartz atomizer with dual titanium coils offers three heat settings for dialing in the low temps and bringing out the terps. Dr. Dabber offers a one-year, noquestions-asked warranty.

2 Photo Finish

\$129

methodseven.comPot photographers deal with growroom lighting by using white balancing and Photoshop to remove the yellow-orange glow of high-pressure sodium (HPS) bulbs. But now they can simply attach the new HPS Rendition Camera Photo Filter from Method Seven, a glass filter encased in anodized aluminum and compatible with any camera fitted with a Cokin "P" Series holder. With this tool, anyone can take perfect photos despite the harsh light.

3 Advanced LEDs

\$972, Town; \$1,699, City liftedled.com

Grow lamps using LEDs (lightemitting diodes) save on electricity and reduce heat levels versus high-intensity discharge (HID) lighting. Now Lifted Labs provides two LED models for growers: The Town replaces a 600watt HID light, and the City replaces a 1,000-watt one. Lifted LEDs come with an injection-molded custom optical lens to increase canopy penetration; they also have a USB port, and you can control the spectrum remotely via their app!

Oxygen Power

\$57.99 per quart dodissolvedoxygen.comExperienced growers know the importance of dissolved oxygen for achieving explosive growth rates. The new, first-ofits-kind D.O. Dissolved Oxygen plant additive is a concentrated, non-peroxide liquid form of oxygen that's non-toxic, ecofriendly and pet-safe. You can use it as a foliar feed, or add it directly to your reservoir or nutrient-solution soil drench for a huge boost in essential-oil production. It even shortens the rooting times of clones!











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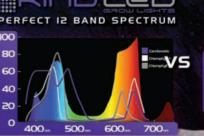
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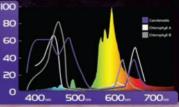
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Edibles

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Ingredients

1 cup sunflower-seed butter (or almond or peanut butter)

⅓ cup honey or maple syrup (vegan)

1 egg or flax egg (vegan)

2 tbsp. cannabis-infused coconut oil or cannabutter

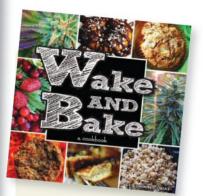
1tsp. vanilla

⅓ cup cacao or cocoa powder

½ tsp. baking soda

Preheat the oven to 325°F. Line an 8-by-8-inch baking pan with parchment paper.

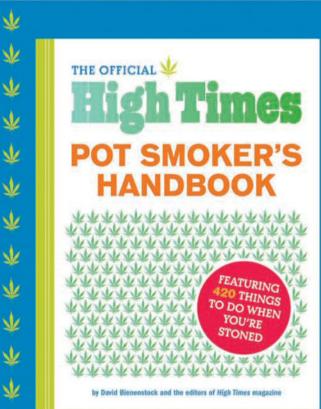
In a large mixing bowl, beat together the sunflower-seed butter, maple syrup, egg (or flax egg), cannabis-infused coconut oil and vanilla. Whisk in the cacao powder and baking soda, then spread the batter evenly in the baking pan. Bake for about 20 minutes, until the brownie is firm and springs back when you poke it with your finger.



Wake & Bake Cookbook

Corinne Tobias is a writer, health coach, cannabis counselor and the author of *Wake and Bake: A Cookbook.* For more recipes or to connect, go to *wakeandbakecookbook.com.*





1

THE OFFICIAL High Times POT SMOKER'S HANDBOOK

FEATURING 420 THINGS TO DO WHEN YOU'RE STONED By David Bienenstock and the editors of *High Times* magazine



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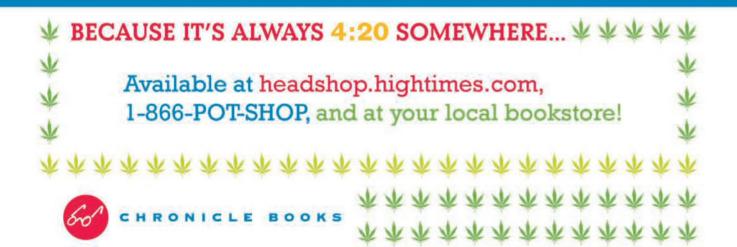
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HOUSE OF JANE

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KOALA COFFEE

This start-up specializes in just bottled cold brew so far, offering a 25 mg dose of THC for a great way to start vour day! Instagram: @ koala_coffee

POT-O-COFFEE

Specializing in brew cups and bottled drinks, Pot-O-Coffee offers coffee, tea and cocoa with a wide variety of THC levels, CBDenriched coffees and teas are also available from this pioneering company. potocoffee.coffee



