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HEMP, THE PLANT THAT CAN SAVE MOTHER EARTH

Locate the blind spot in the culture—the place where the culture isn't looking, because it dare not—because if it were to look there, its previous values would dissolve. **—Terence McKenna**

The following is a transcript of a remarkable commentary on hemp, the world's premiere renewable natural resource, by journalist and commentator Hugh Downs speaking for ABC News radio out of New York in November, 1990. Mr. Downs did his homework exceedingly well for this report—he succeeded in including a great deal of useful information in the short timespan of only nine minutes, forty seconds. Seeking to leverage off the clarity of his research, nine footnotes have been added to the text to provide people with a cross-section of the reference material substantiating the facts Mr. Downs articulates.

It is my hope that people will be motivated and inspired by the facts contained herein. Since the mid-1930s, this society has been reduced to an infantile status concerning an appreciation of the tens of thousands of uses of the vegetable hemp. Simply by changing the way we have been taught to *think* about this plant, we can clear away the stagnant, constipated, tired and inappropriate thinking inhibiting some of the very best qualities of human innovation, creativity, and resourcefulness for more than half century.

As the documentation below explains, the uses of cannabis hemp are as varied and multi-faceted as any of us could ever possibly imagine or hope for. This plant can indeed provide us solutions to **MANY** of the critical imbalances we as an industrial culture have created in the brief span of the past few hundred years. From the production of all forms of paper products, to plastics as tough as steel, to fuel that can replace all oil, gas, coal and nuclear power consumption, to a rich source of vegetable oil and protein, to all manner and form of fabrics and textiles, to medicinal products for the management of pain, chronic neurologic diseases, convulsive disorders, migraine headache, anorexia, mental illness, and bacterial infections, to 100% non-toxic paints and varnishes, to lubricants, to building materials that can replace dry wall and plywood, to carpets, rope, laces, sails, . . . the list rolls on and on and on.

And the only thing that prevents us from once again employing this premiere raw material is the way we have learned to *think* about hemp:

> "You can't use it—it's illegal."
> "Even if we could save the planet's life systems by changing that?"
> "That's right."

This is the kind of frozen, devolutionary thinking we must expand our conscious awareness out beyond to once again encompass the capacity for hopes and dreams of the kind of world we want to, and can, provide our great-grandchildren's great-grandchildren with.

Trust your own infinite intelligence and creativity. There is NO LIMIT to what we as sentient beings can do to change the world for the betterment of all. All we need to appreciate is that any and all change starts with how we consider or think about the world. We can stop cutting down ALL trees used for making paper and fuel; stop extracting and consuming petroleum we continue to spill into the oceans, as well as be partially consumed and end up forever in the atmosphere destroying the protective screen from the sun that has existed for millions of years; we can stop burning coal and begin to end the recently created phenomenon of acid rain; we can stop unearthing uranium and transmuting it into the most deadly man-made substance known to human beings. None of these limited, dirty and expensive forms of energy sources need be relied on anymore. The choice and decision is all of ours to make and implement.

Teach all you know and meet about this lifeline to our collective future. Send copies of this to elected/appointed officials asking them why cannabis hemp/marijuana prohibition laws are allowed to stand when this premier natural resource can truly save the planet, ourselves, and all future generations of all life on Mother Earth. The "leaders" will eventually have to follow and change course from the current going ‘alternative’ of "lemming death."

— ratitor
version 1.1

> ***. . . the most important thing is not to be dualistic. Our "original mind" includes everything within itself. It is always rich and sufficient within itself. You should not lose your self-sufficient state of mind. This does not mean a closed mind, but actually an empty mind and a ready mind. If your mind is empty, it is always ready for anything; it is open to everything. In the beginner’s mind there are many possibilities; in the expert’s mind there are few.***
>
> **— Shunryu Suzuki, *Zen Mind, Beginner’s Mind,* Weatherhill, 1985, p. 21.**

transcript of Hugh Downs commentary on hemp, for ABC News, NY, 11/90:

Voters in the state of Alaska recently made marijuana illegal again for the first time in 15 years. If Alaska turns out to be like the other 49 states, the law will do little to curb use or production. Even the drug czar himself, William Bennett, has abandoned the drug war now that his "test case" of Washington, D.C., continues to see rising crime figures connected with the drug industry.

Despite the legal trend against marijuana, many Americans continue to buck the trend. Some pro-marijuana organizations in fact tell us that marijuana, also known as hemp, could, as a raw material, save the U.S. economy. That’s some statment. Not by smoking it—that’s a minor issue. Would you believe that marijuana could replace most oil and energy needs? That marijuana could revolutionize the textile industry and stop foreign imports? Those are the claims.

Some people think marijuana, or hemp, may be the epidome of yankee ingenuity. Mr. Jack Herer, for example, is the national director and founder of an organization called HEMP (that’s an acronym for "Help End Marijuana Prohibition") located in Van Nuys, California. Mr. Herer is the author of a remarkable little book called, *The Emperor Wears No Clothes*, wherein, not surprisingly, Mr. Herer urges the repeal of marijuana prohibition.

Mr. Herer is not alone. Throughout the war on drugs, several organizations have consistently urged the legalization of marijuana. *High Times* magazine for example, The National Organization to Reform Marijuana Laws or NORML for short, and an organization called BACH—the Business Alliance for Commerce in Hemp.

But the reason the pro-marijuana lobby want marijuana legal has little to do with getting high, and a great deal to do with fighting oil giants like Saddam Hussein, Exxon and Iran. The pro-marijuana groups claim that hemp is such a versatile raw material, that its products not only compete with petroleum, but with coal, natural gas, nuclear energy, pharmaceutical, timber and textile companies.**[1]**

It is estimated that methane and methanol production alone from hemp grown as biomass could replace 90% of the world’s energy needs.**[2]** If they are right, this is not good news for oil interests and could account for the continuation of marijuana prohibition. The claim is that the threat hemp posed to natural resource companies back in the thirties accounts for its original ban.

At one time marijuana seemed to have a promising future as a cornerstone of industry. When Rudolph Diesel produced his famous engine in 1896, he assumed that the diesel engine would be powered by a variety of fuels, especially vegetable and seed oils. Rudolph Diesel, like most engineers then, believed vegetable fuels were superior to petroleum. Hemp is the most efficient vegetable.

In the 1930s the Ford Motor Company also saw a future in biomass fuels. Ford operated a successful biomass conversion plant, that included hemp, at their Iron Mountain facility in Michigan. Ford engineers extracted methanol, charcoal fuel, tar, pitch, ethyl-acetate and creosote. All fundamental ingredients for modern industry and now supplied by oil-related industries.**[2]**

The difference is that the vegetable source is renewable, cheap and clean, and the petroleum or coal sources are limited, expensive and dirty. By volume, 30% of the hemp seed contains oil suitable for high-grade diesel fuel as well as aircraft engine and precision machine oil.

Henry Ford’s experiments with methanol promised cheap, readily renewable fuel. And if you think methanol means compromise, you should know that many modern race cars run on methanol.

About the time Ford was making biomass methanol, a mechanical device**[3]** to strip the outer fibers of the hemp plant appeared on the market. These machines could turn hemp into paper and fabrics**[4]** quickly and cheaply. Hemp paper is superior to wood paper. The first two drafts of the U.S. constitution were written on hemp paper. The final draft is on animal skin. Hemp paper contains no dioxin, or other toxic residue, and a single acre of hemp can produce the same amount of paper as four acres of trees.**[5]** The trees take 20 years to harvest and hemp takes a single season. In warm climates hemp can be harvested two even three times a year. It also grows in bad soil and restores the nutrients.

Hemp fiber-stripping machines were bad news to the Hearst paper manufacturing division, and a host of other natural resource firms. Coincidentally, the DuPont Chemical Company had, in 1937, been granted a patent on a sulfuric acid process to make paper from wood pulp. At the time DuPont predicted their sulfuric acid process would account for 80% of their business for the next 50 years.

Hemp, once the mainstay of American agriculture, became a threat to a handful of corporate giants. To stifle the commercial threat that hemp posed to timber interests, William Randolph Hearst began referring to hemp in his newspapers, by its Spanish name, "marijuana." This did two things: it associated the plant with Mexicans and played on racist fears, and it misled the public into thinking that marijuana and hemp were different plants.

