

Industrial Hemp



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Superhero/Savior of Humanity



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Inside Front Cover sunset photo:
Ben Droz, America's First Hemp Field
at Ryan Loflin's Farm, 2014



John Trudell

What Medicine Does

in our reality as human being hemp is our ally
the relationship is encoded in our DNA
the cannabinoid receptors in our body
are designed by nature to respond
to medicinal cannabinoids of cannabis hemp

in our reality as children of earth
ancient relationships with cannabis hemp
an ally providing food shelter clothing medicine
then as
so called civilized man turned evolution into progress
hemp was an integral component
from rope to sails from paper to economics

in the reality of progress our ally lost favor
when progress discovered how to drink earth's blood
progress was thirsty and blood was more profitable
in a triumph of profits over common sense
when controlled by the minds of the few
anything going against that was a threat

with hemp as an abundance accessible to, too many
so then what was once an ally was now the enemy
in a decision of the few to exploit the many
as part of the progress of progressive profits
with earth poisoning in vapors of mother's blood

in our reality as human beings in this now
could be time to remember back in our far back
our reliance to cannabis hemp to provide
is a renewable alliance that we decide

to understand the versatility of cannabis hemp
if we're talking about energy hemp can help
economics environment industry jobs agriculture
fuel housing food clothing paper and
hemp creates oxygen on a renewable basis
for a sky being smothered by carbons

when that our survival gene kicks in
a potential reality of cannabis hemp
it is a reality of an environmentally safe
renewable alternative green energy resource
the economics are basically limitless
and cannabis hemp is earth friendly

in the reality of our evolution
cannabis hemp is related to us by DNA
hemp is earth medicine
we as human beings are of this earth
hemp won't save us but it can help us
that's what medicine does



Industrial Hemp Superhero/Savior of Humanity

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Mia Feroletto

Industrial Hemp Superhero/Savior of Humanity

“I don’t know if hemp is gonna save the world but I’ll tell you this, it is the only thing that can.”

Jack Herrer
as quoted in Eric Steenstra’s
article for this magazine.

My interest in industrial hemp took seed in the spring of 2014. At the time, I was living in Canada with my then boyfriend who happened to be a registered medical grade cannabis grower, which was ironic because I never used cannabis in any form. The topic of industrial hemp had come up in conversation, so I turned to Google for more information. Within minutes, I found myself watching the first of Sanjay Gupta’s groundbreaking documentaries entitled “WEED” and learned about the impact of CBD on the life of a little girl named Charlotte Figi that to my mind was nothing short of a miracle.

My background is in fine arts and though I have not painted for quite a while, my work has been exhibited at galleries and museums in the SoHo district of Manhattan and elsewhere and was well reviewed in The New York Times. Artists are trained to create from nothing, whether it be on a blank sheet of paper or canvas or in a 3 dimensional space. My art education has provided me with the perfect tool box to navigate these challenging times. All we needed was our imagination and some effort to make an idea come to fruition.

By my mid-20’s, after working as an administrator in the Department of Psychiatry at New York University Medical Center, my interests began to include human rights and social service issues. At that time, I realized that art could be used as a tool to raise funds for those less fortunate, as well as support important causes. Consequently, together with a group of friends, I organized our first event, “A Shelter from the Storm: Artists for the Homeless of New York.” Held in 1987 at the Cathedral of St. John the Divine,

it benefited three organizations working with the homeless population of New York including the St. Francis Residences for the Poor which provides permanent housing to chronically mentally ill adults. Then, in 1995, I collaborated with the Coalition for the Homeless for the creation of ARTWALK NY, an event that raises approximately one million dollars annually for the homeless of Manhattan. Members of that core group of friends who served as benefit committee members have gone on to become stars in the contemporary art world. When I look back on that time, all I see is the friendship and camaraderie that encircled such a worthy cause.

For me, supporting a cause for sustainable housing for everyone has become my goal. From the Transition Town Training in Montpelier, Vermont during the summer of 2009, I learned the importance of listening to one’s own response level to any given thought or idea and to paying attention enough to use this excitement and enthusiasm as a gauge for engagement. The more I learned about hemp, the more excited I became. Hemp can provide solutions for countless problems, both simple and complex.

Combining my background in the arts, humanitarian efforts, the cause for sustainability and the product of hemp, I enlarged my plans to include joining those already working to bring industrial hemp to Haiti where I will be traveling later this summer. Funds are being raised to support to support the launch of this effort so the funds are on hand to begin training and building hempcrete houses and ultimately a school where, in addition to language and math, students will learn sustainable practices for living.

After almost 40 years of activism, I can say for certain that there is nothing more powerful than an idea whose time has

come. With the creativity and drive of the contributors to this publication, we can indeed change the world with hemp. It may take a little time, but not one of us is faint of heart or weak in the knees.

Mitch Epstein took the extraordinary portrait of Alex White Plume wearing his grandfather’s feather bonnet that graces our cover. This past February, Mitch spent eight days at Standing Rock to record the protest effort against the Dakota Access Pipeline, with a short break to drive to the Pine Ridge Reservation to meet with Alex.

Karen Gunderson has created a series of her iconic black paintings with the hemp plant and hemp fields as subject matter. Thank you Mitch, Karen, KK Kozik, Lucy Slivinski, Terry Boyd, Sally Smith and Glenn Goldberg for including hemp as a material in your art-making process. Thank you Ben Droz for your wonderful photography and support of this issue. An additional thank you to the following contributors listed in no particular order: Heather Jackson, Joel Stanley, Eric Steenstra, Mike Lewis, Michael Carus, Jeffrey Silberman, Glenn Goldberg, David Bronner, Will Allen, Marcus Grignon, Michael Reif, Alli Cloyd, Sally Smith, Steve Allin and Cree Miller of the Estate of John Trudell. It makes no sense for me to describe their eloquent words when you can read them yourself.

Thank you Erika Knerr, publisher of *New Observations*, for your considerable talent as a designer. Thank you to Leah Poller for your editing skills and to Linda O’Brien who provided transcription services for the David Bronner/Will Allen interview. Linda was so inspired by their interview that she donated her services. Thank you Linda!

We have come together to create something of value and we have succeeded.

Strength and Honor!

~ Mia

The Resurgence of the American Hemp Industry

Jack Herer self-published *The Emperor Wears No Clothes* in 1985, and in so doing, sparked the resurgence of the American hemp industry. Americans were beginning to unravel the tangled history of lies behind Harry Anslinger's anti-cannabis crusade and Nixon's blatantly racist if not lucrative "War on Drugs." Herer's hemp manifesto catalyzed the revival of interest in hemp farming and manufacturing, and I've been fortunate to have a front row seat to this fascinating and somewhat improbable story of the rediscovery of hemp and the efforts to reestablish its cultivation, use and good reputation in the United States.

How did we get here?

The focus of this article is on the modern American hemp industry, its contemporary challenges and the robust opportunity it presents. But first, it's important to understand how Cannabis hemp became prohibited and maligned as a dangerous drug.

Cannabis sativa L., commonly known as hemp, is one of the oldest cultivated plants, known for its durable bast fibers, nutritious seed, and for its medicinal properties. Hemp has a long history in North America, dating back to the European colonists who established it as a crop in the early 1600s. It was grown throughout America for centuries and its economic advantages were widely promoted by United States founding fathers George Washington and Thomas Jefferson. Unfortunately, hemp was caught up in the nasty campaign against narcotics and "marihuana" that took place



A Young Eric Steenstra presents with Jack Herer.

in the early 1900s, culminating in the Marihuana Tax Act of 1937. The act made no distinction between marijuana and hemp, and required anyone who wanted to grow cannabis for industrial or medical purposes to register as a "producer of marihuana" and pay a tax. Others have covered this history extensively, including Herer in his seminal book, so I won't elaborate on its prohibition or the causes. By 1970, the hemp industry had largely disappeared by the time Congress passed the Controlled Substances Act. It defined all Cannabis including hemp as marijuana, and banned commercial cultivation of cannabis.

Jack Herer Rediscovered Hemp

My hemp journey started in 1989 after meeting DC Cannabis activist, Steve DeAngelo, at a NORML rally in Washington, DC. Steve and I became friends and he subsequently introduced me to his friend Jack Herer who was barnstorming the country on a "Hemp Tour," educating anyone who would listen about how Cannabis hemp could save the planet.

Jack Herer is without question the most important figure in the revival of the hemp industry—he's the Johnny Appleseed of hemp. Jack was somewhat of an unlikely advocate. He was born in June of 1939 in Brooklyn, NY and grew up in a conservative family. Up until his late 20's, he was a pro-war and anti-cannabis Republican. He joined the Army and served as a military policeman during the Korean War. Jack's life took a dramatic turn in 1969 after smoking marijuana for the first time. It opened his mind. In 1973 he founded a hemp store in the Venice Beach neighborhood in Los Angeles, California and began his journey toward writing the book that would enlighten millions about the plant.

During the next decade, Jack was steadily doing research and collecting historical information about his favorite plant. He discovered that much of the history of hemp had been erased by government propaganda efforts. Yet he persisted, pursuing the truth in Washington, DC on visits to the Library of Congress and the USDA National Agricultural Library. His approach was simple and incredibly effective. He presented the historical documents he uncovered about hemp alongside his arguments that Cannabis hemp was the most important and versatile plant on Earth. Jack promoted hemp for food, fuel, fiber and medicine and offered \$100,000 to anyone who could disprove the claims made in his book. When skeptics questioned his claims, he would say "I don't know if hemp is gonna save the world but I'll tell you this, it is the only thing that can."

Due to Jack's painstaking research and his tireless promotion, *The Emperor Wears No Clothes* became a bestseller. *The Emperor* was the vehicle to achieve his goal of legalizing hemp and marijuana. He printed and distributed the book himself, releasing 11 editions and selling more than 750,000 copies. He educated and inspired millions of people worldwide, as the book was translated into 12 different languages including Spanish and German. Most early hemp business owners credit Jack and his book for inspiring them to go into the business.

Early Hemp Commerce

When I first read Jack's book in 1990, there were very few hemp products available. A handful of companies had sprung up selling hemp clothing, cordage, foods and paper including Hempstead, The Ohio Hempery, the House of Hemp and the Coalition For Hemp Awareness (CHA).

Steve DeAngelo and I discussed starting a hemp clothing company that would make and sell 100% hemp clothing and accessories. In early 1992, I started looking for hemp fabric and discovered that the only company selling it was an importer out of Portland called the House of Hemp that had a few Chinese hemp fabrics available. I purchased some to check out the quality and see what we could do with it. After discussions with Steve, we agreed that we didn't really want to do business in China. The Tiananmen's Square massacre had happened just a few years earlier and we didn't want to do business in a country that was oppressing its people. Unfortunately in those early days, there were few sources of hemp textiles available.

Hemp in Hungary and Romania

We heard that hemp was grown in Eastern Europe. Communism had just collapsed in Hungary and other Eastern bloc countries. With democracy on the rise, I decided to go to Hungary. My first visit was in May of 1993. I met a woman named Agnes Palotas whose mother had worked at Elso Magyar Kenderfono (the First Hungarian Hemp Spinning Company). Kenderfono had been processing hemp fiber into twine, ropes and canvas since 1873 and was part of the Kender Bizalom or Hemp Trust—a group of 17 state owned

companies producing hemp rope and canvas for the Russian military. Agnes met me in Budapest and we traveled to Szeged in southeast Hungary to tour the factory.

Our goal was to produce a line of 100% hemp jeans and shirts. Kenderfono had high quality polished hemp twine and beautiful hemp canvas which would be perfect for bags and accessories but they didn't have the lighter weight hemp textiles needed for garments. We made a deal to begin purchasing hemp twine and canvas. This was the beginning of Ecolution, our hemp company.

I heard from her that we might find lighter hemp fabric in Romania, so we planned a visit in early 1994. I had met a Romanian American named Christian Delcea who was able to contact a factory that said they could make hemp fabrics and garments. The trip was pretty amazing and eye opening. Romania was a beautiful place but seemed to be living in a time warp. As we drove from Bucharest to lasi, we saw few cars but often passed people on horses pulling carts or riding bikes. The factory had recently lost its state funding and was looking for new opportunities. They had the equipment and expertise to make fabric and finish it into garments but they didn't have any fiber or yarn. They introduced us to hemp processors and we arranged to buy the fiber and have it delivered. After some trial and error, they produced some fine quality Nm 10 hemp yarns and made shirts and real indigo dyed blue jeans.

Steve and I were ecstatic but we needed more help in getting the kinks worked out and getting high quality patterns and quality control. I befriended Barbara Filippone who had decades of experience in textiles and garments and we hired her to manage our production. With all the pieces in place, Ecolution grew to over \$3 million in sales by 1999, and was sold in hundreds of stores nationwide and via our web site, one of the first hemp sites, which I built in 1994.

Hemp Industries Association

There were many other companies getting into the industry and we faced some similar challenges. Christie Bohling of CHA organized a meeting of hemp companies in 1994 in Scottsdale, AZ. Everyone came, including Jack Herer, and we had a lively discussion. We all agreed on the need to form a trade association

and thus, the Hemp Industries Association was born. HIA's mission was to promote the benefits of hemp, defend against harmful laws and regulations and to grow the industry including bringing back hemp farming. We had annual meetings and the group grew and became the go-to source for hemp industry information and advocacy.

Bringing Back Hemp Farming: Vote Hemp

One of the main goals of HIA was to see American farmers grow hemp again and be able to source domestically produced hemp fiber and seed. By 2000, we realized we needed a political arm of the industry to work on changing the laws. A few members of HIA including myself, David Bronner, Erik Rothenberg, Eric Lineback, David Frankel and Steve Levine formed Vote Hemp, a 501 (c)4 non-profit. We originally thought we could achieve our goal within 5 or 6 years but that was a bit overly optimistic to say the least! We have made incredible progress over the past 16 years, including helping to change the laws of 32 states and getting hemp farming pilot programs added to the Farm Bill in 2014. This resulted in hundreds of farmers planting hemp and growing 9,650 acres of hemp in 2016. Vote Hemp has also helped lead legal efforts to defend hemp, including the HIA v. DEA case which stopped DEA from banning hemp foods in 2001, thanks to the generous support of David Bronner and Dr. Bronner's. We also have lead through protest and direct action, thanks to our partnership with Adam Eiding of Mintwood Media. He helped us organize DEA Hemp Food Taste Tests in 2002, farmers planting of hemp seeds on the DEA lawn in 2010 and David Bronner's White House hemp harvest protest in 2012.

We are closer than ever to restoring hemp's potential, but we still haven't completed our original goal of having all American farmers be able to grow hemp commercially without DEA oversight or interference. While we are getting there, this industry will continue to grow, proving that hemp is really the incredible resource that Jack told us about.

For more information about hemp, visit Vote Hemp at: www.VoteHemp.com



Mike Lewis

Ancient Tools, Disconnects and Opportunity: Impacting the Environment

Most of the earliest works of art discovered today are in fact, ancient tools. People created things with care and love because they had to last and would ultimately be passed onto the next generation. The industrial revolution eliminated the care and effort that went into making these earlier objects so that people could work faster and cheaper in the face of economic competition. The Industrial Revolution brought us modern economic theory that introduced us to the theory of externalities. Wendell Berry in his 1989 essay "Nature as a Measure" writes "for a long time now, we have understood ourselves

as travelling toward some sort of industrial paradise, some new Eden conceived and constructed entirely by human ingenuity. And we have thought ourselves free to use and abuse nature in any way that might further this enterprise." In other words, we have forgotten our place.

The "understanding" Berry speaks of comes directly from our belief and participation in modern economic principles. Berry continues and claims "we have bought unconditionally the economist line that competition and innovation would solve all problems, and that we would finally accomplish a technological end run around biological reality and the human condition." What Berry is calling for in his essay is the recognition that nature and our environment are equal participants in all of our

transactions - a partner that once deserved the same equity but now requires more because of previous neglect. For decades now, we have used nature to suit our needs without any regard for the externalities.

Perhaps one of the biggest disconnects we have today is in fashion. Most people have forgotten that their clothing and other textiles can be traced back to the farm; even more so, they have forgotten how the methods used to produce them impact the environment. According to a World Wildlife report, more than half the clothing in the world is made of cotton. Globally 2.4 percent of all farmland is planted in cotton, which uses twenty-four percent of the fertilizer, eleven percent of pesticides, and a quarter of the water consumed by agriculture annually. It is now

estimated that less than half of the world's cotton crop is of a genetically modified variety, meaning the pesticide number could increase significantly in the coming years. Today, your average cotton t-shirt has been treated with over a pound of pesticide and seven hundred gallons of water. Using Berry's logic, this is a direct threat to our community and our survival that must be addressed.

It was in this spirit that I became involved in industrial hemp advocacy. You see, not only is the planet in the midst of an ecological crisis, but also America is in the middle of a farm crisis that is alarming and largely unknown. In the past five years, over one hundred thousand farms in this country have ceased production. For those farmers still producing, expenses are up over thirty percent, while the value of production has risen by only about twenty-five percent. This means that even with higher prices at the farm gate, farmers are still losing money. In 2012, over half of America's farmers lost money. In my home state of Kentucky, we lost ten thousand farms between 2007 and 2012. About six thousand of these were new and beginning farmers, while over half of Kentucky's seventy seven thousand farmers lost money last year. In hemp farming, I saw an opportunity for farmers to produce higher value crops and reestablish some rural processing infrastructure.

One of my favorite quotes is taken from the writings of Roman Naturalist and Naval commander Gaius Plinius Secundus. "Out of so small a seed springs a means of carrying the whole world to and fro". It reminds me of how critical agriculture is to our existence. From a simple seed came the means to make the cordage that was converted into the sails

and ropes that brought the first explorers to the Americas. Those ships opened up trade and ushered in a new era of mobility for people all over the world. Those sails brought our ancestors to this land, and later would feed the printing presses that would organize our first Militias and ultimately helped us declare our independence. Hemp literally built this nation and it could do it again. But it must be done responsibly and with care, as if we intended to hand it off to our children to use for future generations.