Fresh Fruit Chews

Using locally sourced organic fruits, the Nice Canna Company creates amazing hard candies, fruit chews and coconut patties that deliver THC along with incredible flavor. Berry Blend fruit chews contain real blackberries, blueberries, raspberries and strawberries for a superfood boost, while The Herbalist hard candies combine fruits and herbs-including blueberry/basil, orange/sage, peach/basil and strawberry/ rosemary-in a delicious mixed bag. The fruit chews contain 25 mg of THC, while the hard candies deliver 15 mg of THC apiece. Instagram: @nicecannacompany

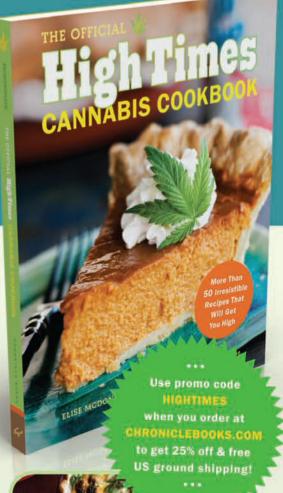


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Does CBD make people think their pot is less potent?

Franka Potente

Hello Franka, Yes! Researchers in the United Kingdom confirmed that potency estimates went up with THC and down with CBD. So when two strains have an equal amount of THC, the one with more CBD will seem less potent.



What's a good strain to treat compulsive hand-washing?

Ignaz Semmelweis

Hi Ignaz, Obsessive-compulsive disorder (OCD), one of the anxiety disorders, typically includes obsessive thoughts and compulsive acts. Although any anxiolytic (anti-anxiety) strain might help, the plant would not be my first choice for treatment. Exposure with response prevention, in which folks get their hands dirty but refrain from washing them until their fretting dies down, works marvelously well. A dozen uncomfortable sessions and people can enjoy their cannabis-and their lives-a lot more. Find a therapist who knows this treatment at findcbt.org/xFAT.

Can straightening your hair help you pass a drug test?

Curly Joe

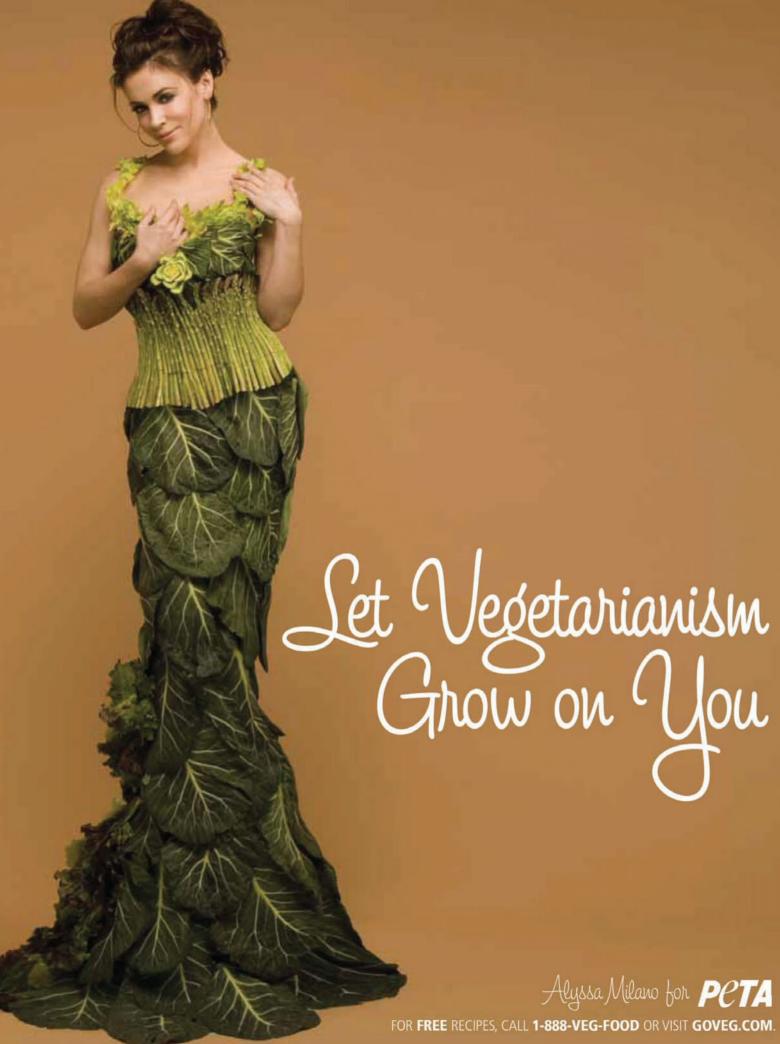
Hi Curly, In theory, the temperature used by most hair straighteners would turn THCA into THC, thereby increasing your chances of failing a hair test; but the THC should then turn into CBN, thereby increasing your chances of passing it. So it would depend on how much THC and THCA was in your hair in the first place. The only study to try this got mixed results: 11 of 17 hair samples lost THC with straightening, while the remaining six gained some.