Nobody was afraid of hemp—it had been cultivated and processed into usable goods, and consumed as medicine, and burned in oil lamps, for hundreds of years. But after a campaign to discredit hemp in the Hearst newspapers, Americans became afraid of something called marijuana.

By 1937, the Marijuana Tax Act was passed which marked the beginning of the end of the hemp industry. In 1938, *Popular Mechanics* ran an article about marijuana called, "New Billion Dollar Crop."**[6]** It was the first time the words "billion dollar" were used to describe a U.S. agricultural product. *Popular Mechanics* said,

> . . . a machine has been invented which solves a problem more than 6,000 years old. . . .
>
> The machine . . . is designed for removing the fiber-bearing cortex from the rest of the stalk, making hemp fiber available for use without a prohibitive amount of human labor.
>
> Hemp is the standard fiber of the world. It has great tensile strength and durability. It is used to produce more than 5,000 textile products ranging from rope, to fine laces, and the woody "hurds" remaining after the fiber has been removed, contain more than seventy-seven per cent cellulose, and can be used to produce more than 25,000 products ranging from dynamite to cellophane.

Well since the *Popular Mechanics* article appeared over half a century ago, many more applications have come to light. Back in 1935, more than 58,000 tons of marijuana seed were used just to make paint and varnish (all non-toxic, by the way). When marijuana was banned, these safe paints and varnishes were replaced by paints made with toxic petro-chemicals. In the 1930s no one knew about poisoned rivers or deadly land-fills or children dying from chemicals in house paint. People did know something about hemp back then, because the plant and its products were so common.

All ships lines were made from hemp and much of the sail canvas. (In fact the word "canvas" is the Dutch pronunciation of the Greek word for hemp, "cannabis.") All ropes, hawsers and lines aboard ship, all rigging, nets, flags and pennants were also made from marijuana stalks. And so were all charts, logs and bibles.

Today many of these items are made, in whole or in part, with synthetic petro-chemicals and wood. All oil lamps used to burn hemp-seed oil until the whale oil edged it out of first place in the mid-nineteenth century. And then, when all the whales were dead, lamplights were fueled by petroleum, and coal, and recently radioactive energy.**[7]**

This may be hard to believe in the middle of a war on drugs, but the first law concerning marijuana in the colonies at Jamestown in 1619, ordered farmers to grow Indian hemp. Massachussetts passed a compulsory grow law in 1631. Connecticut followed in 1632. The Chesapeake colonies ordered their farmers, by law, to grow marijuana in the mid-eighteenth century. Names like Hempstead or Hemphill dot the American landscape and reflect areas of intense marijuana cultivation.

During World War II, domestic hemp production became crucial when the Japanese cut off Asian supplies to the U.S. American farmers (and even their sons), who grew marijuana, were exempt from military duty during World War II. A 1942 U.S. Department of Agriculture film called *Hemp For Victory* extolled the agricultural might of marijuana and called for hundreds of thousands of acres to be planted.**[8]** Despite a rather vigorous drug crackdown, 4-H clubs were asked by the government to grow marijuana for seed supply. Ironically, war plunged the government into a sober reality about marijuana and that is that it's very valuable.

In today's anti-drug climate, people don't want to hear about the commercial potential of marijuana. The reason is that the flowering top of a female hemp plant contains a drug. But from 1842 through the 1890s a powerful concentrated extract of marijuana was the second most prescribed drug in the United States. In all that time the medical literature didn't list any of the ill effects claimed by today's drug warriors.**[9]**

Today, there are anywhere from 25 to 30 million Americans who smoke marijuana regularly. As an industry, marijuana clears well more than $4 billion a year. [This must have been a misreading of his notes—for 1990, the minimum figure would have been at least $40 billion for the entire nation. (phone interview with Jack Herer)] Obviously, as an illegal business, none of that money goes to taxes. But the modern marijuana trade only sells one product, a drug. Hemp could be worth considerably more than $4 [$40] billion a year, if it were legally supplying the 50,000 safe products the proponents claim it can.

If hemp could supply the energy needs of the United States, its value would be inestimable. Now that the drug czar is in final retreat, America has an opportunity to, once and for all, say farewell to the Exxon Valdez, Saddam Hussein and a prohibitively expensive brinkmanship in the desert sands of Saudi Arabia.

This is Hugh Downs, ABC News, New York.

> ***Humanity has been held to a limited and distorted view of itself, from its interpretation of the most intimate emotions to its grandest visions of human possibilities, by virtue of its subordination of women.***
>
> ***Until recently, "mankind's" understandings have been the only understandings generally available to us. As other perceptions arise—precisely those perceptions that men, because of their dominant position could not perceive—the total vision of human possibilities enlarges and is transformed.***
>
> **— Jean Baker Miller, *Toward a New Psychology of Women* (1976)**

Footnotes:

[1] If you are unfamiliar with the facts about hemp, the world's premier renewable natural resource, a great place to start is Jack Herer's information-compressed, *Hemp and the Marijuana Conspiracy: The Emperor Wears No Clothes*, (c) 1985, 1986, 1990, 1991, 1992, 1993, 1994, 1995, available in many bookstores (as well as The Ohio Hempery), or from H.E.M.P., 5632 Van Nuys Blvd., Suite 210, Van Nuys, CA 91401, 310/392-1806. From the Introduction:

> The purpose of this book is to revive the authoritative historical, social and economic perspective needed to ensure comprehensive legal reforms, abolish cannabis hemp/marijuana prohibition laws, and save the Earth's life systems.

Other recommendable books are available and listed from the Holiday 1995 edition of **The Ohio Hempery Catalog**:

- *Hemp: Lifeline To The Future, Unexpected Answers To Our Environment And Economic Crises*, by Chris Conrad, $13.95

  Chris is the founder and international director of BACH, the Business Alliance for Commerce in Hemp, Box 71093, LA, CA 90071-0093, 213/288-4152.

- *Industrial Hemp, Practical Products -- Paper to Fabric to Cosmetics*, published by HEMPTECH, $4.95

  Excellent 48-page booklet giving an overview of industrial uses for Hemp, including plastics, resins, polymers, fabrics and more.

- *Crop Physiology of Fibre Hemp (Cannabis sativa L.)*, by Hayo van der Werf, $22.50

  The most up-to-date treatise on hemp cultivation. Van der Werf's dissertation At Wageningen Agricultural University in the Netherlands.

- *Diversity In Cannabis*, by Etienne De Meijer, $22.50

  De Meijer's Ph.d. dissertation compares the growth characteristics of the more than 200 accessions of cannabis collected by the Centre For Plant Breeding and Research.

- *Green Gold -- The Tree of Life, Marijuana In Magic & Religion*, by Chris Bennett, Lynn Osburn & Judy Osburn, $24.95

  Cannabis Sativa played a major role in every Old World religion until its sacramental use was prohibited by Emperor Theodosius of the Holy Roman Empire. This groundbreaking 490-page book documents the history of religious use of the sacred herb that became known as marijuana. The information in this controversial book will revolutionize and revitalize the concept of religion for years to come.

- *Hemp Today*, edited by Ed Rosenthal, $19.95

  Describes the status of Hemp in China, France, Hungary and other countries where Hemp is grown and processed.

- *The Schlichten Papers*, by Don Wirtshafter, $19.95

  Complete papers from the Scripps Archives in Athens, Ohio, with 1917 patents and drawings of the suppressed hemp decorticating machine invented by George W. Schlichten. The first modern book printed on hemp pager.

- *Hemp For Victory*, Poster ($5.95) and Video ($14.95)

  Classic 1942 USDA documentary encouraging and instructing farmers on how to grow hemp. Poster is from official 1943 US government poster encouraging farmers to grow the crop they now condemn.

To order any of the above

- **Toll Free:**
  1-800/BUY-HEMP, Mon-Fri 8am-8pm EST, Sat 9am-5pm
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  Guysville, Ohio, 45735 USA 24-hr. fax orders: **614/662-6446**

[2] "About 6% of contiguous United States land area put into cultivation for biomass could supply all current demands for oil and gas."