It is often heard in hemp circles that this crop "will save the planet" because of all the things we can accomplish with it. This plant can provide everything from a simple length of rope to the complex Nano technologies that will store our future energy-- and that is exciting-- but I fear we have forgotten where we came from and how we got here. A tool in the hand of a skilled craftsman becomes a weapon in the hand of the wrong person and the same is true in this scenario. I came to hemp for the same reason as most people: it presented an abundance of possibilities to solve some of the structural problems that we face as a planet, not to add another element to structures causing our problems. This is where I fear we are heading with this plant.

Let us not forget that this is a plant that helped build empires. The same sails that brought our founding fathers here also brought the slaves that built this nation. The canvas that covered the wagons brought the settlers westward on this continent, together with the weapons and soldiers that occupied and overthrew the natives who called this place home before us. Often it can be heard that if we switch all of the plastic bottles in the world to bio-based polymers like

hemp, it will make us more sustainable. While this statement is accurate, it addresses only the input issue, not the structural problem. Whatever we put the water in, it is still pulled from aquifers and shipped thousands of miles using carbon based inputs to get to you. The industrial hemp plant offers us many opportunities to change our inputs, but the path to its revival will depend solely upon human willingness to accept and pay the true costs of this life that we have purchased together. That will require change to the structural issues that threaten us all. The industrial hemp plant offers many opportunities for input change, but the path to hemp revival will depend solely upon human willingness to accept and pay the true costs for the lifestyles that we have acquired together, with the structural issues that may equally threaten us all.



*I fear we
have forgotten
where we came
from and how
we got here.*

Jeffrey Silberman

Enhancing Demand for Hemp



In a world where world textile fiber consumption of natural fibers is threatened by synthetic fibers, hemp looks like it is finally making headway. From agriculture to the marketplace, some basic questions about hemp's sustainability are being addressed such as the slow but growing movement of farm – to – fashion, in which markets hemp will compete, with what fibers will hemp compete who is doing what with hemp and how is it progressing?

Enhancing Demand for Industrial Hemp

Industrial hemp seems to finally be making headway, and while it won't be an easy task for those charged with maximizing its growth, it is definitely an exciting time. Industrial hemp has been a hot topic for many years, but legalization and public opinion are now leaning in its favor, making research and product development possible. Many people have been waiting a long time for this opportunity to present itself, and many more are waiting to see how it unfolds. The possibilities exist for industrial hemp to grow and scale in a number of ways, and while product developers and manufacturers will have an easier time with oil, paper, composites and just about anything other than with textiles, it can't be ignored that textiles is the big one, meaning that there are huge opportunities within this sector for hemp, actually the product category for which it was originally best known. The reason? The textile industry ranges from maker-space artisanal shops to vast industry complexes that globally serve thousands of end uses. Even if hemp is only viable for a micro percentage of these end uses, an initiative in this direction provides opportunities for volume and product exposure that make other products and markets pale by comparison.

But there are entry barriers in every direction. And so if you don't care about natural fibers or textiles, this probably isn't the piece for you.

That said, EMP activists, depending on their roots, see the industry's potential from different perspectives. Some are growers, some are involved politically, and some are product implementers. But everyone participating wants to see industrial hemp maximized. They contribute time, expertise, and energy in different ways, but what they all have in common is that they believe they have "lightening in a bottle", and they might be right.

Why hemp? Speaking with Mike Lewis, a Kentucky grower, he states "Farmers are hungry. The cost of production is up and the prices at the gate are down. Conventional Agriculture is literally starving the family farm that is forcing farmers to think outside the box and find things less conventional to support their bottom line. Industrial hemp certainly fits that bill and represents an opportunity for farmers to reinvest in the infrastructure that was consolidated away from the communities they produce in. In many

ways, farmers are turning to hemp out of hope for the old economy of rural farm communities." Looking at the industrial hemp industry as a textile technologist and part-time flax farmer, hemp has a lot of things going for it but it has issues to resolve.

Industrial hemp for textile end use refers to varieties of cannabis sativa that are cross-bred to achieve long, uniform, and strong textile fiber that is flexible enough to be spun into yarn. And yes, the plant must contain less than .3% psychoactive ingredients (THC), but truly, the textile industries only care about the yarn's shape, size, cost and strength, and not necessarily in that order.

Industrial hemp is not a miracle. It is a bast fiber, meaning that the usable textile fiber comes from the stem like flax or jute, rather than from lint protrusions from the seed, such as cotton. Industrial hemp (*Cannabis Sativa*) is not related botanically to flax (*Linum Usitatissimum*), but to a textile technologist, they might as well be cousins. From harvesting forward, bast fibers require different processing practices and machinery than do seed hair fibers like cotton, for which the global industry is well set up.

Due to volume, difficult processing will impact its marketing ability, at least for locally grown industrial hemp. Roughly 90% of the short-staple spinning frames in the world are for cotton-based spinning systems, which include cotton yarn and any fiber that is to be blended with cotton. Included in this assortment is what is called "cottonized" hemp, referring to hemp fiber that is guillotine chopped to about 1.5", and modified to compatibly spin with upland cotton. But blended or pure cottonized hemp will have a different hand, luster and texture than traditional long line hemp.

Competition

To provide a sense of reality and scale in market positioning, cotton last year produced over 22 million metric tons of fiber globally, flax about 320 thousand metric tons, and hemp weighed in at about 56 thousand metric tons. Both industrial hemp and flax are not on cotton's radar simply because cotton has bigger problems to deal with, specifically polyester, which has reduced cotton's market share of world fiber consumption to below 25% and increased polyester's own share to over 52%. If industrial hemp becomes important enough, there is more to fear from synthetic fibers than there is from other natural fibers. Polyester can simulate the look and

hand of hemp, including the natural inconsistencies if it can be done at a heart-breaking low price. Not perfectly, but enough for all but vigilant consumers. At the moment, polyester is focusing on larger markets.

That said, industrial hemp competes with flax and ramie and a few other cellulosic fibers in the textile market place. Hemp can compete to a lesser degree with locally farmed protein (wool, cashmere, alpaca) in the fashion markets, since protein fibers have different properties. Hemp, like flax and cotton, will more than likely be used in developing blends that maximize the properties of both fibers. At the farm level, industrial hemp will compete with corn, soy, potatoes and what ever grows profitably in a given region. But in the product markets, if re-shoring is to remain part of the strategy, then there will be no greater competitor to hemp than hemp coming in from other parts of the world like China, Russia and Eastern Europe and other areas where the infrastructure is already in place and the price is low.

Hemp's Properties

Industrial hemp is not the strongest fiber in the world as is sometimes claimed, and not even the strongest in the world of natural fibers. Flax in some cases is stronger than hemp, but it really doesn't matter. Synthetic fibers like nylon will embarrass hemp or flax in a strength test, either tear or tensile, day or night, and the new generations of synthetic spider silk made from sugar, water, salts and yeast are coming on strong, promising strength beyond any fibers in existence. But who cares? How strong does your shirt have to be?

Sustainability

Industrial hemp will also not save the planet. As a low feeder - better than most competitive fibers - it still requires water and nourishment like every other living thing, and it is susceptible to some wilts and pests.

But industrial hemp scores high in overall sustainability, or at least it can depending on who is growing it. Hemp has a fairly low impact on the environment, grows well in a lot of places, provides food and fiber, and as a locally grown crop, has the ability to help alleviate rural poverty and provide farmers with a viable new product. It fits well with the local fiber theme, and can support artisan communities. Hemp's profile in the market place is closely related to keeping that image.

Processing

Hemp and flax have some things in common, because they are both bast fibers. They are both relatively easy to grow, but harvesting, processing and spinning operations are different. Flax plants must be pulled from the ground by a special tractor or by hand to achieve the maximum usable fiber length, and to keep the ground as free and clear as possible from fusarium wilt which can cause a complete crop failure. Industrial hemp growers can cut the raw plant rather than pulling it, which is an advantage.

Every step in bast fiber processing is important, but most agree that successful retting is critical. Retting prepares the harvested fiber for the successful removal of the fiber from the bark (shives) by encouraging microbial action to “rot” the bark. Removing the bark from the fiber, sometimes called decortication, is really a three-stage process that includes retting, breaking, and scutching. It entails a lot of crushing with gears and rollers to enable the shive to fall off and separate from the fiber.

Modifying the hand (how it feels) is critical to hemp— as well as flax— because both fibers are naturally scratchy and need softening. Softening of fibers is done by more gears and rollers, and even by slamming thick skeins against doorways and walls. Softening can also be achieved chemically, and so it should not be assumed that it is organically grown and processed unless the product is certified.

Certification

Like every new product, the certification organizations will have their role. They will create standards to ensure fiber and product quality, apply existing test criteria for other fibers to make sure it is what it says it is, and then will crash into each other when attempting to harmonize these certifications.

Moving Forward

And so what are the options available to those who wish to grow, or grow with, industrial hemp?

Hemp, like flax and some other specialty fibers, has the ability to develop a portion of its positioning as “heirloom quality”. Combining good design, high quality fabrication, and interesting design can achieve this and can raise hemp to luxury positioning. This is the smallest part of the market, but is appropriate for hemp’s current production capability. This low volume and high profit market

segment can create the umbrella for building brands and enable other market levels to flourish over time.

Local Fiber: Circular Farm to Fashion

Industrial hemp is showing up in the farm-to-fashion movement, which is a logical place to develop the high end of the market, especially for “one of a kind” or “few of a kind” products. The farm-to-table model that has been so successful for farms and restaurants has taken root in farm-to-fashion programs. Fashion circles are forming all over the country, usually as an extension of the textile maker-space community. These initiatives usually include groups of artisans who cooperate to combine their skills and activities, creating communal value in textile based products.

The consortium usually includes a farm that produces natural fibers (cellulosic or protein) and possibly natural dyes. Communities of hand spinners and weavers or knitters add a burst of creativity not usually found in the mass markets, and their connection to the market through fashion designers and micro brands is critical. The major textile and design schools are involved, offering laboratory facilities, industry connections, structure, talent and credibility. If you wish to participate in a fashion circle, a College or University is a good place to start. Creating heirloom quality and high-end pieces occurs there.

Regional Study Groups

The New England Flax and Linen Study Group is an example of regional artisans who pool their talents and provide the expertise needed to create unique flax fabrics. There are groups like these who specialize in industrial hemp and they can be found in former industrial hemp producing regions or by way of the local museums in those regions.

The participants in these regional study groups come from all walks of life. They are re-enactors, educators, hobbyists, spinners and weavers. High volume is not expected at this level of the market, but quality and design ability is. While hand spinning is not the answer to the overall industrial hemp strategy, it is the critical transition point to develop textile applications. Hand spinners will bridge the gap from farm to fabric, and build the showcase needed for capital investment. According to NEFLSG’s Lisa Bertoldi, “we find that there is an increase in interest in locally sourced, locally produced textiles. Beyond that, we see that groups of like-minded people are banding together to do the work: to make usable household textiles and garments from local sources. We are seeing this in wool, which is perhaps the easiest fiber with which to

see the process through, and increasingly in plant fibers namely cotton, hemp and flax.”

Improved Mechanization

Prototype fiber processing equipment is currently being designed and manufactured and is already making its debut. This means that retted fiber can be turned into yarn mechanically, and that is a major development. Taproot Farms in Nova Scotia is in the final stages of offering pilot-sized, but mechanized, breaking, carding, hackling and spinning equipment. It works for nettles, it works for flax, and according to Taproot, the new equipment, with some modification, should work for hemp as well. Speaking with Patricia Bishop, the Owner of Taproot Farms and a true believer, “we are excited by the interest in how our machines will work to process hemp, flax and nettles. We are eager to test with hemp and nettle in the coming weeks”.

This is a tremendous step for industrial hemp, flax, and a whole series of natural alternative fibers as it enables limited but mechanized yarn production. The next step would be for small farms to organize into cooperatives, much like cotton farms do, offering the ability to process fibers regionally while generating modest volume.

Enough volume could be generated to penetrate high-end markets with limited yardage, like decorative interiors, and create a vehicle for maker-space creativity to flourish that will attract additional markets.

Ways of Scaling Up

Scaling up is directly related to how much of the manufacturing process is to be done domestically. Knowing that the infrastructure exists outside of the U.S. to produce hemp yarn, fabric, and products provides an automatic pricing advantage to those countries with inexpensive labor. While there is fabric-forming (knitting and weaving) capacity in the U.S., there is limited staple yarn spinning capacity available in general, but virtually no mechanized bast spinning capacity. This brings forth the decision of whether or not to send raw hemp to countries to perform contract processing, which only makes sense for initial development.

The way forward is to use the countries and regions that can produce the products efficiently for now to help build the markets domestically. Since the production in the U.S. (both growing and

processing) can only support low volume, then creating a low volume, high margin business makes a lot of sense. If low cost offshore producers can help build the market to support offerings and provide proof that the industry is attractive to investors, so much the better. As comes the equipment, so will come the market.

And so, industrial hemp has exciting and interesting times ahead for those who plan to participate. For farmers who believe in industrial hemp for textiles, they are at least partially in the fashion business, and for designers and merchandisers, they are partially in farming. And all are involved with textile fiber processing, because it will take that kind of effort and stamina.

- The hemp industry should adopt one logo that represents the entire industry. That logo should be licensed and controlled with specific guidelines by an organization charged with doing so.
- The design of the logo should not include the 5-point leaf. That visual relegates industrial hemp production to tee shirts and baseball hats, and is a deterrent to high end products.
- Go for full legalization. Pork producers are correct in their famous statement that “they sell everything but the oink”. To entice industrial hemp production, hemp producers should be able to grow other varieties, and every variation, including product for medicinal and recreational end uses. The public is leaning that way.
- Clean up the internet presence. Outrageous claims about the miracles of industrial hemp from the 1990’s damage its credibility.
- Take advantage of the historical value of hemp, flax, and various wools, but never lose sight of the fact that the consuming public buys textile-based products based on price, color, and fit.
- Build the case for farm to fashion circles. In addition to the market positioning gains, it can be a demonstrated success that later can be used to attract potential investors.
- Promoting consumption over production ability can be dangerous, and the reverse is true also. Build markets that can be serviced, not markets that will disappoint with lack of service.
- Speak directly to the consumer, as success will depend on them delivering the fiber concept through to retail. To the textile manufacturing community, hemp represents one more fiber that is hard to process, inefficient, and makes their job more difficult. Instituting new conditions to a manufacturing facility always results in cost increases.
- Expect that other than small and specialized markets, manufacturing will require offshore production for now, and so the re-shoring strategy has limited efficacy beyond small volume, and presents a counterfeiting risk that can damage market gains.
- Sustainability is on hemp’s side, and it is important to keep it there. The product is natural, can be organic, and can be responsibly grown, harvested and processed with low environmental impact. But consumers don’t attach the same importance to organic status with fibers as they do to organic food. Weigh the pros and cons of organic certification before adding costs to an already expensive product.
- Manage the controversy, but don’t lose it. It provides millions of dollars worth of press exposure that will be difficult if not impossible to replace.

Michael Carus

The European Hemp Industry: Cultivation, Processing and Applications for Fibres, Shivs, Seeds and Flowers

Introduction

Hemp is a multi-purpose crop, delivering fibres, shivs, seeds and pharmaceuticals. Currently the fibre is used for lightweight papers, insulation material and bio-composites. The shivs, the woody inner core of the stem, are used for animal bedding and construction. Hemp seeds, small nuts with a high nutritional value, can be consumed raw or pressed into hemp seed oil, which has an excellent and unique fatty acid profile. Both seeds and oil are used for human food and animal feed. The non-psychoactive Cannabinoid CBD is an interesting pharmaceutical and food supplement also derived from industrial hemp.

Industrial hemp has been grown in Europe for many hundreds of years. Through the Middle Ages and until the end of the sailing ship period, hemp was an important crop in many European countries including the UK, France, The Netherlands, Germany, Spain and Italy. The most important applications for the strong fibre were canvas for sails and sacks, canvas water hoses and fabrics, as well as ropes.

Today hemp is a niche crop, cultivated on more than 33,000 ha in the European Union (2016). Because of its unique properties, particularly its environmental benefits and the high yield of natural technical fibres, hemp is a valuable crop for the bio-based economy.

Basic data on cultivation and processing

The first figure shows the development of the cultivation area since 1993. Between 1993 and 1996 the cultivation of industrial hemp was legalised in most of the member states; others followed later. In 2011, the cultivation area decreased to its lowest value since 1994 (ca. 8,000 ha), but increased in 2012, 2013, 2014 and 2015, to finally reach more than 33,000 ha in 2016. The main cultivation member states are France and The Netherlands. In recent years, many new European countries started or expanded their hemp cultivation, mainly for the production of hemp seeds.