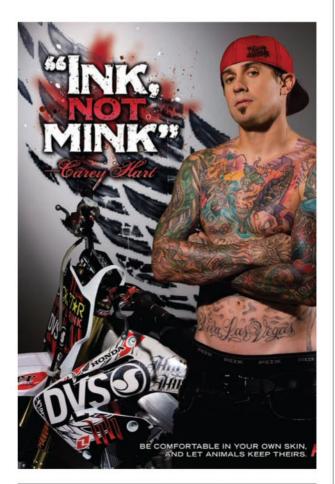
What's linalool?

Lynn Lool

Hello Lynn, Linalool is a terpene present in over 100 species of plants, including oranges, lavender and cannabis. Like all terpenes, this one has a distinct smell (I find it a bit like basil), and it's especially rich in strains like Granddaddy Purp. Animal research confirms that linalool decreases aggression and anxiety while increasing social interaction. It might also fight cancer and inflammation, but only at fairly high concentrations. *

Dr. Mitch Earleywine, PhD, is the author of Understanding Marijuana and The Parents' Guide to Marijuana.







Hashtags and Acronyms of the Concentrate Snob (#HACS)

Decoding the confusing world of hash snobbery with a helpful explainer. By Craig Coffey

HERE'S A CERTAIN oneupmanship built into our wonderfully progressive concentrates culture. It's cool to know about developments on the cutting edge of hash-making, but it's even cooler to know about them before your peers do. Acronyms are a big part of this—people love rattling them off because it makes them sound smart, like a scientist or some shit.

Here's a brief guide aimed at helping you make some sense out of all the acronyms, hashtags and abbreviations being bandied about by your hash-snob friends.

BHO: Butane hash oil (or butane honey oil) is an extract made using butane as a solvent. Commonly referred to as "dabs," BHO is probably the most popular form of concentrate on the hash market today. Butane does a great job of capturing both cannabinoids and terpenes, plus it's non-toxic and easy to get—which is why BHO is king of the marketplace.

RSO: *Rick Simpson oil* is a form of concentrate made by soaking cannabis in alcohol, which is then evaporated from the extract. RSO can be smoked, but it's usually taken orally to treat cancer and other serious illnesses. RSO is simple and fairly safe to make at home and can be a miracle treatment for many severe conditions.

QWISO: *Quick-wash isopropyl oil* is similar to RSO, but the production method is a bit more refined, and the finished product is usually of a high-enough quality to make for an enjoyable smoke. With QWISO, the cannabis spends less time soaking in the alcohol solvent, so less chlorophyll and plant wax are present in the final product.

HTFSE: High-terpene full-spectrum extract is a type of concentrate made from "live," fresh-frozen cannabis. Samples of HTFSE usually look like oily sugar. This hash tends to have a strong terpene profile because of the freshness of the starting material. Terpenes are much more than just delicious; they're also very therapeutic. Different terpenes have different effects on our bodies and minds, so HTFSE is a great way to explore the complex world of terps.

HCFSE: High-cannabinoid full-spectrum extract is similar to HTFSE in that it's a full-spectrum concentrate made from fresh-frozen cannabis, but HCFSE is formulated to be heavier on the cannabinoids. This stuff packs a punch, but it's also very effective medicine due to the full range and concentration of cannabinoids in the finished product.

DTFO: Dabbed the fuck out is a condition brought on by dabbing out of your league. Too big of a dab, too many dabs, or too strong of a concentrate sample are all common ways to find yourself in the DTFO zone. Symptoms include loss of motor skills, inability to stay awake, and difficulty making sense of the world around you. The good news is that if you find yourself DTFO, all you have to do is allow some time to pass and you'll be back with us in no time. Check out #DTFO for lots of funny photos taken by bad friends and posted on the internet at the expense of the overly stoned. *



126 NORMLizer
High Times March 2017



The Marijuana Revolution Continues

patients, veterans,

walks of life-have

sacrificing their own

erty, to fight for can-

nabis freedom. And

NORML has always

been in the trenches

alongside them.

well-being and lib-

dedicated money

and time, often

doctors, nurses-

people from all

A message from NORML's new executive director.