Very few people know what "biomass conversion" or "pyrolysis" mean—not only in terms of their dictionary definitions, but in terms of what they mean as alternative sources of energy, to the limited, expensive and dirty petro-chemical, nuclear, or coal sources. The only reason the U.S.—and every other nation on earth—can't once again become energy independent and smog free is because people are not educated concerning the facts about solutions to the environment/energy "crises" continuously lamented and tepidly addressed by "leaders," claiming they are the best informed to decide what to do. The knowledge exists right now for our lifeline to the future and the health and well-being of the Seventh Generation yet unborn. Everyone of us must learn about this existent lifeline and teach everyone else we know what the facts are for THE way out of the current energy "crisis."

HEMP FOR FUEL

Excerpted from *Energy Farming in America,* by Lynn Osburn

BIOMASS CONVERSION TO FUEL HAS PROVEN ECONOMICALLY FEASIBLE, first in laboratory tests and by continuous operation of pilot plants in field tests since 1973. When the energy crop is growing it takes in C02 from the air, so when it is burned the C02 is released, creating a balanced system.

Biomass is the term used to describe all biologically produced matter. World production of biomass is estimated at 146 billion metric tons a year, mostly wild plant growth. Some farm crops and trees can produce up to 20 metric tons per acre of biomass a year. Types of algae and grasses may produce 50 metric tons per year.

This biomass has a heating value of 5000-8000 BTU/lb, with virtually no ash or sulfur produced during combustion. About 6% of contiguous United States land area put into cultivation for biomass could supply all current demands for oil and gas.

The foundation upon which this will be achieved is the emerging concept of "energy farming," wherein farmers grow and harvest crops for biomass conversion to fuels.

PYROLYSIS IS THE TECHNIQUE OF APPLYING HIGH HEAT TO ORGANIC MATTER (ligno-cellulosic materials) in the absence of air or in reduced air. The process can produce charcoal, condensable organic liquids (pyrolytic fuel oil), non-condensable gasses, acetic acid, acetone, and methanol. The process can be adjusted to favor charcoal, pyrolytic oil, gas, or methanol production with a 95.5% fuel-to-feed efficiency.

Pyrolysis has been used since the dawn of civilization. Ancient Egyptians practiced wood distillation by collecting the tars and pyroligneous acid for use in their embalming industry.

Methanol-powered automobiles and reduced emissions from coal-fired power plants can be accomplished by biomass conversion to fuel utilizing pyrolysis technology, and at the same time save the American family farm while turning the American heartland into a prosperous source of clean energy production.

Pyrolysis has the advantage of using the same technology now used to process crude fossil fuel oil and coal.

Coal and oil conversion is more efficient in terms of fuel-to-feed ratio, but biomass conversion by pyrolysis has many environmental and economic advantages over coal and oil.

Pyrolysis facilities will run three shifts a day. Some 68% of the energy of the raw biomass will be contained in the charcoal and fuel oils made at the facility. This charcoal has nearly the same heating value in BTU as coal, with virtually no sulfur.

Pyrolytic fuel oil has similar properties to no. 2 and no. 6 fuel oil. The charcoal can be transported economically by rail to all urban area power plants generating electricity. The fuel oil can be transported economically by trucking creating more jobs for Americans. When these plants use charcoal instead of coal, the problems of acid rain will begin to disappear.

When this energy system is on line producing a steady supply of fuel for electrical power plants, it will be more feasible to build the complex gasifying systems to produce methanol from the cubed biomass, or make synthetic gasoline from the methanol by the addition of the Mobil Co. process equipment to the gasifier.

FARMERS MUST BE ALLOWED TO GROW AN ENERGY CROP capable of producing 10 tons per acre in 90-120 days. This crop must be woody in nature and high in lignocellulose. It must be able to grow in all climactic zones in America.

And it should not compete with food crops for the most productive land, but be grown in rotation with food crops or on marginal land where food crop production isn’t profitable.

When farmers can make a profit growing energy, it will not take long to get 6% of continental American land mass into cultivation of biomass fuel—enough to replace our economy’s dependence on fossil fuels. We will no longer be increasing the C02 burden in the atmosphere. The threat of global greenhouse warming and adverse climactic change will diminish.

To keep costs down, pyrolysis reactors need to be located within a 50 mile radius of the energy farms. This necessity will bring life back to our small towns by providing jobs locally.

HEMP IS THE NUMBER ONE BIOMASS PRODUCER ON PLANET EARTH: 10 tons per acre in approximately four months. It is a woody plant containing 77% cellulose. Wood produces 60% cellulose.

This energy crop can be harvested with equipment readily available. It can be "cubed" by modifying hay cubing equipment. This method condenses the bulk, reducing trucking costs from the field to the pyrolysis reactor. And the biomass cubes are ready for conversion with no further treatment.

Hemp is drought resistant, making it an ideal crop in the dry western regions of the country. Hemp is the only biomass resource capable of making America energy independent. And our government outlawed it in 1938.

Remember, in 10 years, by the year 2000, America will have exhausted 80% of her petroleum reserves. Will we then go to war with the Arabs for the privilege of driving our cars; will we stripmine our land for coal, and poison our air so we can drive our autos an extra 100 years; will we raze our forests for our energy needs?

During World War II, our supply of hemp was cut off by the Japanese. The federal government responded to the emergency by suspending marijuana prohibition. Patriotic American farmers were encouraged to apply for a license to cultivate hemp and responded enthusiastically. Hundreds of thousands of acres of hemp were grown.

The argument against hemp production does not hold up to scrutiny: hemp grown for biomass makes very poor grade marijuana. The 20 to 40 million Americans who smoke marijuana would loath to smoke hemp grown for biomass, so a farmer’s hemp biomass crop is worthless as marijuana.

It is time the government once again respond to our economic emergency as they did in WWII to permit our farmers to grow American hemp so this mighty nation can once again become energy independent and smog free.

For more information on the many uses of hemp, contact BACH, the Business Alliance for Commerce in Hemp, Box 71093, LA, CA 90071-0093, 213/288-4152.

—excerpt from Herer, *Emperor Wears No Clothes,* 1992 edition, p. 136

For an updated version of *Energy Farming In America*, *Books In Print* lists *Ecohemp: Economy and Ecolgy with Hemp;* see also the bi-monthly ***Hemp Line** Journal*, both published by Access Unlimited, P.O. Box 1900, Frazier Park, CA, 93225 805/632-2644.

[3] The device invented was named the decorticator and in the mid 1930s it was poised to do for hemp what the cotton gin had done for cotton: create a fast and economically feasible way of "removing the fiber-bearing cortex from the rest of the stalk, making hemp fiber available for use without a prohibitive amount of human labor." (*Popular Mechanics,* February, 1938)

[4] from *The Emperor Wears No Clothes,* p. 23:

MAN-MADE FIBER . . .
THE TOXIC ALTERNATIVE TO NATURAL FIBERS.

The late 1920s and 1930s saw continuing consolidation of power into the hands of a few large steel, oil and chemical (munitions) companies. The U.S. federal government placed much of the textile production for the domestic economy in the hands of their chief munitions maker, DuPont.

The processing of nitrating cellulose into explosives is very similar to the process for nitrating cellulose into synthetic fibers and plastics. Rayon, the first synthetic fiber, is simply stabilized guncotton, or nitrated cloth, the basic explosive of the 19th century.

"Synthetic plastics find application in fabricating a wide variety of articles, many of which in the past were made from natural products," beamed Lammot DuPont (*Popular Mechanics,* June 1939, pg. 805).

"Consider our natural resources," the president of DuPont continued, "The chemist has aided in conserving natural resources by developing synthetic products to supplement or wholly replace natural products."

DuPont’s scientists were the world’s leading researchers into the processes of nitrating cellulose and were in fact the largest processor of cellulose in the nation in this era.

The February, 1938 *Popular Mechanics* article stated "Thousands of tons of hemp hurds are used every year by one large powder company for the manufacture of dynamite and TNT." History shows that DuPont had largely cornered the market in explosives by buying up and consolidating the smaller blasting companies in the late 1800s. By 1902 they controlled about two-thirds of industry output.