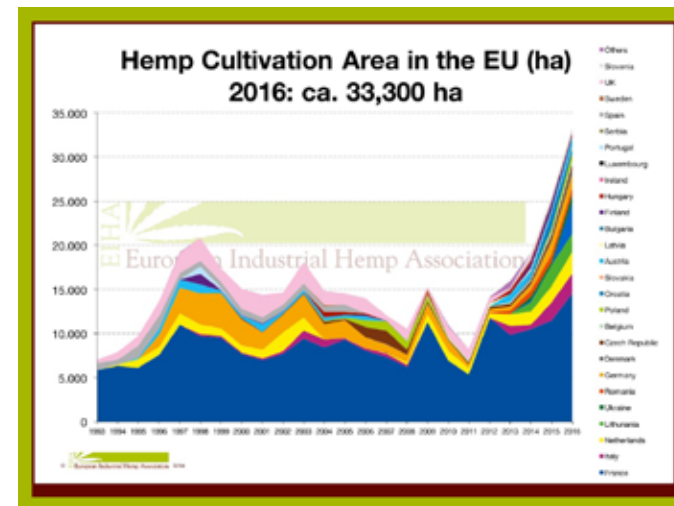


Figure 1: Hemp Cultivation Area in the EU 1993-2016, Source: EU Commission and nova-Institute surveys (nova/EIHA 2017)

From the 15,700 ha in the year 2013 (year of the last big survey), 85,000 tonnes of hemp straw were harvested and processed as:

- 25,000 metric tonnes of fibre
- 43,000 metric tonnes of shivs (woody core of the stem)
- The relation between shivs and fibres (shivs : fibres) is 1.7 to 1
- 13,000 metric tonnes of dust (60% pelletized for incineration, 40% for compost and other uses)

Hemp straw in Europe is only processed in a so-called total fibre line, producing random non-aligned technical fibre. This is in contrast to flax, processed in long fibre processing lines, which produces a high value aligned long textile fibre and a technical short fibre in a similar form to Hemp.

Some companies also or exclusively processed hemp seeds or hemp flowers:

- 11,500 tonnes (compared to only 6,000 tonnes in 2010) seeds
- 240 tonnes (compared to only 7.5 tonnes in 2010) of flowers & leaves for medical applications (THC/CBD), food supplements (CBD) and the production of essential oil (for food and beverages)

Whereas fibres and shivs did not show any significant difference between 2010 and 2013, the production of seeds increased by 92% and the production of flowers and leaves by 3,000%. The flowers for CBD production gave hemp farmers a considerable extra profit in 2013.

It should also be mentioned that hemp is one of the very few crops in Europe that is cultivated on non-organic farms without the use of any agrochemicals. Strong, fast growing hemp crops are able to suppress weeds without chemical support and the crop does not suffer from any pests or diseases that would warrant a spray. Hemp also grows well under an organic regime.

Applications for Hemp Fibres

Hemp fibres have some of the best mechanical properties of all natural fibres. They are mainly used for insulation material and for bio-composites in automotive applications.

Before the rediscovery of industrial hemp in Europe in the 1990s, hemp fibres were mainly (> 95%) used for speciality pulp & paper. Because of the high price of hemp pulp – about five times higher than wood pulp – the applications were limited to cigarette (the main market) and bible paper, technical filters and bank notes. The hemp pulp and paper market was a relatively stable market in recent decades, but on the other hand there is no market expansion expected and the market is risky because, from a technical point of view, today hemp and flax pulp could be substituted in most applications by a cheaper Kraft wood pulp with specific additives.

In 2013 (as in 2010), hemp pulp & paper was still the most important market for European hemp fibres with a share of 57%, supplied mainly by French producers. (see Figure 2 and 3 for details).

Due to a lot of research and development in the 1990s financed by the European Commission and the Member States, new applications for flax and hemp fibres were developed, such

as biocomposites (mainly automotive) and insulation material and other non-woven applications (technical textiles). Insulation material is the second most important application for hemp fibres today, accounting for about 26% of the applications. Biocomposites account for about 14% of the applications.

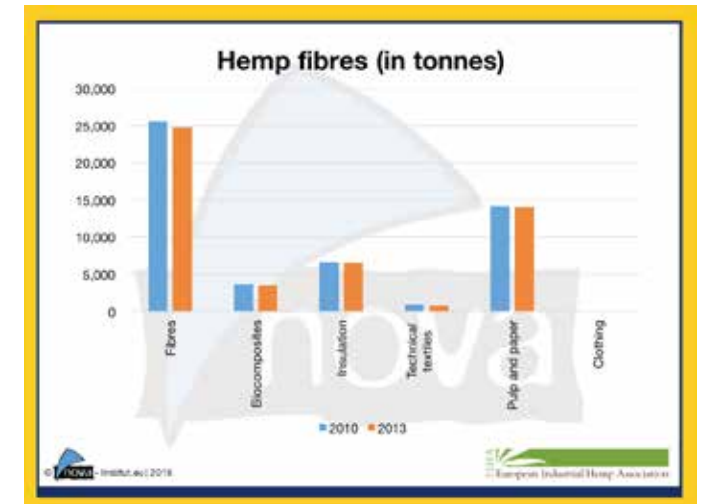


Figure 2: Applications for European Hemp Fibre from harvest 2010 and 2013, in total 26,000 (2010) and 25,000 (2013) metric tonnes (EIHA 2016)

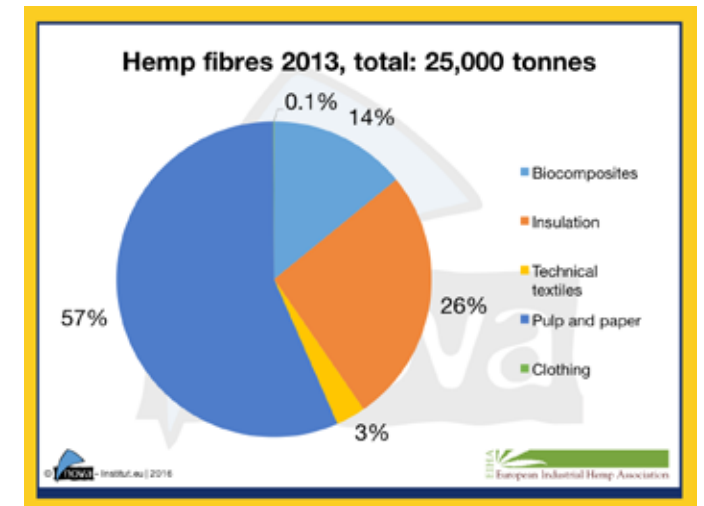


Figure 3: Applications for European Hemp Fibre from harvest 2013, 25,000 metric tonnes (nova/EIHA 2016)

Today (early 2017) the price range for hemp fibres starts from about 50 Eurocent/kg for the cigarette paper industry (ca. 25% shiv content) to around 75 Eurocent/kg for automotive and insulation (2-3% shiv content).

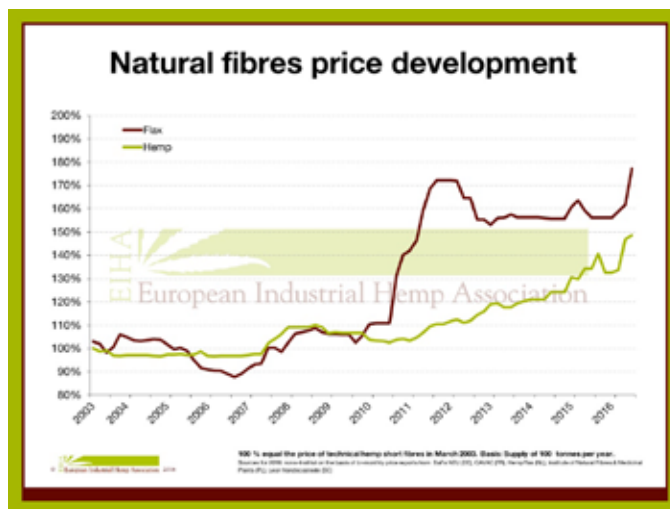


Figure 4: Relative price development for Hemp and Flax technical short fibres from European production 2003 – 2016 (nova 2017)

Applications for Hemp Shivs

In addition to hemp fibres, the process by which they are extracted (decortication) also produces hemp shivs. From a hemp fibre producer's economic point of view, it is very important to produce clean hemp shivs to sell into added value markets, since for each kilogram of hemp fibre produced, one gets 1.7 kg of hemp shivs as by-product.

High performance bedding material for horses and other animals such as chickens is today the most important market for hemp shivs. Hemp shivs can absorb moisture up to four times their dry weight. They are effective for much longer in the stable or hen house compared to other materials, thereby saving working time. After use, hemp bedding rots down quickly into an excellent compost.

Of the total hemp shiv applications, horse bedding has a market share of 45% and other animal bedding 18%, cumulatively representing 63% of the total hemp shiv applications (2010 and 2013). An interesting new and expanding market is the use of hemp shivs in combination with lime for construction. Here the market share for shivs is 16%.

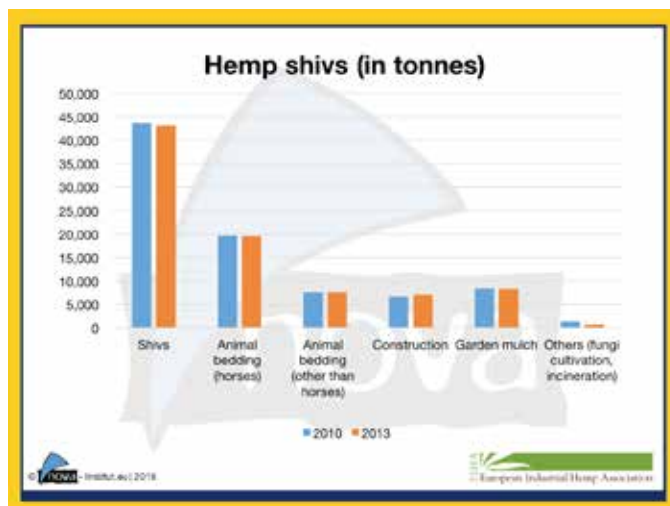


Figure 5: Applications for European Hemp Shivs from harvest 2010 and harvest 2013, in total 44,000 (in 2010) and 43,000 (in 2013) metric tonnes (nova/EIHA 2016)

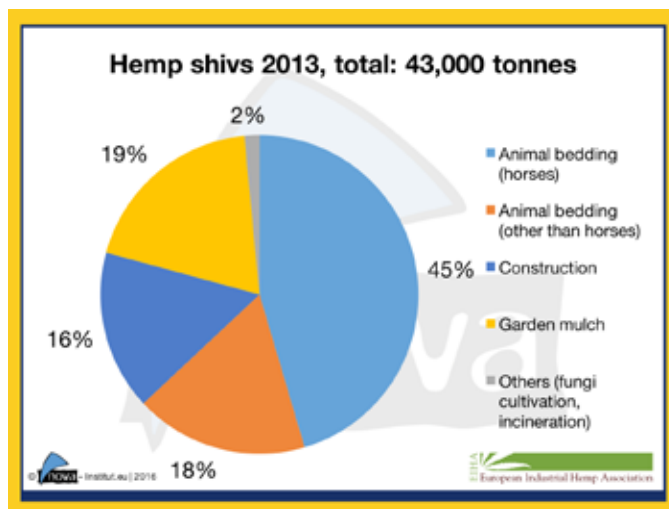


Figure 6: Applications for European Hemp Shivs from harvest 2013, in total 43,000 metric tonnes (nova/EIHA 2016)

Applications for Hemp Seeds and Oil

Hemp seeds have been mainly a by-product of hemp crops grown in central or southern Europe for fibre production. Only small areas were used exclusively for hemp seed production, in contrast to Canada where almost all hemp is grown for seeds only. But this has changed in the last year, as more and more producers in Europe started to cultivate hemp for seed and flower production only.

From 2010 to 2013 the production of seeds increased from 6,000 to 11,500 tonnes (92% growth), driven by the increasing demand from the food market. Even big supermarkets began offering hemp food products. An example of this can be found in Germany and in The Netherlands.

In 2015, in the European Union 11,500 t (2008: 6,000 t) of hemp seeds were produced, and another 10,000 t were imported, mainly from China. The consumption is about 22,000 t hemp seeds per year in Europe. Especially for organic (organic?) hemp seeds, the demand is higher than the supply. A double digit growth rate is expected, with demand rising especially in food goods. A hemp seed market potential linked to a penetration of 5% of the European nut market would signify an added market value of € 1 billion/year. Two major problems are delaying the growth: government legislation and lack of consumer awareness.

Most of the hemp seeds are used as human food (about 60%), the other 40% as animal feed. Ten years ago, the feed market was dominating the demand. Bird and fish feed is the main market for hemp seeds in animal nutrition. Both birds and fish need fatty acids with a high share of omega-3 and omega-6 fatty acids for optimum development. The hemp seed oil is mainly used to mix with protein feed for Koi Carp.

Hemp seed is an excellent source of several critical mineral nutrients and vitamins. Its oil has an outstanding fatty acid spectrum. It has unusually high 90% unsaturated fatty acids like Linoleic acid (omega 6, essential), Alpha-linoleic acid (omega-3, essential), and Gamma-linoleic acid (omega-6). Its protein is balanced and easily digested. Its nutritional composition and culinary versatility is very much in line with several major trends in the science and marketing of food. With the right quality management and marketing, the use of hemp seeds and oil in healthy human nutrition will continuously expand.

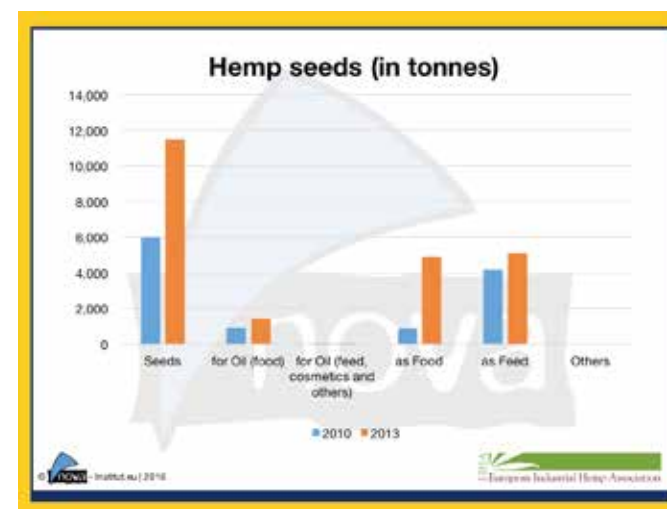


Figure 7: Applications for European Hemp Seeds from harvest 2010 and harvest 2013, in total 6,000 (in 2010) and 11,500 (in 2013) metric tonnes (nova/EIHA 2016)

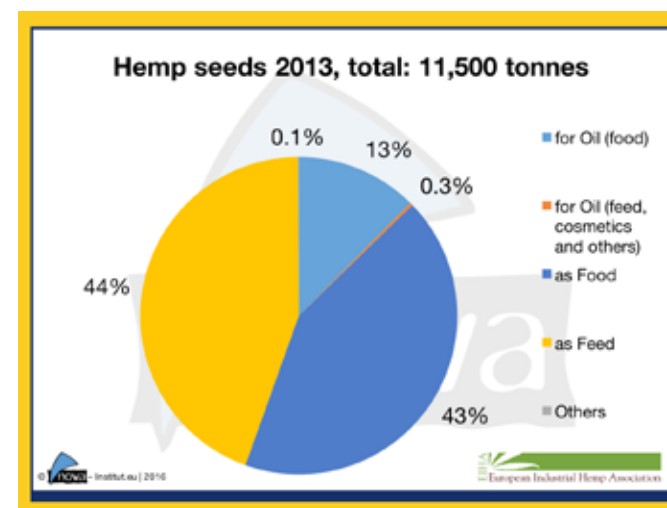


Figure 8: Applications for European Hemp Seeds from harvest 2013, in total 11,500 metric tonnes (nova/EIHA 2016)

Cannabidiol (CBD) is one of the non-psychoactive cannabinoids in industrial hemp. It not only has a plethora of beneficial health effects, but it also has no relevant side-effects. CBD is increasingly used as a food supplement and in food supplement compositions, and as an ingredient in cosmetics, thereby generating new investments and creating employment in the cultivation and processing of hemp and hemp-derived products.

CBD has increasingly gained prominence in the pharmaceutical and food supplement industries. CBD can be easily extracted from the flowers and leaves of industrial hemp as a high value by-product. In 2013, 240 tonnes of flowers & leaves for medical applications (THC/CBD), food supplements (CBD) and the production of essential oil (for food and beverages) were produced compared to only 7.5 tonnes in 2010. This means an increase of 3,000% from 2010. Further growth is expected in the next years.

At the moment, there is only a tenuous patchwork of CBD-regulation in the European Union endangering its use as a food supplement, to the detriment of the population and industry. Today more than 100,000 citizens profit already from CBD,

while dozens of companies show double-digit growth and increasing demand.

Some member states have already published regulations, some are limiting the use of CBD only to medical application, while others allow the use as food supplement. Most member states have just started to discuss national regulations. There is no reason to regulate the access to CBD too rigorously because of the wide spectrum of beneficial physiological effects of CBD and its favourable safety profile.