Erik Altieri is the executive director of NORML. Visit norml.org.

body blow to our nation's costly, failed and discriminatory policy of marijuana prohibition. If anyone thought our victories in 2012 and 2014 were a passing fad, it's now clear they were mistaken. With new adultuse measures approved in four states (California, Maine, Massachusetts and Nevada) and medical marijuana initiatives passing in another four (Arkansas, Florida, Montana and North Dakota), the

era of marijuana legalization is upon us. By standing together and fighting for our shared beliefs, we've spread the seeds of the cannabis revolution far and wide.

But we can't afford to become complacent. We need to remind ourselves that legalization is not inevitable—it depends upon continuing the fight. Our opponents are not going away; they remain well-funded and ready for battle. So should we.

The struggle for marijuana legalization has always been an uphill battle. Thanks to those who came before us, we now have a path to victory. We stand on the shoulders of giants, and today we build upon their legacy. Mothers, fathers,

Legalization is not inevitable—it depends upon continuing the fight. Our opponents are not going away; they remain well-funded and ready for battle. So should we.

From day one, NORML's mission has been to shape public and political opinion so that the responsible use of cannabis by adults is no longer stigmatized and criminalized. NORML does so by standing up for the rights of the responsible cannabis consumer and by presenting credible, fact-based evidence about marijuana and marijuana-policy reform to the general public, the mainstream media, pundits and policy-makers. And I firmly believe that nobody does it better.

That's why I'm honored to have been named NORML's new executive director. I'm no stranger to this cause, or to NORML itself. From 2007 to 2015, I served as NORML's communications

director, political-action-committee manager and chief lobbyist. Following a brief sabbatical in which I fought to decrease the influence of big money in our political system, I'm excited to return to lead NORML during one of the most critical times in the group's 40-year history.

I urge you to stand with me, our staff and NORML's nationwide network of chapters. We must capitalize on our newly minted successes and seize upon our growing public support.

No one person or organization can win this fight on their own. We must come together as advocates in a unified force so that we can make our desired policy reforms a reality.

Even with our latest victories, most Americans still live under the specter of marijuana prohibition. Obviously, there is much more work that needs to be done—and we need your help to finish the job.

NORML only exists and succeeds because of the passionate support of dedicated individuals like you. Standing shoulder to shoulder together, we will continue to take our fight to city councils, state legislatures and Congress. Together, we are unstoppable. Together, we will legalize marijuana nationwide. **

FREEDOM FIGHTER

Wyoming Weed Warrior

Bennett Sondeno rides the activist trail in the Cowboy State.

Growing up in Cody, Wyoming, Bennett Sondeno learned all about hard work, conservative politics and reefer madness at an early age. But after trying cannabis for the first time, he was amazed to find relief from the daily pain associated with the chronic digestive disease he was battling.

Bennett started to explore the world of plant science, ultimately

receiving a BS in agro-ecology and an MS in agronomy from the University of Wyoming. He decided to direct his newfound passion for cannabis into activism. He started by writing letters to his elected representatives in the local, state and federal government, urging them to re-evaluate the Drug War policy of incarcerating marijuana consumers. In time. however, he realized they had no interest in providing medical access to cannabis for the thousands of Wyomingites seeking relief.

Bennett wanted to impact marijuana policy directly. So he volunteered with Wyoming NORML and completely immersed himself in all

things cannabis, eventually moving to Colorado to familiarize himself with the workings of a legal state. He established residency, qualified for the state's medical marijuana program and obtained his credentials to work in the industry. Upon returning to Cody, he resumed his work with NORML.

But the demands of managing a

statewide grassroots campaign had taken its toll on the leadership there. So Bennett decided to join the board of directors as treasurer. His goal was to re-energize the core group by working with his fellow board members to educate the public, engage legislators, organize petition drives, distribute literature, and raise funds for both WY NORML and the We Are NORML PAC.

"I'm no longer in it just for me," Bennett says. "I'm here for all the grateful people crying out for relief, who thank me just for speaking up on their behalf."