They were the largest powder company, supplying 40% of the munitions for the allies in WWI. As cellulose and fiber researchers, DuPont’s chemists knew hemp’s true value better than anyone else. The value of hemp goes far beyond line fibers; although recognized for linen, canvas, netting and cordage, these long fibers are only 20% of the hempstalks’ weight. 80% of the hemp is in the 77% cellulose hurd, and this was the most abundant, cleanest resource of cellulose (fiber) for paper, plastics and even rayon.

The empirical evidence in this book shows that the federal government—through the 1937 Marijuana Tax Act—allowed this munitions maker to supply synthetic fibers for the domestic economy without competition. The proof of a successful conspiracy among these corporate and governing interests is simply this: In 1991 DuPont was still the largest producer of man-made fibers, while no citizen has legally harvested a single acre of textile grade hemp in over 50 years.

An almost unlimited tonnage of natural fiber and cellulose would have become available to the American farmer in 1937, the year DuPont patented nylon and the polluting wood-pulp paper sulfide process. All of hemp’s potential value was lost.

Simple plastics of the early 1900s were made of nitrated cellulose, directly related to DuPont’s munitions-making processes. Celluloid, acetate and rayon were the simple plastics of that era, and hemp was well known to cellulose researchers as the premier resource for this new industry to use. Worldwide, the raw material of simple plastics, rayon and paper could be best supplied by hemp hurds.

Nylon fibers were developed between 1926-1936 by the noted Harvard chemist Wallace Carothers, working from German patents. These polyamides are long fibers based on observed natural products. Carothers, supplied with an open-ended research grant from DuPont, made a comprehensive study of natural cellulose fibers. He duplicated natural fibers in his labs and polyamides—long fibers of a specific chemical process—were developed.

Coal tar and petroleum based chemicals were employed, and different devices, spinnerets and processes were patented. This new type of textile, nylon, was to be controlled from the raw material stage, as coal, to the completed product; a patented chemical product. The chemical company centralized the production and profits of the new "miracle" fiber.

The introduction of nylon, the introduction of high-volume machinery to separate hemp's long fiber from the cellulose hurd, and the outlawing of hemp as "marijuana" all occurred simultaneously.

The new man-made fibers (MMFs) can best be described as war material. The fiber making process has become one based on big factories, smokestacks, coolants and hazardous chemicals, rather than one of stripping out the abundant, naturally available fibers.

Coming from a history of making explosives and munitions, the old "chemical dye plants" now produce hosiery, mock linens, mock canvas, latex paint and synthetic carpets. Their polluting factories make imitation leather, upholstery and wood surfaces, while an important part of the natural cycle stands outlawed.

The standard fiber of world history, America's traditional crop, hemp, could provide our textiles, paper and be the premier source for cellulose. The war industries—DuPont, Allied Chemical, Monsanto, etc.,—are protected from competition by the marijuana laws. They make war on the natural cycle and the common farmer.

Shan Clark

Sources:

Encyclopedia of Textiles 3rd Edition by the editors of *American Fabrics and Fashions Magazine*, William C. Legal, Publisher Prentice-Hall, Inc. Englewood Cliffs, N.J. 1980; *The Emergence of Industrial America Strategic Factors in American Economic Growth Since 1870,* Peter George, State University, NY; *DuPont* (a corporate autobiography published periodically by E.I. DuPont De Nemours and Co., Inc. Wilmington, DE); *The Blasting Handbook,* E.I. DuPont De Nemours & Co. Inc., Wilmington, DE; *Mechanical Engineering Magazine*, Feb. 1938; *Popular Mechanics*, Feb. 1938; *Journal of Applied Polymer Science,* Vol. 47, 1984; *Polyamides, the Chemistry of Long Molecules* (author unknown) U.S. Patent #2,071,250 (Feb. 16, 1937), W.H. Carothers; *DuPont Dynasties,* Jerry Colby; *The American Peoples Encyclopedia,* the Sponsor Press, Chicago, 1953.

[5] Dewey and Merrill, *Bulletin #404, Hemp Hurds As Paper-Making Material,* U.S.D.A., Washington, D.C., October 14, 1916.

from the prophetic "Conclusions" section of this USDA Bulletin:

There appears to be little doubt that under the present system of forest use and consumption the present supply cannot withstand the demands placed upon it. By the time improved methods of forestry have established an equilibrium between production and consumption, the price of pulp wood may be such that a knowledge of other available raw materials may be imperative.

Semicommercial paper-making tests were conducted, therefore, on hemp hurds, in cooperation with a paper manufacturer. After several trials, under conditions of treatment and manufacture which are regarded as favorable in comparison with those used with pulp wood, paper was produced which received very favorable comment both from investigators and from the trade which according to official test would be classed as a No. 1 machine finished printing paper. (p. 25)

> "This remarkable new pulp technology for papermaking was invented in 1916 by our own U.S. Department of Agriculture chief scientists, Lyster H. Dewey, Botanist in Charge of Fiber-Plant Investigations, and Jason L. Merrill, Paper-Plant Chemist, Paper-Plant Investigations.
>
> As the USDA bulletin suggested, this process had to stay in the laboratory until the invention of decorticating and havesting machinery allowed for its economic utilization.
>
> Until this time, hemp paper had only been made from rags and stalk fibers while the fiber and cellulose-rich hurds were burnt to fertilize the soil.
>
> Some cannabis plant strains regularly reach tree-like heights of 20 feet or more in one growing season.

The new paper process used hemp "hurds"—77% of the hemp stalk's weight, which was then a wasted by-product of the fiber-stripping process. In 1916, USDA Bulletin No. 404, reported that one acre of cannabis hemp, in annual rotation over a 20-year period, would produce as much pulp for paper as 4.1 acres of trees being cut down over the same 20-year period. This process would use only 1/4 to 1/7 as much polluting sulfur-based acid chemicals to break down the glue-like lignin that binds the fibers of the pulp, or even none at all using soda ash. The problem of dioxin contamination of rivers is avoided in the hemp paper making process, which does not need to use chlorine bleach (as the wood pulp paper making process requires) but instead safely substitutes hydrogen peroxide in the bleaching process.

All this lignin must be broken down to make pulp paper. Hemp pulp is only 4% lignin, while trees are 18-30% lignin. Thus hemp provides four times as much pulp with at least four to seven times less pollution. . . .

As we have seen, this hemp pulp-paper potential depended on the invention and the engineering of new machines for stripping the hemp by modern technology. This would also lower demand for lumber and reduce the cost of housing, while at the same time helping re-oxygenate the planet.

As an example: If the new (1916) hemp pulp paper process were legal today, it would soon replace about 70% of all wood pulp paper, including computer printout paper, corrugated boxes and paper bags."

— Herer, *The Emperor Wears No Clothes*, 1992 edition, pp. 20-22, 118-122.

[6] complete text below of "New Billion-Dollar Crop," *Popular Mechanics*, Febraury, 1938, followed by "Pinch Hitters for Defense" (12/41) describing Henry Ford's new auto bodies consisting entirely of plastics made from vegetables producing cellulose fibers (of which hemp is the most efficient of all vegetables), followed by an two excerpts from *The Emperor* about "Paints and Varnishes" and "Building Materials and Housing:"

NEW BILLION-DOLLAR CROP
Popular Mechanics
February, 1938

AMERICAN farmers are promised a new cash crop with an annual value of several hundred million dollars, all because a machine has been invented which solves a problem more than 6,000 years old. It is hemp, a crop that will not compete with other American products. Instead, it will displace imports of raw material and manufactured products produced by underpaid coolie and peasant labor and it will provide thousands of jobs for American workers throughout the land.

The machine which makes this possible is designed for removing the fiber-bearing cortex from the rest of the stalk, making hemp fiber available for use without a prohibitive amount of human labor.

Hemp is the standard fiber of the world. It has great tensile strength and durability. It is used to produce more than 5,000 textile products, ranging from rope to fine laces, and the woody "hurds" remaining after the fiber has been removed contain more than seventy-seven per cent cellulose, and can be used to produce more than 25,000 products, ranging from dynamite to Cellophane.

Machines now in service in Texas, Illinois, Minnesota and other states are producing fiber at a manufacturing cost of half a cent a pound, and are finding a profitable market for the rest of the stalk. Machine operators are making a good profit in competition with coolie-produced foreign fiber while paying farmers fifteen dollars a ton for hemp as it comes from the field.