Europe should not miss this chance for consumer health and well-being and industrial growth in agriculture and food industry. EIHA gives access to the latest scientific information on CBD as well as a comprehensive position paper, which has been signed by nearly 700 consumers: www.eiha.org

Authors:

Michael Carus, managing director of nova-Institute and European Industrial Hemp Association (EIHA)

For more information, please go to www.eiha.org

While The Paper Was Still Wet

In 2015, I was invited by Mia Feroletto to do a paper project with hemp, a material I was aware of but with which I had no previous experience. Mia and I had known each other from decades prior when Mia was in New York and working in the arts. I quickly read up about hemp and its various uses, products, physical strength and ecological benefits. It seemed like it was still somewhat of a secret - underused and generally confused with marijuana, rather than viewed as the rich, useful and easy to grow industrial product that it is. Being an artist, I became interested in working with this plant and seeing how it felt in the form of paper. I had never seen hemp paper and was curious about this material that was brand new to me. Through Mia, I was then afforded the opportunity to work at Dieu Donne in New York on a project using hemp as the sole material for the paper. Dieu Donne is a premier non-profit handmade papermaking facility for artists, who also run programs for educating children and the public (headed by Amy Jacobs) about paper and its unlimited creative possibilities. I was fortunate and honored to work with Paul Wong, who is the artistic director at Dieu Donne, and a well-known master paper maker. The idea for this project was not only to work with thick paper pulp, as they generally do, but also to experiment and work with pulp that was formed from hemp. We started the process by using pre-existing hemp paper, since we did not have the facilities to process hemp from its original plant state. The pre-existing hemp paper was broken down with a Hollander Beater. It was then ready, in its form of hemp pulp

(slurry), to make paper to our preferred sizes, consistency, and texture. We had many different size hand molds that we poured slurry into in order to form the paper. The paper was then removed from the mold. While the paper was still wet we poured colored slurries onto the wet paper in order to make the forms become part of the paper. The work is done when the paper dries, with nothing added to it that was not part of the process while the paper was being formed. It is an extremely wet and watery process. Much of the work was done freehand; we also made a large group of stencils from my drawings. The stencils were of guys, ducks, dogs, birds and a variety of other forms that I often use in my work. The experience of pouring wet colored hemp pulp into wet hemp paper was new and exciting. By doing this, both the paper and the art were formed simultaneously in one long, arduous process and then dried as a single hemp paper piece. After the pieces dried, what most surprised about the results was the hardness and the strength of the paper. We made the paper reasonably thick. Although it still had a fair amount of movement, it was apparent that if it were a bit thicker, it would feel closer to a board than a paper. Our sheets were somewhere in between heavyweight printmaking paper and cardboard. The strength of hemp was obvious and in synch with what I had read about its use in construction and other areas of industry. Given the strength, durability and its lightweight nature, I have become interested in casting outdoor hempcrete sculptures. Hemp Crete is a hemp and lime mixture of industrial strength that also acts as an insulator and moisture

regulator. The sculptures would hold up to demanding weather conditions and would take an enormous amount of time to be broken down, if at all.

In conjunction with my hemp paper project, it is also important to state that increased general production of hemp is important to us for several reasons. Specifically, as related to paper, the pulp and paper industry historically is one of the largest industrial toxic polluters of our air, water and land. The paper industry uses more water to create a ton of product than any other industry. Deforestation has released an estimated billion tons of carbon dioxide into the air. Hemp paper doesn't require toxic bleaching chemicals. It can be whitened with hydrogen peroxide, which doesn't poison waterways the way that chloride and bleach (the chemicals used in making wood pulp paper) do. An acre of hemp produces as much paper as four acres of trees. Producing hemp, in general, would get many of our farmers back to work and afford them economic viability. Hemp paper stays strong for as long as 400 years, while books made on tree paper are useable for closer to 50 years. Hemp paper can be recycled 7 to 8 times, compared with only 3 times for wood pulp paper. Hemp fiber use in the U.S. would reduce deforestation, toxins in our waterways, and aid family farms.

Despite having limited experience with hemp, I was able to experience just a bit of its unique practical qualities and potential. It has varied uses, is cheap to grow, is a healthier solution to many of our desired products, and would put some much-needed life back into the American farming industry. Go Hemp!



Glenn Goldberg, *Young Dog*, 2016 Hemp Pulp on Hemp Paper Courtesy Mia Feroletto



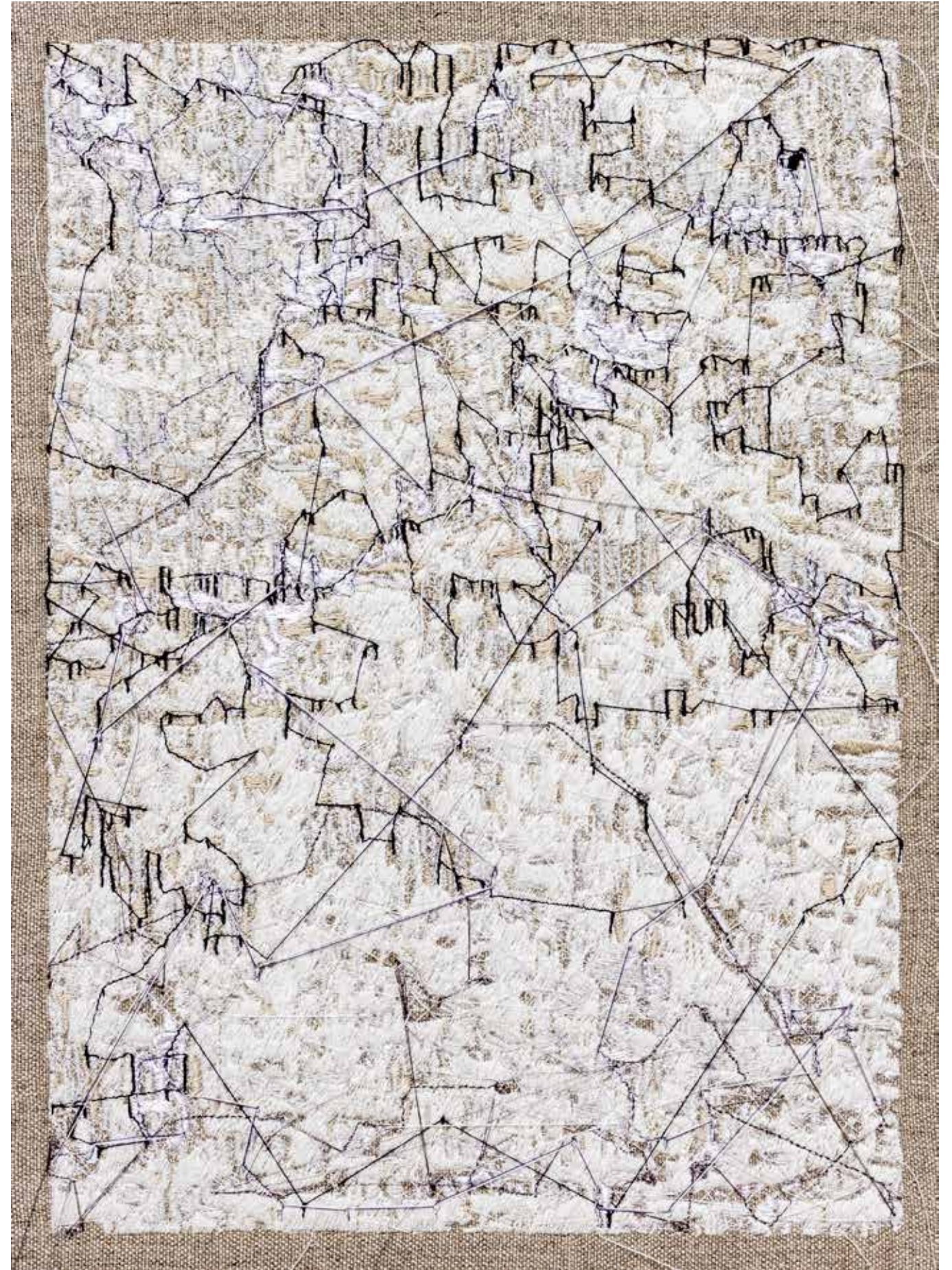
Glen Goldberg working at Dieu Donne, photo credit: Paul Wong



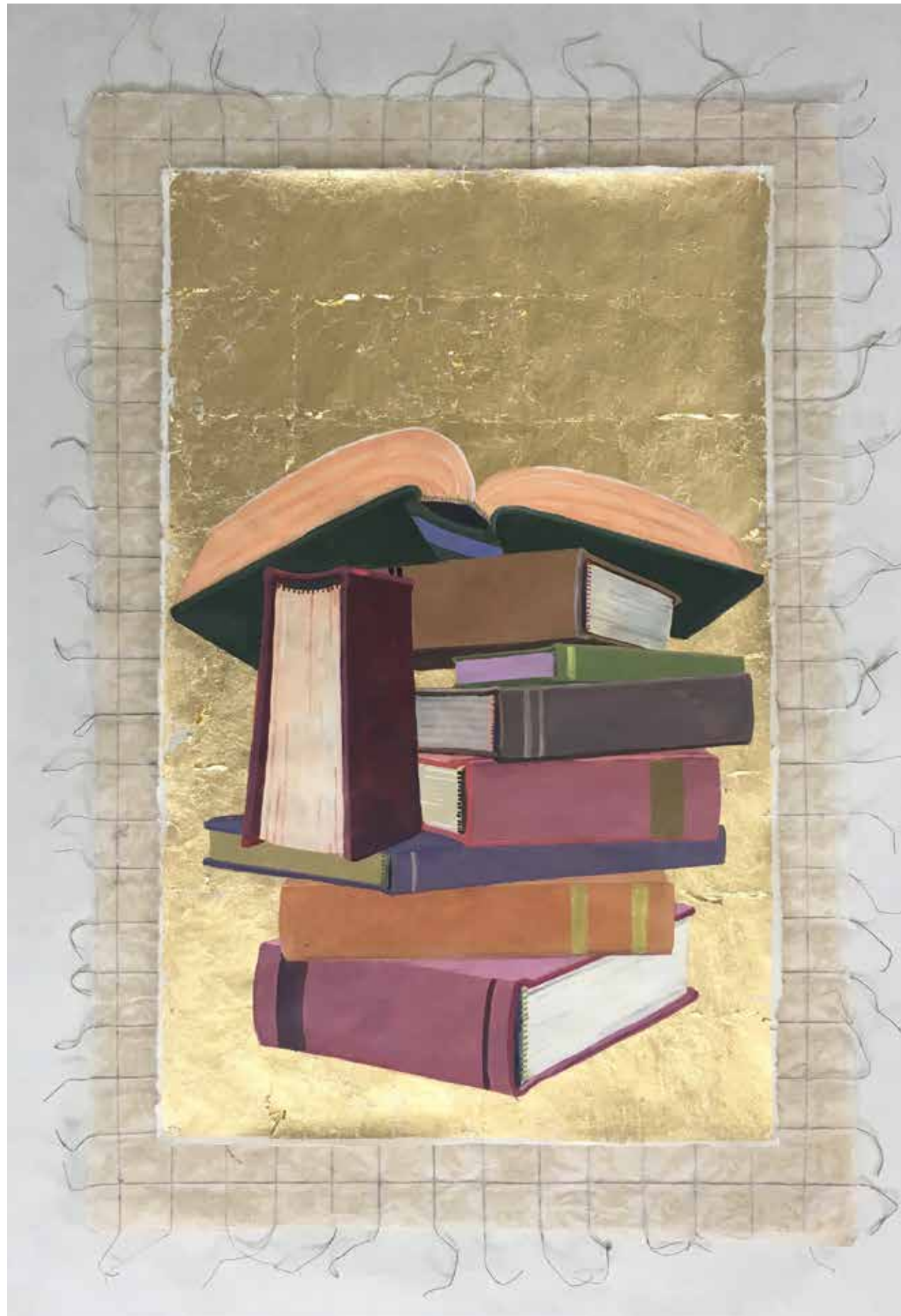
Glen Goldberg *Young Duck*, 2016 Hemp Pulp on Hemp Paper Courtesy Mia Feroletto



Terry Boyd Embroidered portrait on hemp (prototype for larger piece)



Terry Boyd Embroidered abstraction on hemp



KK Kozik



Above: KK Kozik, *Golden Classics 1*, 2017, oil on 22 carat gold leafed hemp paper, sewn with bookbinder thread to Nepalese oiled paper with hemp thread grid. 26 x 31"

Left: KK Kozik, *Golden Classics 2*, 2017, oil on 22 carat gold leafed hemp paper, sewn with bookbinder thread to Nepalese oiled paper with hemp thread grid. 26 x 31"



Sally Smith

Faerie House of Hemp

When I was invited to create a work in my field of creativity (Natural Faerie Houses) to be made using Hemp, I was intrigued with the challenge because at the time I knew nothing of the plant.

As I researched the history of hemp and its incredible versatility I learned that this is a plant that been a part of human civilization for thousands of years. What astonished me most was that Americans were being kept ignorant of its phenomenal uses which spanned from fiber to paper to food, as a green building material and even a replacement for plastics. The story about how this plant has generously benefitted cultures all over the world was humbling indeed and I developed an enormous love and respect for this magical botanical.

My next challenge was to gather various samples of hemp in as many forms as I could find...and there were many! I was fortunate to find a local grower who was beginning to experiment with cultivation in this region and he had some raw samples which he kindly offered for my project. I ordered papers and cording from the internet and began to dream. I wanted to make a structure that had a soaring quality to represent rising to full potential. I also wanted rounded and soft forms that gave a feeling of pods or cocoons but also echoed the shapes of billowing sails since hemp is so important to textile-making.

To honor the weaving traditions that use hemp I decided to use raw hemp bast strands and weave them into panels for the flat walls. The arched and curving roofs were made from layers of hemp papers which had invisible openings cut in some of the internal layers that would then make for magical patterns when illuminated from the inside. The windows would all be based on the cross-section of the raw plant which had a pleasing symmetry.

After creating all the components individually, I began to assemble them onto my base which was a gorgeous Maple burl

slab with a vertical Cypresswood aerial root firmly attached. The micro LED lighting was worked into the piece as it was built with each "room" having its own lamp hidden within to make the whole piece glow when twilight descends. Extra care was lavished on the entrance portal with its "leaded glass" doors made from dragonfly wings and faceted crystal beaded trim made with dyed hemp twines. A hanging "lamp" made from a branched junction of the raw plant, glazed with tissue-thin hemp paper added a welcoming glow. The final elements to be made from hemp were the rounded "boulders" that nestle up to the base of the house and the stepping stone "mushroom" stairs rising to the front door. Antique Victorian glass beads which mimicked exotic vines growing up the entire house were the final decorative trim added to give the entire structure a bit of whimsy and sparkle. For me the project was enormously satisfying to complete on so many levels.

If you are interested in reading the full, detailed step-by-step story of this piece, please visit:

<http://greenspiritarts.blogspot.com/p/hemp-house-project.html>

Left: Ben Droz, *Hemp Pilot Program with Daisy*. Denver, Colorado, 2015

Next page centerfold: Sally Smith, *Faerie House*, 2017





Karen Gunderson

This page: Karen Gunderson
A Single Leaf, 2017 oil on canvas,
12 x 12 inches.
Karen Gunderson *A Branch Of
Hemp*, 2017 oil on linen





Lucy Slivinski

Lucy Slivinski, *Powerful Source*. Painting on hemp paper, 2017



Lucy Slivinski, *Spontaneous Combustion*. Painting on hemp paper, 2017



Lucy Slivinski, *Life Force* Painting on hemp paper, 2017



Lucy Slivinski, *Baby! Light My Fire!* Painting on hemp paper, 2017

"I firmly believe that with hemp we can create a good economy, create energy and start cleaning up our environment."

"This season, I am planting 10 acres for growing CBD medicine. With the remaining stalks, I will build myself a house after the harvest."

Alex White Plume
May 21, 2017



Mitch Epstein, *Hempcrete House, Pine Ridge Reservation, South Dakota, 2017* © Mitch Epstein / Courtesy of Sikkema Jenkins & Co., New York



Mitch Epstein, *Alex White Plume, Pine Ridge Reservation, South Dakota, 2017*

Menominee Tribal Hemp Farming: A Dream Deferred

Inspired by the documentary *Standing Silent Nation* and the trailblazing efforts of Alex White Plume in South Dakota, Marcus Grignon began dreaming of bringing industrial hemp to the Menominee Indian Reservation in Wisconsin in 2007. Marcus, a member of the Menominee Tribe, focused his studies while at the College of Menominee Nation on industrial hemp as it relates to tribal sovereignty in the 21st century through his scholarly research in Tribal Legal Studies and Sustainable Development. Marcus knew that hemp could serve as an alternative means of sustaining Grandmother Earth and could jump-start the entrepreneurial spirit on the Menominee Reservation, and he was excited about the prospect of bringing the crop back to the Menominee people. Passage of the Agricultural Act of 2014 ultimately helped Marcus do just that. The Act contains in § 7606 a provision entitled “Legitimacy of Industrial Hemp Research.” For the first time in federal legislation, the Act defined industrial hemp as separate from marijuana, stressing its “delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis.” Ultimately enacted as 7 U.S.C. § 5940 and signed into law on February 7, 2014, § 7606 did more than recognize the marijuana/hemp distinction—it legalized industrial hemp growth or cultivation under certain circumstances. Specifically, despite marijuana’s continued classification as a Schedule I substance under federal drug laws, § 7606 allowed an institute of higher education or state department of agriculture to cultivate industrial hemp if done as part of an agricultural pilot program in a state in

which such cultivation is allowed. With this language and a series of 2013 and 2014 Department of Justice enforcement memoranda that realigned federal cannabis enforcement priorities, the Menominee Tribe saw its opportunity to bring the sustainable power of industrial hemp to their reservation. The Menominee reservation enjoys a unique status within the state of Wisconsin. Granted to the Tribe in 1854 in the Treaty of Wolf River, the Menominee Reservation is the only reservation in Wisconsin not subject to the jurisdiction or laws of the state of Wisconsin. This unique characteristic of the Menominee Reservation was an essential part of Marcus’ plan to grow industrial hemp there under the Act. While cannabis in all forms—including industrial hemp—is illegal in Wisconsin, the Menominee Tribe legalized hemp in 2015.

For the Menominee, the decision to legalize hemp was more than an acknowledgment of Marcus’ dream of sustainable growth. It was means of spurring economic development to help pull its community out of poverty and provide needed health, education, and social services to its members. Indeed, the Tribe—aware of the successful history of hemp growth in Wisconsin—determined that the cultivation of hemp could be a viable economic development opportunity worthy of research by the College of Menominee Nation, a Tribal College with land grant status under the Morrill Act of 1862. Further the Tribe determined that because industrial hemp contains THC levels below 0.3 percent and has no psychoactive effect, cultiva-

tion of industrial hemp would be inherently in compliance with the Act and the new Department of Justice enforcement guidelines. Thus, in May 2015, the Tribal Legislature legalized the growing of low THC non-psychoactive industrial hemp by Tribal licensees on the Menominee Reservation and provided notice of this change in Tribal law to the United States Attorney’s Office for the Eastern District of Wisconsin with the intent of complying with the relevant provisions of the Act.