By Kevin Mahmalji, NORML national outreach coordinator

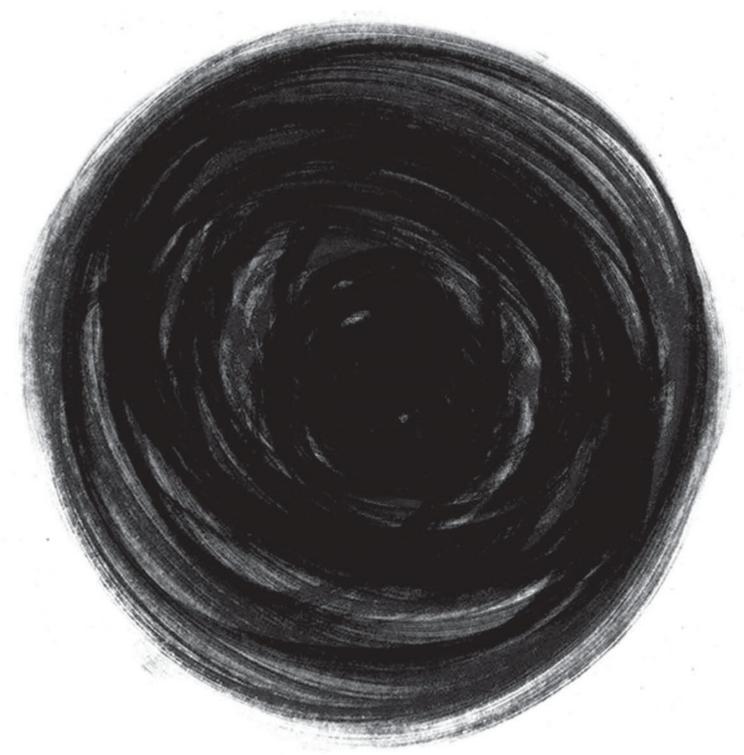


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I realized as I watched him fight for breath, that his life was as important to him as mine is to me.



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130 High Times March 2017

CBD: The Cinderella Molecule

continued from page 98 content: Hemp is low-resin cannabis, while marijuana is high-resin cannabis. CBD and THC are both contained in the resin. High-resin drug plants include euphoric THC-rich plants and non-euphoric CBD-rich plants, as well as various combinations of both.

This is why low-resin industrial hemp isn't an optimal source of CBD oil. Hemp fiber is basically useless for extracting CBD, since there is hardly any resin on the stalk. The skimpy foliage of industrial hemp grown for nutritious seed oil (and other uses) maxes out at about 3.5 percent CBD by dry weight, but there's no CBD or THC in the seeds themselves. Compare this to the ACDC strain, a non-euphoric, high-resin marijuana varietal widely grown in California, which contains 20 percent CBD by dry weight.

The 0.3 percent THC legal limit for industrial hemp is an impractical, scientifically baseless distinction designed to maintain marijuana prohibition. In an effort to circumvent the law, some farmers in Colorado and other states are growing high-resin, CBD-rich marijuana and calling it hemp; they harvest their crop early to minimize the THC content. Growing industrial hemp outside the parameters of strictly implemented, state-sanctioned pilot research is still forbidden by the federal government.

For hemp farmers abroad, CBD paste is typically a byproduct of industrial hemp grown for other purposes. Farmers sell this leftover hemp biomass to businesses that extract CBD oil. It's not great starter material for making CBD products, because huge amounts of low-resin hemp refuse are required to extract a small amount of CBD. Also, the more plant material one extracts from, the greater the risk of contaminants, because hemp is a "bio-accumulator" that draws toxins from the soil. That's a great feature for cleaning up poisoned environments-hemp was planted near Chernobyl after the nuclear disaster for this purpose-but it's exactly what you don't want in a medicine.

Thus far, CBD commerce proliferates online with little interference from the federal government, other than FDA warning letters that have been sent to several CBD hemp-oil retailers for mislabeling products and making unproven medical claims. (Some "CBD-oil" products tested by the FDA contained little or no CBD.) Even more disconcerting is what's actually in these items. Many, if not most, CBD hempoil vape cartridges contain propylene glycol, a thinning agent that is carcinogenic

when overheated and inhaled. Flavoring agents are also ubiquitous in CBD hemp-oil cartridges, yet few of these ingestible food additives have been safety-tested for inhalation. Some are known to be toxic.

You might find serviceable products marketed as CBD hemp oil if you're willing to take a chance on the vagaries of online meds. It's something of a crapshoot, but some of these products may provide health benefits. Low-THC cannabis-oil extracts have been a godsend for a number of children with intractable seizure disorders. There are accounts of epileptic kids who experience a near-complete cessation of seizures when they utilize CBD-oil products. But for many other seizure-disorder sufferers, adults as well as children, CBD doesn't do the trick. It's not a miracle cure for everyone.

The therapeutic range of CBD hemp oil is significantly limited by the small amount of THC and other cannabinoids contained therein. Many medical marijuana patients have learned through trial and error that augmenting CBD-rich oil by adding some THC—or THCA, the unheated, non-psychoactive form of THC that's present in raw cannabis flowers and leaves—helps to keep seizures and other symptoms at bay. Low-THC cannabis-oil products don't work for everyone; this is why people of all ages need access to the full spectrum of whole-plant cannabis remedies, not just low-THC oil.