From the farmers' point of view, hemp is an easy crop to grow and will yield from three to six tons per acre on any land that will grow corn, wheat, or oats. It has a short growing season, so that it can be planted after other crops are in. It can be grown in any state of the union. The long roots penetrate and break the soil to leave it in perfect condition for the next year's crop. The dense shock of leaves, eight to twelve feet above the ground, chokes out weeds. Two successive crops are enough to reclaim land that has been abandoned because of Canadian thistles or quack grass.

Under old methods, hemp was cut and allowed to lie in the fields for weeks until it "retted" enough so the fibers could be pulled off by hand. Retting is simply rotting as a result of dew, rain and bacterial action. Machines were developed to separate the fibers mechanically after retting was complete, but the cost was high, the loss of fiber great, and the quality of fiber comparatively low. With the new machine, known as a decorticator, hemp is cut with a slightly modified grain binder. It is delivered to the machine where an automatic chain conveyor feeds it to the breaking arms at the rate of two or three tons per hour. The hurds are broken into fine pieces which drop into the hopper, from where they are delivered by blower to a baler or to truck or freight car for loose shipment. The fiber comes from the other end of the machine, ready for baling.

From this point on almost anything can happen. The raw fiber can be used to produce strong twine or rope, woven into burlap, used for carpet warp or linoleum backing or it may be bleached and refined, with resinous by-products of high commercial value. It can, in fact, be used to replace the foreign fibers which now flood our markets.

Thousands of tons of hemp hurds are used every year by one large powder company for the manufacture of dynamite and TNT. A large paper company, which has been paying more than a million dollars a year in duties on foreign-made cigarette papers, now is manufacturing these papers from American hemp grown in Minnesota. A new factory in Illinois is producing fine bond papers from hemp. The natural materials in hemp make it an economical source of pulp for any grade of paper manufactured, and the high percentage of alpha cellulose promises an unlimited supply of raw material for the thousands of cellulose products our chemists have developed.

It is generally believed that all linen is produced from flax. Actually, the majority comes from hemp—authorities estimate that more than half of our imported linen fabrics are manufactured from hemp fiber. Another misconception is that burlap is made from hemp. Actually, its source is usually jute, and practically all of the burlap we use is woven by laborers in India who receive only four cents a day. Binder twine is usually made from sisal which comes from Yucatan and East Africa.

All of these products, now imported, can be produced from home-grown hemp. Fish nets, bow strings, canvas, strong rope, overalls, damask tablecloths, fine linen garments, towels, bed linen and thousands of other everyday items can be grown on American farms. Our imports of foreign fabrics and fibers average about $200,000,000 per year; in raw fibers alone we imported over $50,000,000 in the first six months of 1937. All of this income can be made available for Americans.

The paper industry offers even greater possibilities. As an industry it amounts to over $1,000,000,000 a year, and of that eighty per cent is imported. But hemp will produce every grade of paper, and government figures estimate that 10,000 acres devoted to hemp will produce as much paper as 40,000 acres of average pulp land.

One obstacle in the onward march of hemp is the reluctance of farmers to try new crops. The problem is complicated by the need for proper equipment a reasonable distance from the farm. The machine cannot be operated profitably unless there is enough acreage within driving range and farmers cannot find a profitable market unless there is machinery to handle the crop. Another obstacle is that the blossom of the female hemp plant contains marijuana, a narcotic, and it is impossible to grow hemp without producing the blossom. Federal regulations now being drawn up require registration of hemp growers, and tentative proposals for preventing narcotic production are rather stringent.

However, the connection of hemp as a crop and marijuana seems to be exaggerated. The drug is usually produced from wild hemp or locoweed which can be found on vacant lots and along railroad tracks in every state. If federal regulations can be drawn to protect the public without preventing the legitimate culture of hemp, this new crop can add immeasurably to American agriculture and industry.

Popular Mechanics Magazine can furnish the name and address of the maker of, or dealer in, any article described in its pages. If you wish this information, write to the Bureau of Information, inclosing a stamped, self-addressed envelope.

* * * * *

Pinch Hitters for Defense
Popular Mechanics
December, 1941

Over in England it's saccharine for sugar; on the continent it's charcoal "gasogenes" in the rumble seat instead of gasoline in the tank. Here in America there's plenty of sugar, plenty of gasoline. Yet there's an industrial revolution in progress just the same, a revolution in materials that will affect every home.

After twelve years of research, the Ford Motor Company has completed an experimental automobile with a plastic body. Although its design takes advantage of the properties of plastics, the streamline car does not differ greatly in appearance from its steel counterpart. The only steel in the hand-made body is found in the tubular welded frame on which are mounted 14 plastic panels, 3/16 inch thick. Composed of a mixture of farm crops and synthetic chemicals, the plastic is reported to withstand a blow 10 times as great as steel without denting. Even the windows and windshield are of plastic. The total weight of the plastic car is about 2,000 pounds, compared with 3,000 pounds for a steel automobile of the same size. Although no hint has been given as to when plastic cars may go into production, the experimental model is pictured as a step toward materialization of Henry Ford's belief that some day he would "grow automobiles from the soil."

When Henry Ford recently unveiled his plastic car, result of 12 years of research, he gave the world a glimpse of the automobilie of tomorrow, its tough panels molded under hydraulic pressure of 1,500 pounds per square inch from a recipe that calls for 70 percent of cellulose fibers from wheat straw, hemp and sisal plus 30 percent resin binder. The only steel in the car is its tubular welded frame. The plastic car weighs a ton, 1,000 pounds lighter than a comparable steel car. Manufacturers are already taking a low-priced plastic car to test the public's taste by 1943.

* * * * *

6. Paints and Varnishes

For thousands of years, virtually all good paints and varnishes were made with hemp seed oil and/or linseed oil.

For instance, in 1935 alone, 116 million pounds (58,000 tons) [National Institute of Oilseed Products congressional testimony *against* the 1937 Marijuana Transfer Tax Law] of hemp seed were used in America just for paint and varnish. As a comparison, consider that the U.S. Drug Enforcement Agency (DEA), along with all America's state and local police agencies, claim to have seized for all of 1988, 651.5 tons of American-grown marijuana—seed, plant, root, dirt clump and all.[National Narcotics Intelligence Consumer's Committee, NNICC Report, 1988 DEA office relase, El Paso, TX, April, 1989.] The hemp drying oil business went principally to DuPont petro-chemicals. [Sloman, Larry, *Reefer Madness*, Grove Press, New York, NY, 1979, pg. 72.]

Congress and the Treasury Department were assured through secret testimony given by DuPont in 1935-37 directly to Herman Oliphant, Chief Counsel for the Treasury Dept., that hemp seed oil could be replaced with synthetic petro-chemical oils made principally by DuPont.

Oliphant was solely responsible for drafting the Marijuana Tax Act that was submitted to Congress.[Bonnie, Richard and Whitebread, Charles, *The Marijuana Conviction*, Univ. of Virginia Press, 1974.] (See complete story in Chapter 4, "The Last Days of Legal Cannabis.")

— Herer, *The Emperor Wears No Clothes*, 1992 edition, p. 8.

* * * * *

11. Building Materials And Housing

Because one acre of hemp produces as much cellulose fiber pulp as 4.1 acres of trees (Dewey & Merrill, *Bulletin #404,* U.S. Dept. of Ag., 1916), hemp is the perfect material to replace trees for pressed board, particle board and cor concrete construction molds.

Practical, inexpensive construction material which is fire resistant, with excellent thermal and sound insulating qualities, can be made using a process called Environcore(c). This process, developed by Mansion Industries, applies heat and compression to agricultural fiber to create strong construction paneling, replacing dry wall and plywood. (See Appendix, p. 172. [Vincent H. Miller, "A Grass House In Your Future?," *Freedom Network News,* June/July 1989])

Hemp has been used throughout history for carpet backing. Hemp fiber has potential in the manufacture of strong, rot resistant carpeting—eliminating the poisonous fumes of burning synthetic materials in a house or commercial fire, along with allergic reactions associated with new synthetic carpeting.

Plastic plumbing pipe (PVC pipes) can be manufactured using renewable hemp cellulose as the chemical feedstocks, replacing non-renewable petroleum-based chemical feedstocks.