Upon legalizing hemp, the Tribe entered into an agreement with the College of Menominee Nation to cultivate industrial hemp for research purposes on the Menominee Indian Reservation. The Tribe issued an industrial hemp license under the its industrial hemp ordinance, and the Tribe, with Marcus providing on-the-ground support, planted an industrial hemp crop on Tribal lands in 2015 for research purposes.

The Tribe grew its inaugural hemp crop of 30,000 plants on three viable acres in the middle of an old-growth forest on the South Branch section of the reservation. Though buffeted by strong winds and even tornadoes during the summer of 2015, the first crop stood tall as a testament to hemp’s heartiness and grew strong surrounded by native annual flowers and shrubs. In the end, it was not nature that brought down the Tribe’s hemp crop—it was man.

Throughout the summer and fall of 2015, the Tribe communicated with the Drug Enforcement Administration and Department of Justice to secure testing of the industrial hemp to ensure that THC



Ben Droz, Colorado Hemp, Summer, 2016

levels did not exceed 0.3 percent. The Tribe even agreed to destroy any industrial hemp that tested above this limit, as such hemp would be in violation of the Tribal law. Indeed, field samples tested on October 19, 2015 were below the 0.3 percent limit. Despite those results, the promises, and months of cooperation, federal and state agents entered the sovereign land of the Menominee Indian Reservation on October 23, 2015, and seized and destroyed the Tribe’s industrial hemp crop.

After the raid, the Tribe reached out to Robins Kaplan LLP, a Minneapolis-based law firm with a long history of high-stakes litigation experience and a growing presence in Indian Country. Within weeks, the Robins team, led by former US Attorney for North Dakota Tim Purdon, sought a declaration in federal court in Wisconsin that the Tribe’s hemp cultivation was legal under the Act. It argued that because the Tribe was not subject to Wisconsin civil or criminal law, the only legalization of hemp that mattered for purposes of the Act’s applicability to the Menominee’s hemp crop was the Tribe’s.

The Department of Justice disagreed. Citing the Agricultural Act’s failure to include Tribes in its definition of a “state” in § 7606, the Department urged the Court to focus on Wisconsin’s ban on cannabis rather than the Tribe’s legalization and argued that the Tribe should not be allowed to challenge the government’s actions with their lawsuit.

Following extensive briefing and oral argument before Judge William Griesbach, the court issued a decision on the case in May 2016. Though finding that the Tribe was indeed right to bring its lawsuit against the government, the Court sided with the Department of Justice and dismissed the Tribe’s action. Despite longstanding precedent counseling the Court to read laws in favor of Tribes, Judge Griesbach decided that the Tribe could not grow hemp under the Act because the law did not include language specifically extending § 7606’s applicability to Tribes. Instead, the Court found that Wisconsin law—though inapplicable on Menominee land in every other instance—prevented the Tribe from growing hemp on its own land under the Act.

The Court’s decision was a blow to both industrial hemp and the basic notion of Tribal sovereignty and self-determination. Yet for Marcus, the Order was at most a temporary setback. In November 2015, Marcus joined Hempstead Project Heart, an organization that raises awareness of the benefits of industrial hemp for people and the planet and uses education, organizing, coalition building, and advocacy to catalyze a shift that allows hemp farming, manufacturing and entrepreneurship to flourish. Marcus currently serves as campaign manager and carries on the mission of Hempstead Project Heart visionary John Trudell to raise awareness of the benefits of industrial hemp for people and the planet and redevelop thriving hemp economies that connect tribal, urban and rural communities. Marcus’ focus on the long game may soon pay dividends back at home. A bipartisan coalition of legislators is pushing a bill that would legalize industrial hemp through the Wisconsin State Legislature. If passed, Marcus’ dream could be back on a meaningful path to reality once again.

Alli Cloyd

Build Your Own Hempcrete Home



Hempcrete has been said to be the greatest building material on Earth and here is your chance to learn how to build with it! Industrial Hemp is one of the most sustainable crops to grow because it pulls toxins from the air; soil and farmers love the way it renders the soil cleaner and with more nutrients than before it was planted, unlike corn, soy and wheat which often leave the ground depleted of nutrients. On average, two to three acres of hemp crop provide enough material to build a 1,500 sq. ft. hempcrete home!

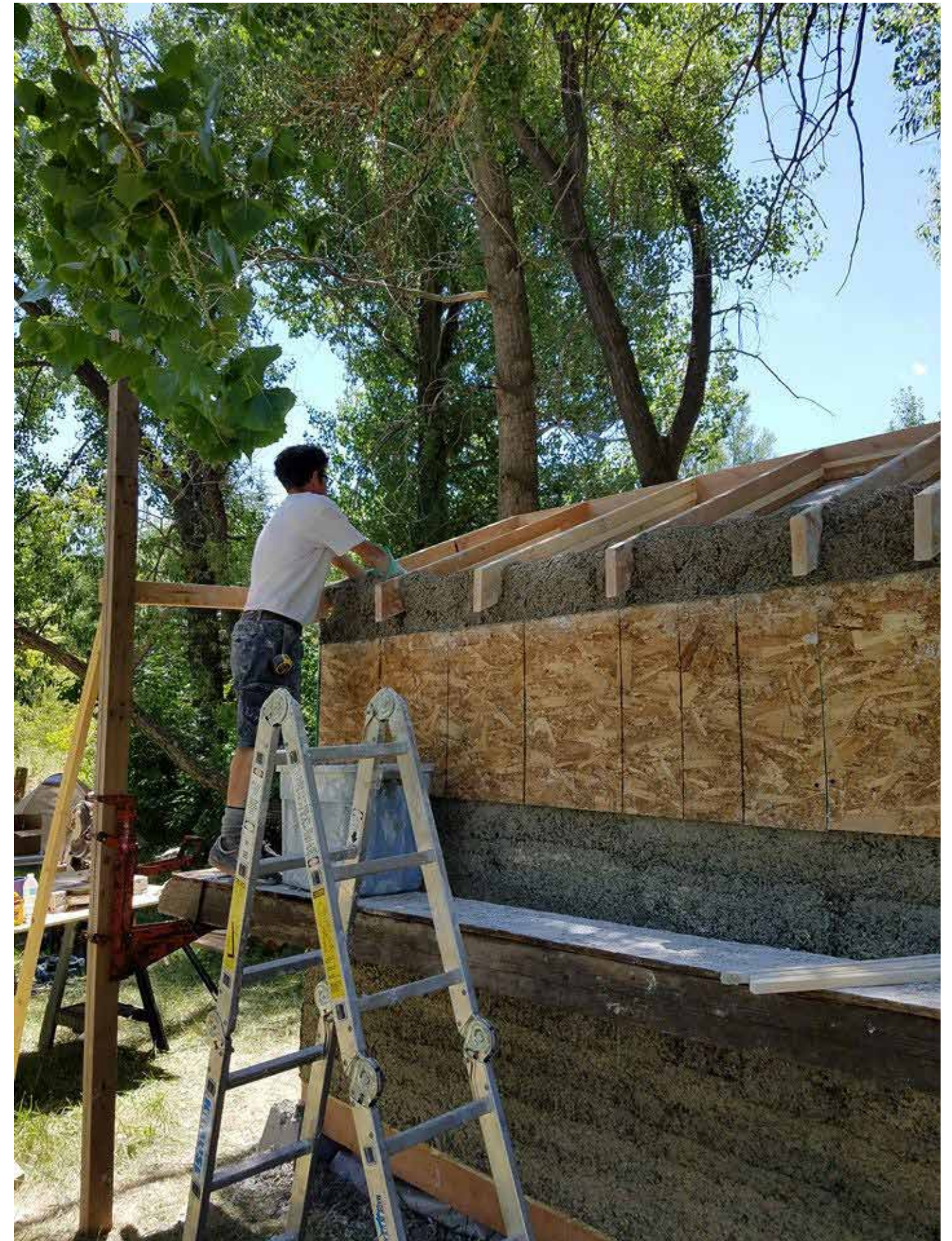
The porous properties of the hemp hurd (broken-up stalk) make any properly built hempcrete structure an excellent humidity controller and will render the building flame, mold and pest resistant. Yes, you “hurd” that correctly! Hemp is a natural building material that produces no toxic materials in its growing or building process. Left Hand Hemp for construction founder Kelly Thornton first learned about sustainable building materials in straw bale construction. After learning that hemp has even better properties than straw, he felt that hemp construction could be a game changer for communities throughout the world. For this reason, his company will be teaching seminars across the country and is offering three different workshops to be held on Native American Reservations this summer.

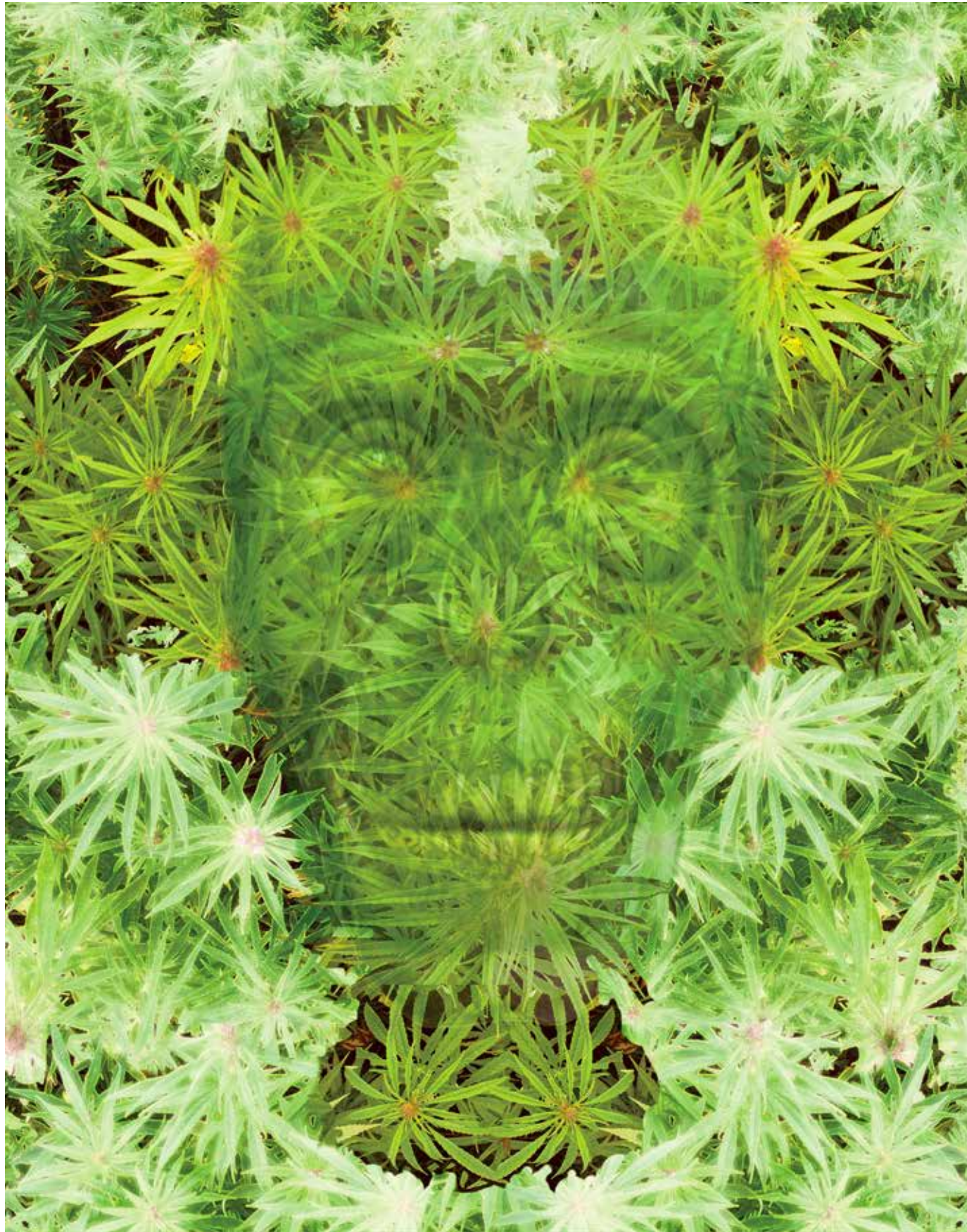
The owners and teachers at Left Hand Hemp are looking for individuals that want to learn more about the properties and building process of hempcrete. Because it is a fairly new concept in the US, many people don't understand how it works until they get their hands on it. “We know hempcrete is the best building material on Earth; we want to teach everyone how to build with it so that they can apply the knowledge which they gain”, states Kelly Thornton.

Left Hand Hemp will be conducting hempcrete seminars throughout the summer. They will include a full week of hempcrete education including participation in every aspect of the construction of a structure, from mixing to building, filling their heads full of knowledge about the natural building material of hempcrete. Seminars in Fort Berthold, North Dakota, the Pine Ridge reservation in South Dakota and the Taos Pueblo tribe in Taos, New Mexico will present the traditional ways of the Native land and welcome 30 people from around the country to join in on the education and fun.

What can you expect from attending a workshop? Expect to leave with enough resources to build your own home and the knowledge to teach others how to build in their communities. By working hands-on with the materials, students will feel the properties and characteristics of the material and will learn how to properly build using hempcrete.

If you are interested in attending or hosting a workshop, contact the Left Hand Hemp Company at learnhempcrete.com or call Left Hand Hemp at (970) 433-0414.





Steve Allin

Can Hemp Really Be The Answer?

Throughout the world, communities and political leaders are grappling with major issues of economics, employment and uncertain weather. Large scale economic growth is limited by the existing debt both of governments and individuals; automation and globalization have both led to fewer jobs and lower paid work. The changing climate, whether man made or not, is leading to concern over food production and the vulnerability of homes to extreme weather conditions.

So what are we all going to do about it? Kick the can down the road another mile? This seems to be the template in most countries, but to act responsibly, we really have to change things for the sake of our children and grandchildren. So how can we confront these problems positively?

One industrial crop has been identified as capable of providing many of the solutions to these societal problems, but can a plant really do that? What on earth are these people talking about? Of course, the plant we are talking about is Hemp, an annual crop that can be and probably has been grown in just about every country on the planet.

Prohibited for decades due to misinformation and the benefit to a few competing industrialists, Hemp has made a serious comeback in the last 30 years. It is now cultivated in China, Europe and the North America. Many people now eat Hemp based food or wear Hemp clothing, and some automobiles are made using bio-composites from Hemp fibers, but there is one use that still exists on a relatively small scale and that is construction.

For the last 20 years, I have been promoting a system of using what was always considered the waste product, the cellulose core of the stem, which originated in France but has now been employed in many countries including the U.S. By utilizing this material mixed with a binder to create lightweight masonry, houses, warehouses and shopping centers have all been constructed using several variations of what is commonly called Hempcrete. Furthermore, it is possible to build a structure that needs little or no heating or cooling and at the same time provides a comfortable and healthy environment. Added to these qualities, Hempcrete as a material has been measured to be Carbon negative: it sequesters at least 100 kgs of CO2 per cubic meter.

Many urban and rural communities are in dire need of more housing for expanding populations that poses a major political issue. Employment and the boost to the economy that it produces have always been an issue of importance, but many regions are finding this objective difficult to achieve, to say the least. So can using hemp as a building material really solve some of these problems?

The agricultural production of Hemp will provide farmers with income and improve the quality of soil for future crops. If a processing facility is created in a given area, the farming and urban regions connect, providing a positive force for the local society and a source of job creation.

Hemp production creates at least 3 products: fibers, seed and wood-chips, each providing a broader potential for surviving variations in yields. Value can be added to the Hemp cellulose chips (hurds) by using them to manufacture composite boards that can then be incorporated into a building

system to produce modular housing.

The technology now exists to produce a particle board made with Hemp hurds that will pass all strength, vapor permeability, moisture, fire and fungus resistance tests to qualify as an approved product for incorporation building. If used in a modular building system where components are assembled off site, it will provide employment both in the factory and with erection teams, channeling money into the region from the market further afield. The style of the buildings can vary immensely to suit all types of climate or traditions, providing a heightened aesthetic as well as a higher of energy efficiency, while eliminating the risk of 'sick building syndrome' found in other types of materials. If processing, board fabrication and modular panel factories were installed together, the aforementioned problems of economy, employment, housing and carbon emissions would be simultaneously addressed in a positive manner.

Of course, many populations do not see the immediate possibility of creating an industrial approach to their needs as a suitable response. Low-tech solutions are also needed for our societal problems and one with which I have been involved recently in several projects in places as diverse as Morocco, Nepal and Haiti. Hemp has been identified as capable of providing earthquake proof structures or for the repair of buildings damaged by such disasters. It is also possible to establish more small scale processing, accessible to remote communities where Hemp either grows wild or can be cultivated. These uses, together with the increasing potential of Hemp as medicine, are making the focus on Hemp a 'no brainer'!!



Heather Jackson

An Open Love Letter to Hemp

About the Realm of Caring Foundation: We improve lives through Research, Education, and Advocacy. By funding and conducting Research, we learn more about cannabis and its applications. Education empowers consumers to select the best products for their individual needs and informs healthcare professionals about options for their patients. Through Advocacy, we spread the truth about cannabis and expand access to those in need. www.theroc.us
See what we are up to on socials @ RealmOfCaring

O h, how I love you... let me count the ways. I am not abashed to say that I love you. You hold the potential to heal our planet through soil remediation, to change our fossil fuel dependency by providing a wise bio-fuel option, and I can even wear you. You are indeed diverse. But those are not the reasons I love you. The reason I love you is because you saved my son. When you saved my son, you saved me. And by saving me, you helped thousands.