Molecule Versus Plant

CBD will soon become a single-molecule pharmaceutical. When Epidiolex, an almost-pure CBD anti-seizure remedy developed by GW Pharmaceuticals, gets a green light from the FDA, cannabidiol will join single-molecule THC (Marinol) as a legally available prescription medication. But the cannabis plant itself will remain federally illegal for the foreseeable future.

Project CBD recognizes that single-molecule CBD is not the same as whole-plant CBD-rich cannabis, which includes hundreds of medicinally active components. Whether synthesized in a lab or heavily refined from industrial hemp paste, "pure CBD" products lack the full array of medicinal terpenes and minor phytocannabinoids found in marijuana. These compounds interact with CBD and THC to create what scientists refer to as an "entourage" or "ensemble" effect, so that the therapeutic impact of the whole plant is greater than the sum of its parts.

It's not that single-molecule CBD won't work—pure CBD might be helpful

in certain cases, but whole-plant CBD has a much wider therapeutic window than CBD as an isolate. This was underscored in a 2015 experiment by Israeli scientists, who found that single-molecule CBD required a much higher dose to be effective compared to whole-plant CBDrich oil. Moreover, if one missed the mark slightly-either too high or too low-then single-molecule CBD had little impact on pain and inflammation, unlike wholeplant CBD-rich oil, which was effective at a much lower and broader dosage range. Problematic interactions with other drugs are also more likely with high doses of single-molecule CBD.

"The therapeutic synergy observed with plant extracts results in the requirement for a lower amount of active components, with consequent reduced adverse effects," the Israeli researchers concluded. Other scientists have reported similar findings.

CBD is a mighty molecule, to be sure—but the whole plant is mightier. *\square

Martin A. Lee is the director of Project CBD and the author of several books, including Smoke Signals: A Social History of Marijuana and Acid Dreams: The Complete Social History of LSD: The CIA, the Sixties, and Beyond.

SAGE CBD continued from page 98

substantially diverge. But the Canna Lab results told a different story: The small plant contained 10.52 percent THC and 8.06 percent CBD; the second plant contained 9.57 percent THC and 7.53 percent CBD; and the third measured at 7.54 percent THC and 13.54 percent CBD.

In short, the indica pheno resembled one of the sativa-type plants, but the other sativa pheno stood out with an amazingly high CBD content. It didn't come close to the targeted 1:1 CBD/THC ratio, but the other two plants did. Most CBD strains available on the market are bred for a 1:1 ratio, because the anecdotal evidence indicates that the most powerful medicinal benefits are achieved when CBD and THC are present in equal proportions. Nevertheless, the strongest pain relief that the Doc's two friends experienced came from that extraordinary CBD-rich plant. Of course, this outcome was also anecdotal. In the near future, clinical studies will certainly focus on the issue of CBD/THC ratios.

"It's fascinating how medicinally valuable CBD-rich cannabis is," the Doc says.
"I'm sure that in certain cases, it could replace a lot of common pharmaceuticals, and in others at least considerably reduce the amount needed. My two friends swear by S.A.G.E. CBD now. It's a bubbling source of healing CBD for them." *



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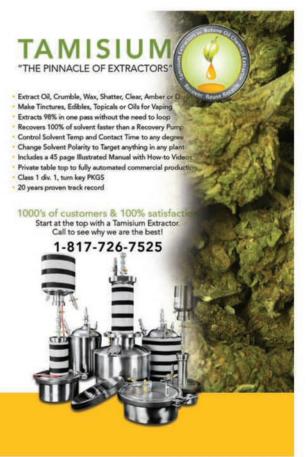


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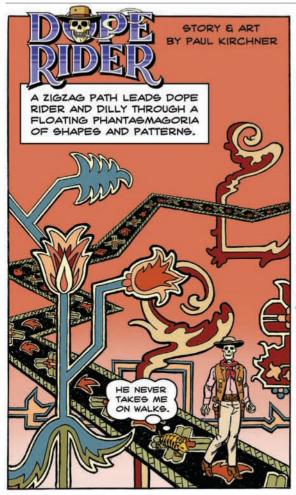
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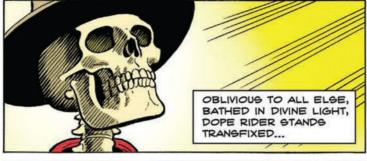
