So we can envision a house of the future built, plumbed, painted and furnished with the world’s number one renewable resource—hemp.

— Herer, *The Emperor Wears No Clothes,* 1992 edition, p. 10.

[7] Most people think with the Cold War over, nuclear weapons, and, the nuclear industry as a whole, will simply become a thing of the past. This is NOT the perspective of the people who run the nuclear weapons labs—the heart of the nuclear industry. DOE plans for creating an "assembly line" for international commerce in enriched uranium for foreign atomic power plants are swinging into high gear at the same time the justification for the existence of the nuclear establishment over the past 50 years—communism—is no more.

The following Fact Sheet prepared by the Western States Legal Foundation is only one indicator of what the DOE and the Nuclear Weapons Complex intends to do to create a "thriving" international commerce in enriched high-level radioactive materials, the most long-lived biologically toxic matter existent on earth. And, as has consistently happened throughout the history of the development of nuclear technology in the United States, all this is being done in secret without ANY meaningful public debate. Who’s interests are truly being served here?

Teaching all people in the industrial nations how hemp IS our lifeline to the future—how it IS the renewable, cheap, and clean vegetable source to meet humanity’s energy needs instead of the astronomically expensive and lethally polluting source that nuclear technology is—this is what we must be about.

And when people respond by saying, "Yes, but what are you going to use if we don’t further develop and employ nuclear?—Petroleum and coal are too dirty and solar isn’t technologically feasible yet." That’s when you respond by explaining why alcohol prohibition of the 1920s was rescinded by FDR in the 30s, why hemp prohibition must be rescinded now, and how hemp is THE world’s premier renewable natural resource that is only waiting for us to re-exercise our own best intelligence to employ it to solve our energy "crisis."

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FACTSHEET

URANIUM-ATOMIC VAPOR LASER ISOTOPE SEPARATION
(U-AVLIS)
LAWRENCE LIVERMORE NATIONAL LABORATORY

This factsheet is prepared by the Western States Legal Foundation (WSLF), a non-profit environmental and peace organization which has actively monitored Department of Energy (DOE) operations at Lawrence Livermore National Laboratory (LLNL) since 1982. WSLF, in association with other public interest organizations, is evaluating DOE's proposal to commence commercial-scale demonstration of a uranium-enrichment facility known as U-AVLIS. DOE recently announced that U-AVLIS operations pose "no significant environmental impact" to the surrounding community.

What Is U-AVLIS?

Over the past sixteen years, DOE has conducted research into the expansion of commercial production of enriched uranium for export and use in foreign atomic power plants. Alarmed by increasing competition in the uranium export market by France and Japan (and possible entry into the market by the Soviet Union), DOE has invested hundreds of millions of dollars to develop a new technology to enrich fuel-grade uranium. The objective of the commercial AVLIS program is to generate a market capable of contributing over one billion dollars to the U.S. balance of trade.

AVLIS, which stands for Atomic Vapor Laser Isotope Separation, is a technology capable of enriching uranium and plutonium for weapons use as well as for nuclear fuel. LLNL recently operated a pilot Special Isotope Separation (SIS) facility designed to vaporize and refine plutonium (for weapons use), utilizing AVLIS technology. U-AVLIS is the commercial counterpart to the weapons-related SIS program.

In the U-AVLIS facility, uranium is vaporized and ionized with high energy lasers. The desirable U-235 isotope is then collected in the separator, and the remaining U-238 ("depleted uranium") is discarded. In 1991, DOE completed construction of the Uranium Demonstration system (UDS), a plant-scale pilot U-AVLIS facility for demonstration of "large scale, integrated uranium enrichment." Should the program prove successful, DOE plans to start full scale plant construction in 1993 and production by 1997.

What Are The Possible Environmental Impacts from U-AVLIS?

The United States still has no effective long-term solution to the disposal of radioactive waste associated with nuclear power plants. The end product of AVLIS' vast subsidy to the nuclear power industry is thousands of tons of more radioactive waste, with nowhere to go. The problem of nuclear waste disposal is even more acute in foreign nations which are to be the primary end-user of AVLIS-produced enriched uranium.

According to DOE's recent environmental assessment for the U-AVLIS demonstration project, the U-AVLIS facility will annually generate up to 40,000 kilograms of solid radioactive waste, 20,000 liters of liquid radioactive waste, and 60,000 liters of mixed liquid radioactive and non-radioactive hazardous waste. U-AVLIS will *triple* the amount of liquid radioactive waste produced at LLNL, and will account for roughly one out of three barrels of "mixed" waste to accumulate at LLNL without any effective means at disposal. U-AVLIS itself is anticipated to use thousands of gallons of hazardous laser dye solutions, and process thousands of kilograms of uranium. The maximum capacity of molten uranium in U-AVLIS is 600 kilograms, and some 5000 kilograms will be stored in the facility at any one time. Transportation of uranium in and out of LLNL is conservatively estimated to quadruple during U-AVLIS operations.

LLNL is listed on the National Priorities List as a Superfund site based on serious groundwater contamination. Throughout its operation, LLNL has had a documented record of releasing radioactive and hazardous materials into the air, water and soil. The Department of Health Services has repeatedly cited LLNL for numerous violations of hazardous waste laws. The state of Nevada has threatened to return thousands of barrels of waste illegally shipped for storage to the Nevada Test site. In 1990, an internal DOE investigation (the "Tiger Team") pinpointed numerous failures of management to effectively handle the serious hazardous waste problems associated with LLNL operations. U-AVLIS presents its own special risks of accidents, including accidental spillage of laser dyes, and spontaneous combustion of molten uranium, in close proximity to the Livermore population of 56,000 and a greater Bay Area population of 5 million.

Proliferation Risks

WSLF believes that the planned export of thousands of pounds of enriched uranium will encourage the proliferation not only of risky atomic power technology, but nuclear weapons as well. The United States, in concert with the AVLIS program, is actively encouraging the market for enriched uranium through "safe" atomic power programs abroad. AVLIS itself is also subject to copying by other nations, where it can be used to develop plutonium or uranium based bombs.

What Environmental Review Has Been Done?

Almost none. DOE has prepared three brief "environmental assessments" under the National Environmental Policy Act (NEPA) for the U-AVLIS program. The two earlier assessments are "classified" and not available to the public. In May 1991, DOE released a cursory assessment for the demonstration phase of the U-AVLIS, concluding that the project was without significant environmental impacts. No public hearing has ever been held concerning U-AVLIS. DOE's current position is that it need not prepare a full environmental impact statement (EIS) or conduct a public hearing until it is ready to "deploy U-AVLIS on a commercial scale." WSLF demands that DOE prepare a full environmental impact statement and hold public hearings on the environmental risks associated with U-AVLIS.

[8] Transcript of the original 1942 United States Department of Agriculture Film, *Hemp for Victory* extolling some of the many uses of this ancient plant and premier world resource:

HEMP FOR VICTORY
— 1942 —
Reprinted from *High Times,* October 1989

Long ago when these ancient Grecian temples were new, hemp was already old in the service of mankind. For thousands of years, even then, this plant had been grown for cordage and cloth in China and elsewhere in the East. For centuries prior to about 1850 all the ships that sailed the western seas were rigged with hempen rope and sails. For the sailor, no less than the hangman, hemp was indispensable.

A 44-gun frigate like our cherished Old Ironsides took over 60 tons of hemp for rigging, including an anchor cable 25 inches in circumference. The Conestoga wagons and prairie schooners of pioneer days were covered with hemp canvas. Indeed the very word canvas comes from the Arabic word for hemp. In those days hemp was an important crop in Kentucky and Missouri. Then came cheaper imported fibers for cordage, like jute, sisal and Manila hemp, and the culture of hemp in America declined.

But now with Philippine and East Indian sources of hemp in the hands of the Japanese, and shipment of jute from India curtailed, American hemp must meet the needs of our Army and Navy as well as of our Industry. In 1942, patriotic farmers at the government's request planted 36,000 acres of seed hemp, an increase of several thousand percent. The goal for 1943 is 50,000 acres of seed hemp.