It was a cool fall day in 2003. I was pushing my son Zaki (pronounced like sky) on a swing. His head took such a strong nod that he began to cry. I immediately stopped the swing, retrieved him into my motherly problem-solving arms and decided no more swinging for him. That didn't stop the violent movements I later learned were seizures. Zaki got progressively worse, cycling through seventeen pharmaceuticals and experiencing new seizure types - six in total. I quickly lost confidence in my problem-solving arms. They hardly felt motherly. Your sole charge as a mom is to ensure the safety of your child; I felt incompetent. I was up against the seemingly impossible task of improving my son's health. He had declined and we transitioned from 'cure thinking' to 'quality of life thinking'. I felt uncomfortable in my own skin. I had failed. Zaki had over 500,000 seizures by the time he was 5 years old. By the time he was 9 years old he was incontinent, didn't know his colors, couldn't write his name, and he waned to the point of receiving hospice palliative services.

Hemp, my love, you are nonchalant; not seeming to know your own power and not caring in the least about your generally poor reputation. I will admit, you didn't have a great one and I was told you were horrible my whole life. Stay away from that. I was told you could cause really bad things to happen and that you left a wake of destruction and broken relationships in your path. But I was desperate, so I let you in. Jim Carrey said "People need motivation to do anything. I don't think human beings learn anything without desperation." After almost a decade battle with my son's epilepsy, I was intimate with the feeling of desperation. Even though it was not love at first sight and I felt a little pressured into the relationship, I leaned in and you became a part of our daily lives and us a part of yours. You became so familiar, I learned and knew everything about you.

I remember the first time we met. It was July 19, 2012. It was the first time you came over to the house. I had made a makeshift bed on the floor of my bedroom for Zaki due to the severity and frequency of the seizures and the early morning seizures in which he would turn grayish-blue because he could not take a breath until the seizure was over. I skeptically dropped you into Zaki's mouth. I fell asleep staring at the clock waiting for the seizures to begin, but they didn't. Lo and behold, he did not have a seizure that night - and he didn't have one the next two days either. I guess you can't judge a book by its cover. You weren't the evil thing they made you out to be. It took us about three months until the seizures remitted altogether. Zaki went almost four years without any visible seizures. He had an opportunity to heal, as did the rest of our family.

Now Zaki has occasional mild seizures, but he has had less in the last seven months than he used to have in a week previously. So we are still winning. You are still by our side, and we love you more than ever. After Zaki's remission, it was apparent and urgent that I find the nearest mountaintop and begin yelling until I grew hoarse. So that is what I have done with a band of people who also love hemp as much as I do. The Realm of Caring Foundation was birthed. We have now helped tens of thousands of people access and properly administer hemp to their medically fragile loved ones. We are doing research with Johns Hopkins University, we give financial grants monthly to offset the cost of a therapy that insurance doesn't cover, and we have become the trusted source of education and information to the consumer, doctors and the community. In the beginning, we served mostly children with severe epilepsy diagnoses like my son, but now we serve as many adults as we do children and people find us who are living with MS, Parkinson's, cancer, chronic pain, autism, and many other debilitating disorders.

It all began with a love affair. XO

Yours always,



Charlotte's Web: One Little Girl's Story Continues to Challenge Medicine, Federal Law and the DEA

When my brothers and I dove into the cannabis business in 2008, we had been actively seeking CBD genetics, but nature originally designed a different cannabis. The genetics we sought were mostly found in wild hemp growing as a remnant of the Hemp for Victory campaign in which our government granted draft deferments to farmers in exchange for supporting the World War II effort. Almost 70 years later, the DEA has spent millions of US tax dollars to eradicate this same program. These life-changing genetics became the basis for our now well-known hemp product "Charlotte's Web", named after a resilient and revolutionary little girl, Charlotte Figi. It's been almost a decade since we foraged feral varieties in the fields of Nebraska, Colorado, and Kansas, yet Charlotte's story is still one of the greatest arguments to broaden our current federal hemp laws and to challenge the DEA's position on CBD and cannabinoids. [1]

During our early years, the underground cannabis industry was taking plants that were naturally 2-6% THC (the psychoactive cannabinoid in marijuana) or less, and breeding them to increase the THC. We did the opposite. We weren't geniuses. It was simply because some people, myself included, don't smoke marijuana or find benefit from psychoactive levels of THC.

Decades-old data had said that another botanical cannabinoid, CBD, could potentially help with inflammation, neuroprotection, spasms and so on. Through trial and error, we landed on the foundation for Charlotte's Web.

Hemp gave us a way to help people non-psychoactively and open a path to create a new space.

In 2012 when we met Charlotte and her parents, Paige and Matt, we had only eight plants bred of a specific high CBD, low THC variety, initially called "Hippie's Disappointment" for obvious reasons.

Charlotte had been suffering from over 300 polymorphic seizures per week because of a rare form of epilepsy known as Dravet Syndrome that is treatment resistant. She was wheelchair bound and kept alive through a feeding tube. She couldn't talk; her parents never heard her laugh. Charlotte had experienced heart failure so many times that she lived in a state of constant hospice. Her neurologist suggested a "do not resuscitate" order.

Experimental drugs developed for animals were offered to Charlotte as a last resort. Paige and Matt did what most doctors tell you not to do; they scoured Google for answers. Eventually, they landed on some 1850's research and a 1980's Brazilian study conducted by Dr. Raphael Mechoulam. Paige felt she was more at ease pursuing non-toxic CBD. [2] [3]

Paige traveled from dispensary to dispensary in search of CBD. Everyone kept saying, "CB-what?", "Cannabi-who?" until a fellow parent said "You have to talk to the Stanley brothers."

I went to the Figis' house and witnessed one of Charlotte's grand-mal seizures within minutes. It scared me into a cold sweat. I had a mother asking me to make a hemp extract for her dying child. Charlotte's doctors signed off on her a medical cannabis card. One of them later said, "Charlotte's been close to death so many times, she's had so much brain damage from seizure activity and likely

the pharmaceutical medications - you put the potential risks of cannabis in a context like that, it's a very easy decision." Despite our fears and naivety, we immediately started propagating more plants. [4]

We administered our hemp extract to Charlotte via her feeding tube, and within the first week, she was seizure free. I thought, "Who are we? We're not doctors." We didn't know enough, but we're so very hopeful.

That was five years ago.

I just saw Charlotte last week. She had gone from having a seizure about every 20 minutes to being about 99% seizure-free. I didn't honestly believe any of it until we monitored ten more seizure-prone children and quietly experienced similar success. Even now, sometimes I forget it's real and that it happened. Then, I see these kids running around and playing - and smiling and laughing. It hits me hard. It's incredibly moving.

Understandably, the Figis didn't want to tell their story publicly for fear of losing custody of Charlotte. In 2013, they met CNN's Chief Medical Correspondent, Dr. Sanjay Gupta, with whom Paige felt comfortable in sharing Charlotte's story for his docu-series, WEED.

When filming began, we had a waiting list of 40 people. My brothers and I decided to take a huge risk by cutting the majority of our THC production and we moved into CBD, even though there wasn't an actual market yet. When the CNN piece aired, 50-100 families moved to Colorado to access Charlotte's Web legally. A few months later that number grew to 400 families, and our waiting list skyrocketed to 15,000.

So, where are we today? Where is the pendulum swinging legally? Medically?

These are complex questions that our

company addresses every single day. Charlotte's Web is now legal across 50 states, but our mission continues to ensure that every person who needs it has access to it. With so many opposing points of view, beliefs and motivations that are often powered by economics, scientific and medical evolution, and sometimes, plain ignorance and greed in addition to the contradictory positions of the federal law and the DEA, our work environment is very fragile.

Charlotte's story has become the center of a public debate and influence in the passing of hemp laws, yet, with each step we take forward federally, the DEA sets up a new roadblock.

The DEA's decades-long prohibitionist stance on hemp, classifying it as a "schedule 1 drug" with NO MEDICAL VALUE along with Heroin, is illogical given the scientific and anecdotal evidence. Also, it's outdated due to the passing of federal cannabis laws, the boom in state economies and scientific and medical evidence showing that cannabinoids are helpful to mankind.

In 2014, President Obama signed the Farm Bill that made Charlotte's Web legal throughout the US. Congress supported this ruling with the 2015 Consolidated Appropriations Omnibus Act that additionally protects hemp from DEA action.

At the end of 2016, the DEA published a Final Rule stating that CBD and all cannabinoids qualify as 'marihuana extracts,' a drug code suggested by the DEA in 2011. The creation of this new drug code is an "administrative rule," not a change in the Controlled Substance Act. The DEA does not write or change laws. The only way to add cannabinoids or other substances to the list of controlled substances would be by an act of Congress passed by the Senate and signed into law by the President. The bottom line

is that the DEA is still trying to label all cannabis as a Schedule 1 drug, and not something to change in the foreseeable future. Fortunately, when a regulatory agency's position is contrary to federal law, the law prevails, as seen in HIA v. DEA in 2004.

For the billions of dollars that the cannabis industry is pumping into a struggling US economy, one has to consider the business it generates in the prohibition of it, which drives industries that gain directly from its prohibition, like privatized prisons, courts, defense attorneys, mandatory drug/alcohol courses, to name a few. Law enforcement agencies rely on prohibition for their budgetary existence.

Cannabis commonly serves as a safer alternative to alcohol, and is being used as a substitute over opioids for pain management. When we consider that the pharmaceutical industry has spent over \$3.5 billion lobbying against its legalization in the last 18 years, (nearly double that invested by the Oil & Gas industries), the anti-cannabis efforts make more sense.

Despite the fact that hemp is legal and the US consumes more hemp than any other nation and that one out of five Americans lives in a state where cannabis is legal, the DEA continues to spend \$14 million of taxpayer dollars yearly on the Cannabis Eradication program. Bi-partisan Federal lawmakers have been trying to defund ineffective programs like these and direct tax dollars towards more relevant issues. [5] [6]

Charlotte's Web is marketed as a dietary supplement, so we're not legally allowed to make disease claims. The irony is that the US Department of Health & Human Services has patented cannabinoids, securing and heightening their role in the industry. The patent states that cannabinoids are "antioxidants and

neuroprotectants," making them useful in the treatment of various diseases. Again, this is in opposition to the DEA's position that hemp has no medical value, but it's certainly a glimpse into the future. [7]

The political and medical pendulum is no longer in stasis. In fact, it's accelerating, but until that weight shifts from the DEA, lobbyists, pharmaceutical companies and those who have a vested financial interest in prohibiting cannabis, CBD and cannabinoids, we must continue to reach for it from the pivot. If for nothing else, we must do it for the Charlottes of the world.

My brothers and I didn't know when we met Charlotte that her story would become a heart song for hundreds of thousands of people who had been failed by traditional medicine, seeking safer plant-based options. We didn't know it would become a rallying cry for millions to help change the laws of our nation. Last but not least, Charlotte's story continues to transform the way we care for ourselves through science and medicine, sparking research and widening the potential for cannabinoid therapies. Her story is all of ours, and it's long from over.

Notes

- [1] <https://www.dea.gov/ops/cannabis.shtml>
- [2] http://www.sciencedirect.com/science/article/pii/S0140673602844154?_rdoc=1&_fmt=high&_origin=gateway&_docanchor=&md5=b8429449cfc9c30159a5f9a92ffb&cp=y
- [3] http://www.scielo.br/scielo.php?pid=s0100-879x2006000400001&script=sci_arttext
- [4] <http://www.cnn.com/2013/08/07/health/charlotte-child-medical-marijuana/>
- [5] <http://www.businessinsider.com/marijuana-in-america-20-of-americans-can-now-access-legal-weed-2016-11>
- [6] <https://lieu.house.gov/media-center/press-releases/lieu-amendment-slash-and-redirect-marijuana-eradication-funds-adopted>



Photo of Charlotte Figi

A Conversation Between Two Friends

One Friday afternoon in March, I had the pleasure to sit in on a conversation between friends Will Allen and David Bronner. The conversation ranged from facts on their personal lives (some of which even they did not know about each other) to industrial hemp, activism and the fact that there are signs of a positive future for it. Here is some background information on each of them:



David Bronner (2nd from left) and Will Allen (3rd from left) prepare to plant hemp seeds on the lawn of the DEA. Tuesday, October 13, 2009, with ceremonial shovels that read: Hemp Planting Oct. 2009 - DEA Headquarters - American Farmers Shall Grow Hemp Again, Reefer Madness Will Be Buried

And, you know, I got to be an activist, like I promised my boys, and I want to make sure I keep that promise.

Will Allen grew up on a small farm in the San Fernando Valley, where his family farmed 11 acres. Will's father raised hogs while his mother grew vegetables and worked as a seamstress. They sold pork and produce.

As the population in this part of Southern California expanded, Will, as a troublesome youth, realized he needed to change course and joined the MARINE CORP, where he was trained in electronics. As a MARINE, he served as an atomic, biological and chemical warfare paramedic and an auto pilot specialist.

Upon completing his stint in the service, Will decided to become an electronics engineer, but hated it. He switched to anthropology and studied tropical forest farming, earning a PhD in anthropology from the University of Illinois for what he calls, "probably the most enjoyable thing you could ever do."

Will left Illinois for the University of California at Santa Barbara, where he served as faculty adviser to the student body, which was politically largely leftist. While there, the students demonstrated and set fire to a bank, a fateful event that caused Will to spend two years in court and approximately one year in jail. He was never convicted of burning the bank, a crime of which he is innocent.

Upon release, Will rented a piece of land and returned to farming in 1968. When Will's two sons were diagnosed with muscular dystrophy, he understood he needed to farm organically. This began his life-long commitment to organic agriculture, which he practiced in California, Oregon and presently in Vermont at Cedar Circle Farm. His son Jeffrey died before reaching his 16th birthday. Will's son Cameron lived until he was almost 39. Cameron's family had managed to keep him alive that long, which was an extraordinary accomplishment.

In September of 2016, Will was named one of the Politico 50 Most Influential People of the Year by Politico Magazine.

All that the spiritual giants, all of them, were basically saying the same thing, that we all need to get down with each other, and we're all children of the same Divine source. And if we don't, in the next holocaust with a nuclear-armed world we're going to perish. My grandfather felt urgently called to spread this message, we're all one or we're all none. He went around the country proselytizing this message.

David Bronner grew up in Glendale, a suburb of Los Angeles. His father was the head of operations of a specialty chemical manufacturer where they produced the Dr. Bronner's soap in bulk for Dr. Bronner's.

The original Dr. Bronner, David's grandfather, Emmanuel, was a third-generation soap maker from a German-Jewish family that began to manufacture soap in 1858 in southern Germany. By 1909, the year Emmanuel was born, the family business was supplying liquid soap to all public washrooms in Germany.

David's grandfather came up through the guild system and, apprenticed to another soap maker, became a master of soap making. He completed a degree in chemistry but was also an activist from a very early age. Clashing with his father and others at the company on politics and newfangled soap making ideas, he took off to America in 1929 and became a consultant to the U.S. soap industry. As Hitler rose to power, David's grandfather became increasingly frantic to get his remaining family out of Germany. Two sisters made it to America, but their parents resisted, believing it would blow over. The Nazis closed their factory in 1940 and the remaining members of the Bronner family were deported and killed in 1942. David's grandfather had married in the mid'30s and David's father, Jim, was born in 1937.

In the midst of this incredible tragedy, David's grandfather was having intense mystical experiences of love and unity at the heart of reality and across all religious traditions.

Emmanuel ended up in Pershing Square in Los Angeles which was a hotbed of activism at the end of the '50s and '60s. He realized a lot of people were coming to buy his soap rather than to hear what he had to say. So, he started putting what he had to say on the soap labels. The iconic Dr. Bronner's label was born out of his grandfather's urgent mission to Unite Spaceship Earth and help people to cross the ethnic and religious divides that separate us.

Jim Bronner essentially rejected the cosmic philosophy of his father and thought of it as an escape from life's responsibilities.

David grew up in a conservative Reaganite household. It wasn't until he graduated from Harvard and went to Amsterdam, where he had intense psychedelic experiences that expanded his consciousness and opened him up to a magical, living, spiritual dimension of existence, that he finally understood his grandfather's teachings.

David became a mental health counselor in the Boston area, journaling, thinking, becoming vegetarian and vegan and appreciating that if a company like Dr. Bronner's offered him a job, he would take it.

David's daughter Maya was born on March 7, 1997, on the same day that Emmanuel Bronner died.

David Bronner: My father had been running his own company, Dr. Bronner's, along with my mom and his brother Ralph since the early '90s because my granddad had gotten too sick to run it. So I came in and joined in 1997 but, basically, a month after I told my dad I was ready to come in, he was diagnosed with Stage Four lung cancer. Fortunately I came in and had a wonderful and intense year with him before he passed in '98.

I was 24 when I had to step up and start running Bronner's. I understood that we needed to run this business the way my granddad ran it. It was going to be an engine for activism. We capped our salaries. It didn't matter how much profits we made. All our profits were going to go into our causes and charitable partners.

The first activist thing we did was put hemp seed oil into the soap. Since hemp is a great sustainable agricultural crop, grown in rotation especially with corn and soy, it was going to be a really good way of not only in itself not requiring a whole lot of pesticide inputs, but then just reducing weed and pest pressure when it's grown in rotation with other crops.