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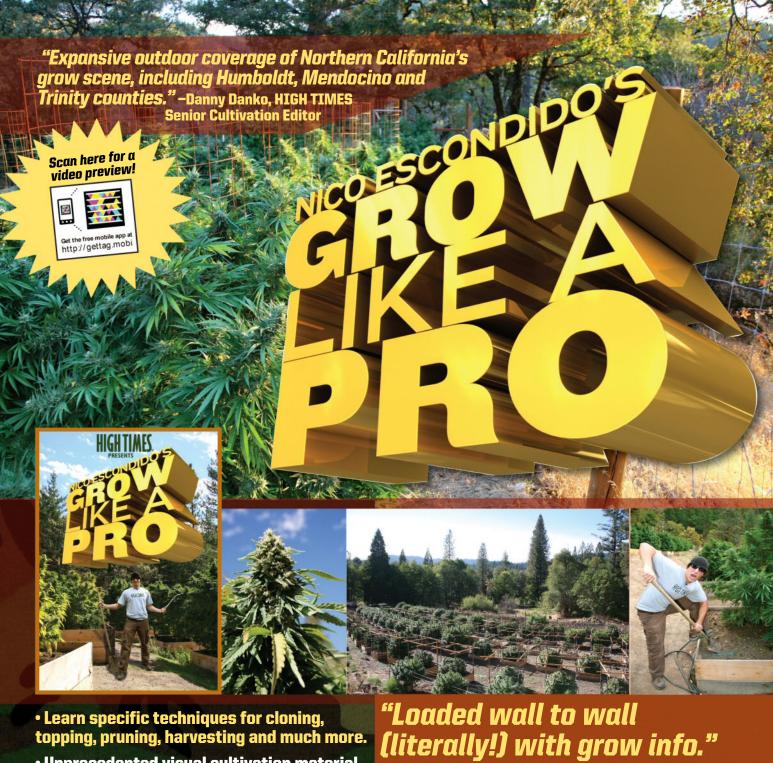




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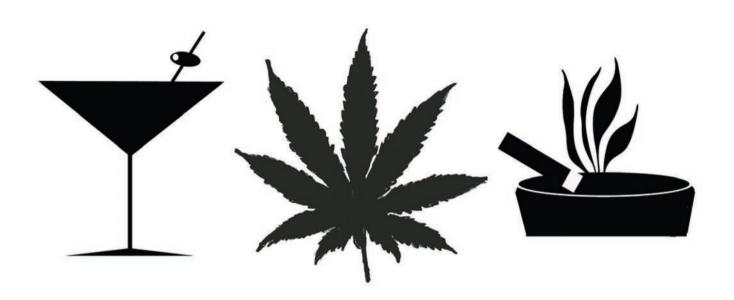
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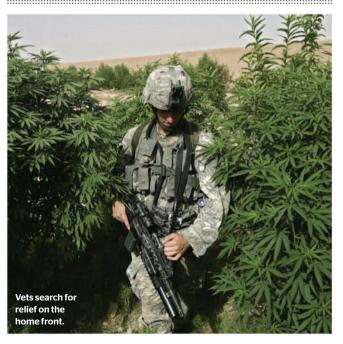
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Special Issue: Pot & Vets

Whether it's for post-traumatic stress disorder or severe injuries sustained in combat, our military veterans are increasingly turning to cannabis for relief. But the federal government continues to ignore the clear evidence of pot's benefits and to criminalize vets who seek healing. Veterans' advocates report from the frontlines of the political battle to secure legal weed for our servicemen and -women.

The Seed Bank Hall of Fame: New Inductees!

Discover which companies have entered the pantheon of the world's best pot-seed-breeders. Who's got the prized genetics, provides the best service, and offers the highest-quality strains?

Cannabis Extractions 101

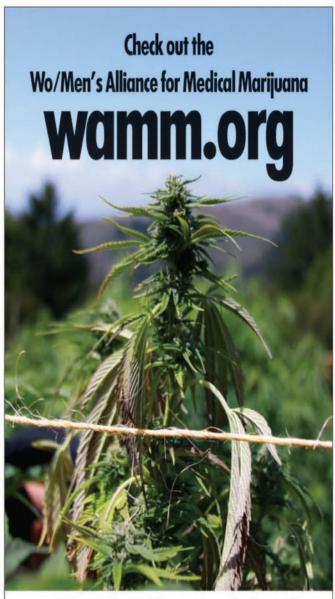
Delve into the history of hash oil and learn about modern extraction techniques, including solvent versus non-solvent, extraction systems, and the art of purging and dewaxing dab products.

Reefer & Race

Marijuana legalization is helping to dismantle a system of oppression that disproportionately targets minorities. Still, inequalities in policing remain, even after legalization—and so does a disturbing lack of diversity in the legal-cannabis industry.

PTSD & the DEA

Bryan Krumm, a vet and a psychiatric nurse practitioner, knows cannabis is the "only mediation that's able to rapidly reduce suicidal thinking in most PTSD patients." Next month's feature interview, Krumm is appealing the DEA's recent refusal to reschedule cannabis.