In Kentucky much of the seed hemp acreage is on river bottom land such as this. Some of these fields are inaccessible except by boat. Thus plans are afoot for a great expansion of a hemp industry as a part of the war program. This film is designed to tell farmers how to handle this ancient crop now little known outside Kentucky and Wisconsin.

This is hemp seed. Be careful how you use it. For to grow hemp legally you must have a federal registration and tax stamp. This is provided for in your contract. Ask your county agent about it. Don't forget.

Hemp demands a rich, well-drained soil such as is found here in the Blue Grass region of Kentucky or in central Wisconsin. It must be loose and rich in organic matter. Poor soils won't do. Soil that will grow good corn will usually grow hemp.

Hemp is not hard on the soil. In Kentucky it has been grown for several years on the same ground, though this practice is not recommended. A dense and shady crop, hemp tends to choke out weeds. Here's a Canada thistle that couldn't stand the competition, dead as a dodo. Thus hemp leaves the ground in good condition for the following crop.

For fiber, hemp should be sewn closely, the closer the rows, the better. These rows are spaced about four inches. This hemp has been broadcast. Either way it should be sewn thick enough to grow a slender stalk. Here's an ideal stand: the right height to be harvested easily, thick enough to grow slender stalks that are easy to cut and process.

Stalks like these here on the left wield the most fiber and the best. Those on the right are too coarse and woody. For seed, hemp is planted in hills like corn. Sometimes by hand. Hemp is a dioecious plant. The female flower is inconspicuous. But the male flower is easily spotted. In seed production after the pollen has been shed, these male plants are cut out. These are the seeds on a female plant.

Hemp for fiber is ready to harvest when the pollen is shedding and the leaves are falling. In Kentucky, hemp harvest comes in August. Here the old standby has been the self-rake reaper, which has been used for a generation or more.

Hemp grows so luxuriantly in Kentucky that harvesting is sometimes difficult, which may account for the popularity of the self-rake with its lateral stroke. A modified rice binder has been used to some extent. This machine works well on average hemp. Recently, the improved hemp harvester, used for many years in Wisconsin, has been introduced in Kentucky. This machine spreads the hemp in a continuous swath. It is a far cry from this fast and efficient modern harvester, that doesn't stall in the heaviest hemp.

In Kentucky, hand cutting is practicing in opening fields for the machine. In Kentucky, hemp is shucked as soon as safe, after cutting, to be spread out for retting later in the fall.

In Wisconsin, hemp is harvested in September. Here the hemp harvester with automatic spreader is standard equipment. Note how smoothly the rotating apron lays the swaths preparatory to retting. Here it is a common and essential practice to leave headlands around hemp fields. These strips may be planted with other crops, preferably small grain. Thus the harvester has room to make its first round without preparatory hand cutting. The other machine is running over corn stubble. When the cutter bar is much shorter than the hemp is tall, overlapping occurs. Not so good for retting. The standard cut is eight to nine feet.

The length of time hemp is left on the ground to ret depends on the weather. The swaths must be turned to get a uniform ret. When the woody core breaks away readily like this, the hemp is about ready to pick up and bind into bundles. Well-retted hemp is light to dark grey. The fiber tends to pull away from the stalks. The presence of stalks in the bough-string stage indicates that retting is well underway. When hemp is short or tangled or when the ground is too wet for machines, it's bound by hand. A wooden bucket is used. Twine will do for tying, but the hemp itself makes a good band.

When conditions are favorable, the pickup binder is commonly used. The swaths should lie smooth and even with the stalks parallel. The picker won't work well in tangled hemp. After binding, hemp is shucked as soon as possible to stop further retting. In 1942, 14,000 acres of fiber hemp were harvested in the United States. The goal for the old standby cordage fiber, is staging a strong comeback.

This is Kentucky hemp going into the dryer over mill at Versailles. In the old days braking was done by hand. One of the hardest jobs known to man. Now the power braker makes quick work of it.

Spinning American hemp into rope yarn or twine in the old Kentucky river mill at Frankfort, Kentucky. Another pioneer plant that has been making cordage for more than a century. All such plants will presently be turning out products spun from American-grown hemp: twine of various kinds for tying and upholster's work; rope for marine rigging and towing; for hay forks, derricks, and heavy duty tackle; light duty firehose; thread for shoes for millions of American soldiers; and parachute webbing for our paratroopers.

As for the United States Navy, every battleship requires 34,000 feet of rope. Here in the Boston Navy Yard, where cables for frigates were made long ago, crews are now working night and day making cordage for the fleet. In the old days rope yarn was spun by hand. The rope yarn feeds through holes in an iron plate. This is Manila hemp from the Navy's rapidly dwindling reserves. When it is gone, American hemp will go on duty again: hemp for mooring ships; hemp for tow lines; hemp for tackle and gear; hemp for countless naval uses both on ship and shore. Just as in the days when Old Ironsides sailed the seas victorious with her hempen shrouds and hempen sails. Hemp for victory.

[9] Introduction from *Marijuana: Medical Papers*, Tod H. Mikuriya, M.D., Medi-Comp Press, 1973, pp. xiii-xxvii, describing some of the recent history of western medical explorations into the salutory medicinal benefits of hemp drugs—a history that is almost completely unknown to people at the end of the 20th century, but, throughout the majority of the 19th century, was commonly known and experienced by much of the population:

Introduction

Medicine in the Western World has forgotten almost all it once knew about therapeutic properties of marijuana, or cannabis.

Analgesia, anticonvulsant action, appetite stimulation, ataraxia, antibiotic properties and low toxicity were described throughout medical literature, beginning in 1839, when O'Shaughnessy introduced cannabis into the Western pharmacopoeia.

As these findings were reported throughout Western medicine, cannabis attained wide use. Cannabis therapy was described in most pharmacopoeial texts as a treatment for a variety of disease conditions.

During the second half of the 1800s and in the present century, medical researchers in some measure corroborated the early reports of the therapeutic potential of cannabis. In addition, much laboratory research has been concerned with bioassay, determination of the mode of action, and attempts to solve the problems of insolubility in water and variability of strength among different cannabis specimens.

"Recreational" smoking of cannabis in the twentieth century and the resultant restrictive federal legislation have functionally ended all medical uses of marijuana.

In light of such assets as minimal toxicity, no buildup of tolerance, no physical dependence, and minimal autonomic disturbance, immediate major clinical reinvestigation of cannabis preparations is indicated in the management of pain, chronic neurologic diseases, convulsive disorders, migraine headache, anorexia, mental illness, and bacterial infections.

Recently declassified secret U.S. Defense Department studies reconfirm marijuana's congeners to have therapeutic utility.

Cannabis indica, Cannabis sativa, Cannabis americana, Indian hemp and marijuana (or marihuana) all refer to the same plant. Cannabis is used throughout the world for diverse purposes and has a long history characterized by usefulness, euphoria or evil—depending on one's point of view. To the agriculturist cannabis is a fiber crop; to the physician of a century ago it was a valuable medicine; to the physician of today it is an enigma; to the user, a euphoriant; to the police, a menace; to the traffickers, a source of profitable danger; to the convict or parolee and his family, a source of sorrow.

This book is concerned primarily with the medicinal aspects of cannabis.

The Chinese emperor Shen-nung is reported to have taught his people to grow hemp for fiber in the twenty-eighth century B.C. A text from the period 1500-1200 B.C. documents a knowledge of the plant in China—but not for use as fiber. In 200 A.D., the use of cannabis as an analgesic was described by the physician Hoa-tho.[44]

In India the use of hemp preparations as a remedy was described before 1000 B.C. In Persia, cannabis was known several centuries before Christ. In Assyria, about 650 B.C., its intoxicating properties were noted.[44]

Except for Herodotus' report that the Scythians used the smoke from burning hemp seeds for intoxication, the ancient Greeks seemed to be unaware of the psychoactive properties of cannabis. Dioscorides in the first century A.D. rendered an accurate morphologic description of the plant, but made no note of intoxicating properties.[10]

In the thirteenth and fourteenth centuries, Arabic writers described the social use of cannabis and resultant cruel but unsuccessful attempts to suppress its non-medical use.[44]

Although Galen described the use of the seeds for creating warmth, he did not describe the intoxicating qualities of hemp. Of interest is the paucity of references to hemp's intoxicating properties in the lay and medical literature of Europe before the 1800s.[44]

The therapeutic use of cannabis was introduced into Western medicine in 1839, in a forty-page article by W. B. O'Shaughnessy, a thirty-year-old physician serving with the British in India.[27] His discussion of the history of the use of cannabis products in the East reveals an awareness that these drugs had not only been used in medicine for therapeutic purposes, but had also been used for recreational and religious purposes.