Also, it was a way of taking on the drug war and DEA. As with when I was in Amsterdam, I had just really awakened to the religious dimension that there was a religious war on the sacrament of cannabis, in particular. Hemp was just the most ridiculous example of the hysteria of the drug war. That a non-drug agricultural crop was Schedule one under the USDA. So it was a way of engaging on the machine and beginning to work to normalize cannabis, a little more generally.

I definitely come from the Jack Herrer school of hemp. But, we need to play it straight. I mean, when you have your hemp supporters you need to be talking about hemp and not getting too distracted on its cousins.

When we put the hemp seed oil in the soap, we did a lot of customer trials to evaluate the changes in the product. The reason intrinsically hemp is so great is it's a super-fatty ingredient high in Omega-3 content. And the Omega-3 is the big market driver on the food side because hemp seed is one of the few plant-based sources of Omega-3 of any significance, along with flax. And fish has Mercury and trace toxins that can concentrate and be a problem. So that Omega-3 in our soap is triple unsaturated and makes the lather smoother and less drying. One of the first signs of an Omega-3 deficiency is dry, flaky skin. So we use hemp seed oil in all

our lip balms and lotions and everything else.

Soon after we put hemp in our products, Bush came to power which was a big bummer. Canada had just re-commercialized hemp in '98. So in October of 2001, right after 9/11, America experienced a media blackout and it totally traumatized the nation. Bush and company took advantage with their wish list and went after, among other things, industrial hemp and medical marijuana and declared all of our inventory to be Schedule One controlled substance based on the fact that we had trace insignificant minuscule amounts of THC in the hemp seed oil.

All hemp seed products were declared to be Schedule One drugs and we were given three months or until February 6 of 2002 to dispose of it. That began a series of battles with the DEA. We actually backed them down on February 6th and then won our final victory on February 6th of 2004. And February 6th is Bob Marley's birthday. I'll tell you what, there are so many synchronicities on this level with cannabis. It's a holy plant for sure.

Mia Feroletto: I completely agree with that. It's ironic - I lived in Canada for almost two years with my ex-boyfriend, who's a medical grade grower. He was working with the plants one day and he saw my face in the plants and heard a voice telling him, you'd better take care of her. I've been intuitive my whole life and I knew then that I had a special connection to the cannabis plant. And that's when I started doing my own research and writing about industrial hemp.

How did you two meet?

Will Allen: I think we met at one conference or another. You know, we'd kind of go to the same conferences because we're both interested in trying to fix things.

David Bronner: I vaguely remember meeting Will at some conference or another. But what I most remember is our getting arrested together. I think that's where we really bonded.

Will Allen: Yeah. That was neat.

David Bronner: Yeah.

Mia Feroletto: Was that in front of the DEA headquarters?

David Bronner: Yeah. I think it was

September of 2009 that Jack Herrer had a stroke and I was down. Man, this sucks. We're a year into Obama and nothing has changed. It's the same drug war that's in place, the same policies and the same everything.

Obama, as an Illinois state senator, had voted to commercialize hemp in Illinois three times, but was doing nothing to re-commercialize hemp nationally or doing much of anything on a lot of fronts. And so we cooked up an idea to dig up the DEA's lawn and plant hemp seeds to just kind of bring attention to the absurdity of the whole situation and calling on Obama to follow through.

And, in the course of this we also discovered that the USDA's own hemp fields where they grew all different hemp varieties and determine what was optimized for fiber and seed and different growing conditions was in the Arlington fields where the Pentagon is now sighted. In Lester Dewey's diary, the USC agronomist who did a lot of work with hemp, had just been discovered. So we got some really good press in The Post about the whole fun thing. Will and I were arrested and Will was awesome and very articulate in talking from a farmer's perspective about why hemp made so much sense. It was the first time I spent time in jail, so it was good to be there with Will, who had been through the ringer a few times.

Will Allen: But what was really fun was, when we got to the jail we were all sitting there talking to the jailers, who were all really nice guys who, after a little while said, well, it doesn't make any sense that this is illegal, right? And, you know, what it pointed out to us is that people are really ignorant. They don't really understand what this plant is as hemp. Not as, some high THC pot, but as hemp.

I think the contrasting problem is that big business totally understands what it is because this plant is a competitor with cotton, this plant is a competitor with all the other vegetable oils, this plant is a competitor with lumber, this plant is a competitor with steel, this plant is a competitor with cement. This plant is a competitor with a dozen other products.

All of these industries really hate hemp. They have been working for years to keep hemp right where it is in the cross-hairs of Category one.

Mia Feroletto: The corporations are doing their best to keep it from the masses in terms of what's possible on all fronts.

Will Allen: Their strategy is, we'll tell you the good things about it, but then we'll have somebody on the other side who's usually totally full of shit tell you all the bad things about it. And that's what they do, because that's their fairness in journalism. It's the same thing they do with climate change. 97 scientists are opposed to it, 3 are in favor of it. And you never see that that disparity is reality. It's presented as they have to present both sides as if both sides were equal. Our biggest job is to get to people about hemp, to inform them. There were approximately 200 people at this conference I attended yesterday and I'd say maybe 35 went to the hemp sessions. So that was a good representation. But we need 350 going into those sessions.

David Bronner: I was just going to say the big enemy, too, is the spreading of misinformation and hysteria, and it's just ridiculous. Cannabis is one of the most therapeutic or the most therapeutic reactive agent known to man. Nobody has ever overdosed. With CBD, there is no psychoactive effect. It's totally a nonissue in that regard. But the emerging real problem is that the pharmaceutical industry, big pharma, has now moved in. And they want to lock up CBD as only being able to be prescribed as an FDA approved prescription and that it won't be available any other way. Which, of course, then they control the supply and can jack up the price and gouge people. So that's definitely a new dimension. Well, it's not new. We definitely have got to be watching that and fighting it as much as the DEA.

Mia Feroletto: You're both seasoned activists and totally committed to the legalization of industrial hemp. I'm curious about what you both see happening right now and how you see the average person becoming involved and making a difference in his/her communities?

David Bronner: Well, on the hemp front, actually, strangely enough, I think we are well-positioned with the Republican Congress and even with the Trump administration that, because Kentucky was the historical heartland of hemp farming and has been leading the charge, along with Colorado, but Kentucky most of all and because the Kentucky Department of Ag is much more feminine than the Colorado Department

of Ag, the Kentucky Department of Ag, and under Ag Commissioner Comer, who has now been elected as a freshman to Congress, that we have powerful Republican allies. We have Comer now in the house, who is going to be our champion there. We have got McConnell and Rand Paul in the Senate. And, of course, McConnell is the Senate majority leader. We do have powerful allies on the Republican side that make strange bedfellows for sure, but I'm actually feeling pretty optimistic that this might be our year that we'll actually see the Industrial Hemp Farming Act finally be passed.

The DEA just took advantage of the change in administration to mess around including issuing a guidance or some kind of interpretation of marijuana extract that is a disguised attempt to backdoor scheduling CBD. And then there were some seizures in North Dakota that were totally BS.

With the 2014 Farm Bill, hemp can be grown pursuant to a state regulatory program, and is. We have 10,000 acres in the ground last year and I think double that this year. So, I'm actually pretty optimistic that this is our year.

I highly recommend everyone tap into Vote Hemp. It is a really good organization that I'm on the board of that can equip people with the tools and sample letters to send elective representatives and organize lobbying trips, as well as the Hemp Industries Association and National Hemp Association. And then whatever local state chapters might be in their state. But I think Vote Hemp is a great place for people to go to figure out what they can do.

Mia Feroletto: Actually, Vote Hemp is one of the beneficiaries of the benefit that we're doing in December at the art fair in Miami. The Realm of Caring and Vote Hemp.

Will Allen: So what we're trying to do is determine how we can use this locally. Here we are in Vermont, right, where, the more crisis-ridden we get, the more problems with climate, the more areas like Vermont are going to be cut off. And so a lot of our focus has always been on, how do you build local community that has food sovereignty? And part of that food sovereignty is a wide mix of vegetables, because we're vegetarians. That isn't to say that we don't carry meat and so forth in our farmstand. But, we don't grow any of that. Our strategy has

always been to figure out how can you create a local community around a farm. And that's what we've done with festivals and with events and with tomato tastings and dinners in the field. People want to party. We feel that that's a really important way of getting to people to learn about nutrition because you always have to have a lot of great food at parties. And so we supply all that.

And then we do a lot of stuff with kids. We took a page out of the tobacco campaign where they went after the young people. We have over a thousand kids come to the farm every year. And we have a farm camp for kids that is a weeklong. It's about 200 kids a week for a five-week period in the summer. We also have home-school classes for moms where we teach you this stuff about agriculture and then you can teach that stuff to your kids.

So a lot of our work is around children and community and totally around food because our food system is screwed. We just went to Spain to visit our grandkids and we were surprised. We went over there and everybody is relatively thin. We came back here and everybody is overweight and you know, they are simply victims of a bad food system. We spend most of our time trying to tell people that the food system and the medical system are screwed up. If we started to really look at some of the medicines that are in mushrooms, that are in marijuana, that are in hemp, we would change the whole dialogue.

And that's what we try to do on our farm. That's what we try to do with our activism. And we've had a great time getting arrested. I am not opposed to it. I think it's a good strategy. But you can't overuse it because everybody just says, oh, you're just getting arrested for attention. But it makes a difference. And I think we've gotten a lot of feedback. In fact, yesterday at this conference this one woman came up to me and said: Did you get arrested in front of the DEA for planting hemp? And I said I did. She says: Can I take a picture with you?

David Bronner: Yeah.

Will Allen: And so you get paid back for all the stuff you do, you guys.

David Bronner: You know, absolutely. That's awesome. I think you were the charismatic sexy beast for sure, man. That went viral.

Mia Feroletto: Last year for the Art on Paper Fair we gave out samples of Dr. Bronner's soap with the exhibition of art by Glen Goldberg, which was all made 100 percent from hemp. So 20,000 people came through the fair and, throughout the 5 days we had hundreds of conversations about the soap and the art and all the other things that hemp can do. People had no idea. They had absolutely no idea.

David Bronner: We still have a long way to go educating people. But, we have made a lot of progress. And the reality is that for a long time there you could get hemp in your co-op, but that was pretty much it. But now it's available in Costco and Wal-Mart. We're definitely making a lot of progress with de-stigmatizing the plant. But, as far as the benefits, people are pretty clueless.

Will Allen: Yeah.

Mia Feroletto: Is there anything you'd each like to add?

Will Allen: David and I are fortunately involved in a bunch of exciting things in the world right now. And a big one is hemp. And hemp is a piece of a much bigger puzzle that we're trying to work on which is regeneration of our agriculture, and that is because it's in such dire shape, we really need to work on fixing it. And we think that one of the vehicles towards that is organic and beyond organic. So we get to work on that and we get to work with a lot of really incredible people that are also absolute idealists like we are, you know. And so that's always fun to be around those people. And I have had a wonderful time being around David and his family and the people who work for him.

David Bronner: Well, likewise, Will, you're a rock solid inspiration to us all and I'm really excited that our daughter, Maya, is going to be interning on Will's farm, Cedar Circle.

And, my life passion project is, I mean, I've got a few, but definitely regenerating agriculture and its capacity to not only grow healthy food and provide a lot of different ecosystem services and provide wildlife habitat and a lot of great stuff while rehabilitating rural communities. But also its ability on a global scale to start to draw down huge amounts, gigatons, of atmospheric carbon and sequester a stable organic matter in soil. It's really exciting what the potential for regenerative agriculture has in soil. It's the largest land-based carbon. And up to one-third of excess atmospheric carbon in the first place is from depleted mismanaged soils worldwide. And land use change is driven by agriculture. So we're pushing really hard on regenerative ag, along with animal welfare and eating a lot more plant-based diet. As, we need to get the population of animals under control. Not so much the human population, but the animals. Because the conversion of grains to grain carbohydrate and protein is so inefficient. You know, it's like a factor of five to twenty depending on the type of meat. And the growing appetite for meat is just putting way too much strain and is dependent on the synthetic nitrogen, which is the nitrogen fertilizer, is incredibly energy-intensive to make. And the Haber-Bosch process takes one percent of the global energy to make. And then it totally messes up the soil biota and the natural ability – the natural fertility of soil and its ability to sequester carbon and do all the important things soil does as a living membrane, but we treat it as like the dead dirt matrix to hold plants up that

we just bring to harvest with more and more chemicals.

So getting the population of livestock under control and getting them out of their cages and integrated onto our farms so that the fertility and feed flows are balanced and we're not using synthetic nitrogen, we're using nitrogen-fixing cover crops to bring nitrogen into the agriculture and agricultural system. This is the big generational task. We need to do this because this is our number one shot at mitigating climate change and drawing down huge amounts of atmospheric carbon.

It's not enough to just de-carbonize the energy and switch to all renewables. We already have way too much carbon up in the atmosphere and we're putting more and more up there and we need to draw it down. And regenerative agriculture is the number one strategy that we've got. So we're really excited on that.

And then, I guess, bringing hemp into that picture. Hemp is a great crop to grow in rotations. Regenerative agriculture is about management and smart management. Instead of input-based agriculture, it's management based. And hemp, in a rotation, because it out-competes weeds and on top of having all these intrinsic benefits of a strong fiber and seed and all the markets that it can sustainably fulfill, it can really help in a diverse organic cropping system in a rotation to help control weeds and pest pressure. So, yeah, it's really nice to see our passions coming together like that.

Will Allen: And what it usually ends up with is we're looking for a place to party.

David Bronner: Yes. Awesome. Right out on Cedar Circle, baby. See you there!

Contributors Bios

Will Allen

See Interview

Steve Allin

works internationally teaching and advising on the Hemp Building System. As Director of the International Hemp Building Association, he organized their now annual symposium.

He lives in Ireland with his family in the mountains of Kerry.

Terry M. Boyd

b. 1986 Pittsburgh, Pennsylvania. Boyd is a multi platform artist who uses performance, pattern and fiber art, to explore the mind. His recent body of work employs both drawing and unconventional sewing techniques to create a visual "white-noise" that is meant to connect audiences to lost memories, forgotten dreams, and personal histories by allowing an access point to the unconsciousness. For Boyd, the repetitive nature of the process serves as a visual mantra that triggers a meditative state. Removing the referent to the external world, these sewn abstractions guide the viewer back to the unending and elegance of the line, and invite the viewer to look inward for meaning.

His staged performances use a compound bow to shoot a yarn-tethered arrow back and forth through a stretched canvas, as if it were a needle and thread, to magnify the process of sewing to a scale at which it becomes dangerous. This method of sewing tears apart gallery walls and disintegrates the fabric, breaking the mending and healing metaphor of sewing, using violence to create an elegant tension between life and death.

David Bronner

See Interview

Michael Carus

(MSc) (Germany) physicist, founder and managing director of the nova-Institute, is working for over 20 years in the field of Bio-based Economy. This includes biomass feedstock, processes, bio-based chemistry, polymers, plastics, fibres and composites.

The focus of his work are market analysis, techno-economic and ecological

evaluation as well as the political and economic framework for bio-based processes and applications ("level playing field for industrial material use").

Carus is also managing director of the European Industrial Hemp Association (EIHA); nova-Institute as executive office of EIHA was member of the Lead Market Initiative (LMI) "Ad-hoc Advisory Group for Bio-based Products" (2010-2013), and is member of the Technical Committee, CEN/TC 411 "Bio-based products" (since 2011), member of the "Expert Group on Bio-based Products" of the European Commission (since 2013), member of the Thematic Working Groups "Biomass supply" and "Market-making" of the "Bioeconomy Panel" of the European Commission (since 2013), as well as member of the SCAR Foresight experts group "Sustainable Bioresources for a Growing Bioeconomy" (since 2014). (SCAR means Standing Committee on Agricultural Research).

Michael Carus is main author of different fundamental reports and policy papers on Bio-based Economy in the EU: <http://www.bio-based.eu/nova-papers> nova-Institute is a private and independent institute, founded in 1994; nova offers research and consultancy with a focus on bio-based and CO2-based economy in the fields of feedstock, techno-economic evaluation, markets, LCA, dissemination, B2B communication and policy. Today, nova-Institute has more than 25 employees and a yearly turnover of more than 2 Mio. €.

Alli Cloyd

is an advocate for Federal full plant legalization and believes hemp can truly solve the world's worst problems. She and her partner, Kelly Thornton, co-operate the hemp-lime construction company, Left Hand Hemp. They hold workshops to teach people how to build "hempcrete" structures and believe it is the greatest building material on earth.

Ben Droz

is a professional photographer in Washington DC, specializing in high-end corporate and charity events. Droz has photographed regularly for Washington Life Magazine since 2011, and also with Washington Post, Washingtonian

Magazine, DC Modern Luxury, Brightest Young Things, and other publications. Droz was classically trained in Black and White film photography and darkroom process, and attended the prestigious "Pennsylvania Governor's School for the Arts". In 2009, when Droz moved to Washington DC, he moved in event photography, shooting nightclubs, music concerts, and social events.

In addition to his photography, Droz works with Vote Hemp to legalize industrial hemp farming on the Federal level. Since 2008, Droz has worked on Congressional advocacy efforts for The Industrial Hemp Farming Act, and worked full time Congressional affairs from 2009-2014. Today, Droz balances his two passions, advocacy for industrial hemp, and photography.

Mitch Epstein

(born 1952, Holyoke, Massachusetts) is a fine-art photographer who helped pioneer fine-art color photography in the 1970s. His photographs are in numerous major museum collections, including New York's Museum of Modern Art, Metropolitan Museum of Art, and Whitney Museum of American Art; The J. Paul Getty Museum in Los Angeles; the San Francisco Museum of Modern Art; and the Tate Modern in London.