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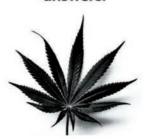
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Dillon Law Office 3601 N. Pennsylvania St. Indianapolis, IN 46205 317-923-9391 steve@dillonlawindy.com stevedillonlaw.com Chair, NORML Board of Directors.

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Justin A. Barrett

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David E. Kindermann, Esq.

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W. Benjamin McClain, Jr., L.L.C.

Attorney at Law
1300 E. Washington St.
Suite I
Greenville, S.C.
29607-1858
Tel (864) 271-9097; (864)
271-9098
Fax (864) 271-9099
mcclainwb@gmail.com
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TEXAS

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Offices in Austin and San Antonio, TX
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blackburn@ipoftexas.org

Greg Gladden

3017 Houston Ave. Houston, TX 77009-6734 713-880-0333 gladden@airmail.net

Gerald Goldstein

2900 Tower Life Bldg. San Antonio, TX 78205 210-226-1463 GGandH@aol.com

Michael C. Lowe Attorney At Law

700 N Pearl Street, Ste 2170 Dallas, Texas 75201 214.526.1900 Toll free: 866.351.1900 Fax:214.969.0258 dallasjustice.com Board certified in criminal law by the Texas board of legal specialization

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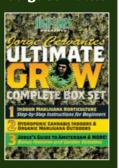




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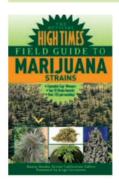
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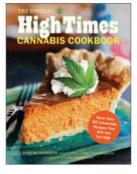
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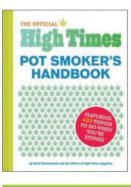
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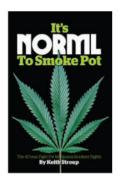
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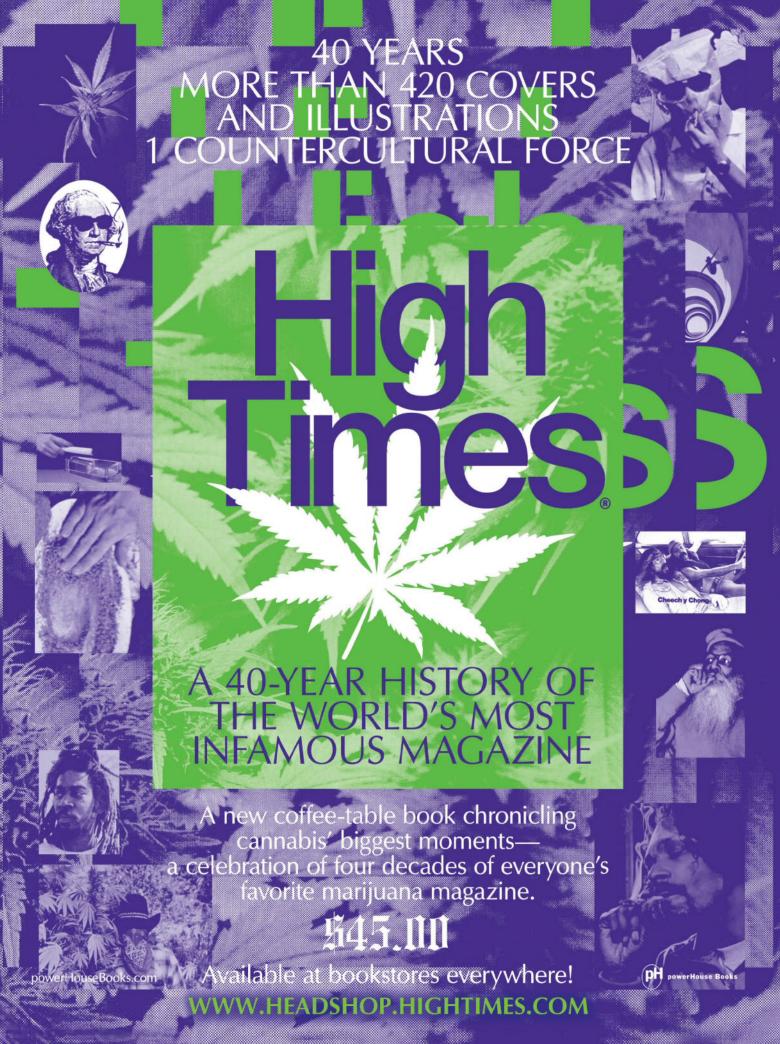
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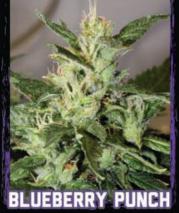


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