His recent series, Rocks and Clouds, will open at Thomas Zander Gallery, Cologne in April, 2017 and was recently exhibited at Yancey Richardson Gallery, New York and Galerie Les Filles du Calvaire, Paris. Mitch Epstein: Free of Charge will open at Andreas Murkudis in Berlin in April 2017. Recent solo exhibitions include: Fondation A Stichting in Brussels (2013); Sikkema Jenkins & Co., NY (2012); Thomas Zander Gallery, Cologne (2012); Fondation Henri Cartier-Bresson, Paris (2011); Kunstmuseum Bonn (2011); and Musee de l'Elysee in Lausanne (2011).

In 2015, Epstein performed American Power with cellist Erik Friedlander at the Victoria and Albert Museum, London. The Walker Art Center in Minneapolis commissioned and premiered the work in 2013, which was a theatrical rendition of his photographic series. The performance combined projected photographs, archival material, video, music, and storytelling.

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Epstein's ten books include *Rocks and Clouds* (Steidl 2016) New York Arbor (Steidl 2013); *Berlin* (Steidl/The American Academy in Berlin, 2011); *American Power* (Steidl, 2009); *Mitch Epstein: Work* (Steidl, 2006); *Recreation: American Photographs 1973-1988* (Steidl, 2005); and *Family Business* (Steidl, 2003), which won the 2004 Kraszna-Krausz Photography Book Award.

Winner of the 2011 Prix Pictet for *American Power*, Epstein was also awarded the 2008 Berlin Prize in Arts and Letters by the American Academy in Berlin, and a 2003 Guggenheim Fellowship.

Epstein has worked as a director, cinematographer, and production designer on several films, including *Dad*, *Salaam Bombay!*, and *Mississippi Masala*. He lives in New York City.

Mia Feroletto

is a well-known art advisor, activist and artist. She was the creator of *A Shelter From the Storm: Artists for the Homeless of New York and ARTWALK NY*, now a national event that opens established artists' studios to the public to raise funds for the Coalition for the Homeless and other causes. She had organized many benefit auctions and events at auctions houses such as Sotheby's and Christie's and has served on the board of directors of such organizations as Dance Theater Workshop (now the Joyce) and Sculpture Center. Feroletto founded and chaired the Vermont Chapter of Women Grow and is the Producer and Creative Director of HEMP NY CITY.

She is determined to maximize visibility for the arts and our cultural world and is currently developing the Adopt An Artist Program to send artists to destinations around the globe to further develop their art.

In addition, she is using her skills as a journalist to inform, educate and empower through the industrial hemp movement and has obtained initial funding to build sustainable housing with hemp in Haiti. Feroletto is a committed animal rights and animal welfare activist. Mia Feroletto resides in Vermont.

For additional information, please contact Feroletto at mia.feroletto@gmail.com

Marcus Grignon

is Campaign Manager at Hempstead Project Heart, a project of the Earth Island Institute. His professional career includes service as an advocate in the public sector. His work in Washington, D.C., Santa Fe, NM, and throughout Wisconsin have included food security, community organizing, youth development, state and federal public policy, business development, tribal government, political management, and farming. He is an enrolled member of the Menominee Nation in Keshena, Wisconsin. He holds a double Associate's Degree in Tribal Law and Sustainable Development from the College of Menominee Nation and a Bachelor's Degree in Democracy and Justice Studies with a minor in First Nations Studies from the University of Wisconsin-Green Bay. He is a recipient of the 2010 Brower Youth Award from the Earth Island Institute.

Glenn Goldberg

is an artist living in New York City and working in Brooklyn. He has exhibited extensively and teaches at the Cooper Union and Queens College CUNY.

Karen Gunderson's

black paintings explore luminosity and push the limits of painterly gesture. Working exclusively in black oils, Gunderson focuses the act of painting on the relationship between brushstroke and light. "By using only blacks, I'm forcing the focus onto the brush strokes reflected by the light," she says. "I paint a form, an image with black paint, and the light makes them visible, like magic." Gunderson's highly reflective surfaces cause the paintings to sparkle and shift as the viewer moves about the artwork.

With over 50 one-person and over 160 group shows to her credit, Gunderson has exhibited throughout the United States, Great Britain, Spain, Belgium, Italy, Bulgaria, Bahrain, Poland, Denmark and Togo, West Africa. Her work was recently exhibited in an exhibition curated by Barbara Rose entitled, *Painting After Post Modernism*.

Karen Gunderson was born in Racine, Wisconsin, and earned a Bachelor of Science degree from Wisconsin State

University, Whitewater. She earned both a Master of Arts and a Master of Fine Arts degree from the University of Iowa, Iowa City, in Painting and Intermedia, respectively. Gunderson has been the subject of numerous one-person shows in the United States. She has received numerous honors and awards, most notably a Lorenzo Magnifico Prize in Painting at the 2001 Florence Biennale (Italy), and has been named by noted critic Donald Kuspit as one of the "New Old Masters."

Tracing the life and career of the artist, *Karen Gunderson: The Dark World of Light* is written by author and critic Elizabeth Frank, who won the Pulitzer Prize for her biography of poet Louise Bogan and is the author of a number of books on art, including *Jackson Pollock*, published by Abbeville.

Gunderson now spreads her time between Manhattan and her new studio in Cocksackie, New York, which overlooks the Hudson River.

Heather Jackson

is the co-founder and CEO of the Realm of Caring Foundation (RoC), an internationally acclaimed non-profit primarily serving families who are dealing with life-limiting and chronic health conditions. The number of people her organization has served has grown 9900% since 2013, from 400 families served to over 40,000. Her why is her youngest son Zaki. After he journeyed from hospice to health using Charlotte's Web, she made it her mission to empower families who find themselves in the same position her family was in.

She is leading a movement to reimagine the way we think, talk, and respond to cannabis and hemp and the people who use it. Heather's work has been featured on *Dateline*, *New York Times*, *National Geographic*, *TIME*, *Good Housekeeping*, *60 Minutes Australia*, *CNN* with Sanjay Gupta to name a few.

Follow Heather on FB [Twitter](#) [Instagram @HeatherChat](#)

Realm of Caring is a 501c3 charitable organization that has grown to a team 15 full and part-time dynamos. They serve over 40,000 families from all over the world. They reach over 2 million people a month through their efforts

and awareness. RoC is doing innovative and first of its kind research with Johns Hopkins University collaborating on the largest registry in the US and launched both current and former NFL player research projects. RoC distributed over \$150,000 in grants to families in need. They also have aided in over twenty states adding cannabis legislation since 2014.

KK Kozik

My creative output is like a road map. I have a forward trajectory but, driven by curiosity and psychology, I head into different cul-de-sacs to explore what lies there. I find my best work emerges from a strong attraction to embark. This makes my oeuvre episodic. I am working on landscapes now, but I also am drawn to interiors. The bookshelves compel me, and I will be returning to them soon. The environments I construct, both natural and architectural, are metaphors for the realm of the interior.

My artistic self has the freedom to wander. To visit and revisit, to remember and also to leave behind. Each body of work — different segments of paintings, different types of paintings, drawings — are separate entities that dangle from my timeline like souvenirs of a moment or a place. What did Walt Whitman say? "I am large. I contain multitudes."

Mike Lewis

Michael began full-time farming in 2010 and, after supporting local farmer's market and community supported agriculture efforts throughout 2011, founded America's first Veteran Oriented food security organization, The Growing Warriors Project, in 2012. In 2013, Michael was a celebrated recipient of Kentucky's Local Food Hero Award, an honor granted by Seed Capital Kentucky and the Kentucky Department of Agriculture to exceptional individuals who promote local, farm-fresh food grown in Kentucky. At the close of 2014, Yahoo lauded Michael as one of eight people who "Made our World a Better Place". A recipient of the prestigious "Wendell Berry New Agrarian" award, Michael's impact is undeniable—even a brief conversation will show that his vision is contagious and will, as we work together, bring about the growth and change that Kentucky, the U.S., and our good green Earth so markedly needs.

Alex White Plume

was born on the Pine Ridge Reservation. He grew up strongly connected to

traditional Lakota culture. He joined the US Army and was stationed in Berlin, Germany, where he left the US Army in 1978. White Plume's interest in socio-political issues developed later in life after his return to Pine Ridge.

White Plume has pursued a life of farming but had difficulty succeeding with crops on the limited agricultural lands of the reservation, where physical conditions are harsh and challenging. He and his extended family, or tiospaye, tried alfalfa, barley and corn; they also raised horse and bison, which are being raised by ranchers in growing herds on the Great Plains. All yielded little more than subsistence under the harsh conditions.

After considerable research, in 1998 the Oglala Sioux Tribe passed an ordinance to allow the cultivation of low-THC-hemp on the reservation. The market for the crop was high around the world, and it is a sustainable product with a short growing season. During World War II, the US government encouraged hemp's cultivation for its qualities of "hardiness, utility and low cost."

In April 2000 White Plume and his family planted industrial hemp on their farm on the Pine Ridge Reservation. At that time, he was reportedly the only farmer to openly plant, cultivate, and produce cannabis-related crops within the borders of the United States since it was prohibited by federal anti-drug laws in 1968. While hemp products can be sold in the United States, its cultivation is prohibited, a law implemented by the Drug Enforcement Administration (DEA). Although related to cannabis, hemp does not have psychoactive properties and is in demand worldwide for a variety of uses, including processing as a cloth and as food.

In addition, White Plume believed that the tribe's sovereignty on its land would enable him to grow the crop. Federal DEA agents made a surprise raid on his field that August and destroyed his crops. In August 2002, he was served with eight civil charges by the US District Attorney related to the hemp cultivation, and a court order prohibiting continued growing of the crop. Although he has appealed, the 8th US Circuit Court of Appeals upheld the DEA, while acknowledging that its registration process could be a burden and that hemp might be a good crop for the Pine Ridge Reservation.

Finally this season, in 2017, Alex White Plume has planted his first hemp crop in more than 15 years. He intends to build a hempcrete home for himself and

his family after the harvest.

Michael Reif

is a principal attorney at Robins Kaplan LLP in Minneapolis who specializes in financial litigation and Native American issues. He has worked with Tribes in the fight to bring industrial hemp to Indian Country and represented the Menominee Tribe in its efforts to grow hemp under the 2014 Farm Bill. Michael was part of the legal team that succeeded in lifting the decade-old injunction banning hemp pioneer Alex White Plume from hemp-related activities.

Jeffrey Silberman

is a Professor and Chairperson of the Textile Development and Marketing Department at the Fashion Institute of Technology (FIT) in New York City. He is the 2016 winner of the President's Award for Faculty Excellence, and serves on the Organizing Committee of the FIT Summer Institute on Sustainability in Fashion and Textiles.

He concurrently served as a consultant to the International Cotton Advisory Committee (ICAC) Secretariat, and as Executive Director to the International Forum for Cotton Promotion (IFCP) from 2001-2016.

He is the owner of Maple Shade Farm in Westchester, New York, that produces flax and indigo, and is a winner of the Winrock Award for Service and Dedication for his work with Russian flax producers.

Lucy Slivinski

is a critically acclaimed sculptor and installation artist based in Chicago. Slivinski holds an MFA, from Cranbrook Academy of Art and a BFA, from Northern Illinois University. She has utilized salvaged materials in her practice for over 30 years. Slivinski has exhibited her work in Miami at Art Basel, Fusion MIA and SCOPE fairs and all over the world having had numerous one person exhibitions in New York City, Chicago, Bordeaux, France, Havana, Cuba and Reading, PA to name a few. She has several commissioned public art installations throughout Chicago, including the Logan Skate Park, "Hedgerow", in Grant Park, "Natural Rhythm", in Saint Cloud, MN and "Ancestral Throne," in Bordeaux, France. Slivinski has also incorporated salvaged materials in several collections of sculptural lighting that she has

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designed and fabricated. In the fall of 2012, CS Interiors Magazine named Slivinski “Best Lighting Designer”, in Chicago. She has work in many private and public collections such as, Capital Investments Collection, Chicago, Illinois, The Longhouse Collection in New York, the City of Chicago, City of Bolingbrook, Illinois and the City of St. Cloud, Minnesota Her work has been written about in Art in America, New York Times, and Sculpture Magazine, Chicago Interiors, and Luxe Magazine.

Sally Smith

I make sculptures out in the environment out of natural materials. The process is mysterious. Sometimes it begins with an idea, or an inner prompting to work with a particular space or material. Always what is required is a deep sensitivity to the rhythms of the landscape, the seasonal shifts and the flight of the sun or moon across the sky. One enters the creative process the same way one enters a secret glade in the forest—quietly and with reverence. Keeping the lines of communication open between myself and whatever natural forces may be present in the landscape allows me to see more deeply into a moment in space and time and endeavor to create a work of art that arises out of this mystery.

For me the essence of what I am doing as an artist is to create work that brings the Human heart back into the natural world thru the doorway of whimsy and/or magic. It is our disconnection from the Earth that has brought untold suffering to ourselves and to millions of other beings with whom we share this magnificent jewel of Life sailing thru the black void of empty space. We must reconnect with the Earth if we are to survive. It is not an option, it is imperative. In order for us to care for the planet we must love it once again. If just a single piece of my work can inspire the viewer to make that connection back to this world, the only home we have, and to live their lives with a deeper respect and love for the Earth while they are here, then it will have served its purpose.

Joel Stanley

attended the University of Colorado from 1998 to 2002. When Joel was 21, he bought his first business in flooring

and restoration, thus beginning his entrepreneurial path. If money were no object, professional fly-fishing would have been his first occupational choice. Nevertheless he has strived to remain self-employed throughout his career. Joel asks, “Why have one boss when you can have 300, right?” Before entering into the brave world of hemp and medical cannabis, he was a fluids engineer in the oil and gas industry. Joel continues to find fulfillment taking a chance on this career shift.

After decades spent advocating and knocking at adamantly closed doors, Joel and his brothers now marvel as little children, like Charlotte Figi, possess the key to open those same doors. Joel says, “Sometimes it takes something we all can sympathize with, something that gets to the core of us, like a suffering child, to help open our eyes. And then, some even admit that maybe we have been wrong about this issue.”

Aside from the pleasure of seeing people get well, Joel loves witnessing these families break through the propaganda and dogmatic expressions that have come from our collective fear. Joel remains honored through this journey and hopeful that the Charlotte’s Web stories will continue to open doors.

Eric Steenstra

has 23 years experience in the hemp industry including as a co-founder of the pioneering hemp company Ecolution, as a former board member and Executive Director of the Hemp Industries Association (HIA) and as a founder and current President of the political advocacy group Vote Hemp.

In 1993, Eric cofounded and created the pioneering hemp brand Ecolution with cannabis activist and business leader Steve DeAngelo. Ecolution created a popular line of 100% hemp clothing and accessories sourced from Hungary and Romania and sold to retail stores across the US, Canada and Germany. Eric managed the daily operations of the company and its growth to \$2.5 million in annual sales and a staff of thirteen. Eric also built Ecolution’s award winning web site in 1994, one of the first Cannabis related sites on the internet.

Eric has been actively involved in the HIA since its inception in 1994 including serving as a board member, vice president

and president. In his role as the Executive Director of the HIA, Eric oversaw a 250% growth in membership from 2008 to 2017. Under his leadership, the HIA has advocated for industry standards for producers of CBD products.

Eric is the President and co-founder of Vote Hemp, a national grassroots non-profit advocacy group based in Washington, DC. Vote Hemp’s mission is to change state and federal laws to allow American farmers to once again grow hemp commercially. Under Eric’s leadership, Vote Hemp has been instrumental in getting pro-hemp legislation passed in more than 30 states. In 2005, Eric worked with Rep. Ron Paul (R-TX) to get the first modern U.S. hemp legislation (H. 3037) introduced in Congress and in 2012 he worked with Sen. Ron Wyden (D-OR) to get hemp legislation introduced in the U.S. Senate.

John Trudell

has been identified as a poet, a fighter for Native American rights, an agitator, and lots of other things.

But if you were to have asked him which of these descriptions best suits him he would have refused to be pinned down. “Actually I don’t consider myself to be any of those things. They’re things that I do...but they’re parts of me. They’re not the total.” Indeed, Trudell was the complex sum of all that he saw, endured and accomplished in his 69 years, a time in which he experienced more than most people might in several lifetimes.

John Trudell did not set out to be a poet. He never studied poetry in school. He took that road primarily through a series of detours, and his poetic and political sensibilities were forged by the remarkable, sometimes horrifying circumstances of his life.

John Trudell was born on February 15, 1946 in Omaha, Nebraska, and grew up on and around the nearby Santee Sioux reservation. (His father was a Santee, his mother’s tribal roots were in Mexico.) Trudell became acquainted with hardship at an early age. His mother died when he was 6, and he watched his father struggle to feed and clothe his large family. This experience left Trudell with a deep contempt for the American “work ethic,” compounded by the endemic racial and economic injustice which surrounded him.



Child in air with hemp plants

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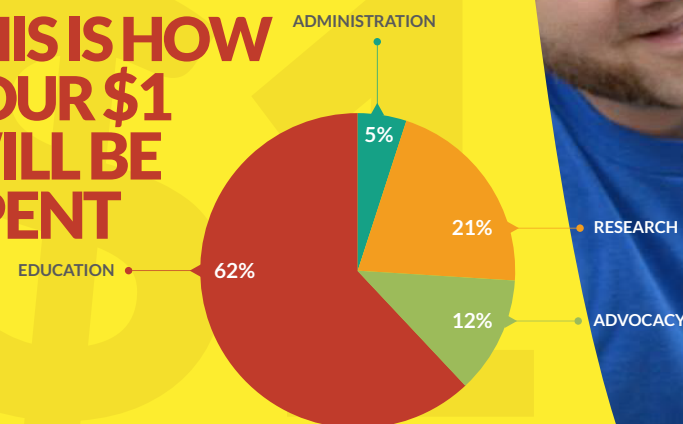


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