O'Shaughnessy is not primarily known for his discovery of hemp drugs, but rather for his basic studies on intravenous electrolyte therapy in 1831, and his introduction of the telegraph into India in the 1850s.[26]

After studying the literature on cannabis and conferring with contemporary Hindu and Mohammedan scholars O'Shaughnessy tested the effects of various hemp preparations on animals, before attempting to use them to treat humans. Satisfied that the drug was reasonably safe, he administered preparations of cannabis extract to patients, and discovered that it had analgesic and sedative properties. O'Shaughnessy successfully relieved the pain of rheumatism and stilled the convulsions of an infant with this strange new drug. His most spectacular success came, however, when he quelled the wrenching muscle spasms of tetanus and rabies with the fragrant resin. Psychic effects resembling a curious delirium, when an overdose was given, were treated with strong purgatives, emetics with a blister to the nape of the neck, and leeches on the temples.[27]

The use of cannabis derivatives for medicinal purposes spread rapidly throughout Western medicine, as is evidenced in the report of the Committee on Cannabis Indica of the Ohio State Medical Society, published in 1860. In that report physicians told of success in treating stomach pain, childbirth psychosis, chronic cough, and gonorrhea with hemp products.[25] A Dr. Fronmueller, of Fuerth, Ohio, summarized his experiences with the drug as follows:

> I have used hemp many hundred times to relieve local pains of an inflammatory as well as neuralgic nature, and judging from these experiments, I have to assign to the Indian hemp a place among the so-called hypnotic medicines next to opium; its effects are less intense, and the secretions are not so much suppressed by it. Digestion is not disturbed; the appetite rather increased; sickness of the stomach seldom induced; congestion never. Hemp may consequently be employed in inflammatory conditions. It disturbs the expectoration far less than opium; the nervous system is also not so much affected. The whole effect of hemp being less violent, and producing a more natural sleep, without interfering with the actions of the internal organs, it is certainly often preferable to opium, although it is not equal to that drug in strength and reliability. An alternating course of opium and Indian hemp seems particularly adapted to those cases where opium alone fails in producing the desired effect.[25]

Because cannabis did not lead to physical dependence, it was found to be superior to the opiates for a number of therapeutic purposes. Birch, in 1889, reported success in treating opiate and chloral addiction with cannabis,[5] and Mattison in 1891 recommended its use to the young physician, comparing it favorably with the opiates. He quoted his colleague Suckling:

> With a wish for speedy effect, it is so easy to use that modern mischief-maker, hypodermic morphia, that they [young physicians] are prone to forget remote results of incautious opiate giving.
>
> Would that the wisdom which has come to their professional fathers through, it may be, a hapless experience, might serve them to steer clear of narcotic shoals on which many a patient has gone awreck.
>
> Indian hemp is not here lauded as a specific. It will, at times, fail. So do other drugs. But the many cases in which it acts well, entitle it to a large and lasting confidence.
>
> My experience warrants this statement: cannabis indica is, often, a safe and successful anodyne and hypnotic.[23]

In their study of the medical applications of cannabis, physicians of the nineteenth century repeatedly encountered a number of difficulties. Recognizing the therapeutic potential of the drug, many experimenters sought ways of overcoming these drawbacks to its use in medicine, in particular the following:

Cannabis products are insoluble in water.

The onset of the effects of medicinal preparations of cannabis takes an hour or so; its action is therefore slower than that of many other drugs.

Different batches of cannabis derivatives vary greatly in strength; moreover, the common procedure for standardization of cannabis samples, by administration to test animals, is subject to error owing to variability of reactions among the animals.

There is wide variation among humans in their individual responses to cannabis.

Despite these problems regarding the uncertainty of potency and dosage and the difficulties in mode of administration, cannabis has several important advantages over other substances used as analgesics, sedatives, and hypnotics:

The prolonged use of cannabis does not lead to the development of physical dependence. [11, 13, 14, 24, 39, 44]

There is minimal development of tolerance to cannabis products. (Loewe notes a slight "beginner's habituation" in dogs, during the first few trials with the drug, as the only noticeable tolerance effect.[20]) [11, 13, 14, 24, 44]

Cannabis products have exceedingly low toxicity.[9, 21, 22, 24] (The oral dose required to kill a mouse has been found to be about 40,000 times the dose required to produce typical symptoms of intoxication in man.)[21]

Cannabis produces no disturbance of vegetative functioning, whereas the opiates inhibit the gastrointestinal tract, the flow of bile and the cough reflex.[1, 2, 24, 44, 46]

Besides investigating the physical effects of medicinal preparations of cannabis, nineteenth-century physicians observed the psychic effects of the drug in its therapeutic applications.[4, 27, 33] They found that cannabis first mildly stimulates, and then sedates the higher centers of the brain. Hare suggested in 1887 a possible mechanism of cannabis' analgesic properties:

> During the time that this remarkable drug is relieving pain a very curious psychical condition manifests itself; namely, that the diminution of the pain seems to be due to its fading away in the distance, so that the pain becomes less and less, just as the pain in a delicate ear would grow less and less as a beaten drum was carried farther and farther out of the range of hearing.
>
> This condition is probably associated with the other well-known symptom produced by the drug; namely, the prolongation of time.[16]

Reynolds, in 1890,[33] summed up thirty years of his clinical experience using cannabis, finding it useful as a nocturnal sedative in senile insomnia, and valuable in treating dysmenorrhea, neuralgias including tic douloureux and tabetic symptoms, migraine headache and certain epileptoid or choreoid muscle spasms. He felt it to be of uncertain benefit in asthma, alcoholic delirium and depressions. Reynolds thought cannabis to be of no value in joint pains that were aggravated by motion and in cases of true chronic epilepsy.

Reynolds stressed the necessity of titrating the dose of each patient, increasing gradually every third or fourth day, to avoid "toxic" effects:

> The dose should be given in minimum quantity, repeated in not less than four or six hours, and gradually increased by one drop every third or fourth day, until either relief is obtained, or the drug is proved, in such case, to be useless. With these precautions I have never met with any toxic effects, and have rarely failed to find, after a comparatively short time, either the value or the uselessness of the drug.[33]

Concerning migraine headache, Osler stated in his text: Cannabis indica is probably the most satisfactory remedy.[11, 28]

In his definitive survey of the literature and report of his own studies, deceptively titled *Marihuana, America's New Drug Problem*, Walton notes that cannabis was widely used during the latter half of the nineteenth century, and particularly before new drugs were developed:

> This popularity of the hemp drugs can be attributed partly to the fact that they were introduced before the synthetic hypnotics and analgesics. Chloral hydrate was not introduced until 1869 and was followed

> in the next thirty years by paraldehyde, sulfonal and the barbitals. Antipyrine and acetanilide, the first of their particular group of analgesics, were introduced about 1884. For general sedative and analgesic purposes, the only drugs commonly used at this time were the morphine derivatives and their disadvantages were very well known. In fact, the most attractive feature of the hemp narcotics was probably the fact that they did not exhibit certain of the notorious disadvantages of the opiates. The hemp narcotics do not constipate at all, they more often increase than decrease appetite, they do not particularly depress the respiratory center even in large doses, they rarely or never cause pruritis or cutaneous eruptions and, most important, the liability of developing addiction is very much less than with opiates.[44]

The use of cannabis in American medicine was seriously affected by the increased use of opiates in the latter half of the nineteenth century. With the introduction of the hypodermic syringe into American medicine from England in 1856 by Barker and Ruppaner, the use of the faster acting, water-soluble opiate drugs rapidly increased. The Civil War helped to spread the use of opiates in this country; the injected drugs were administered widely—and often indiscriminately—to relieve the pain of maimed soldiers returning from combat. (Opiate addiction was once called the "army disease."[41]) As the use of injected opiates increased, cannabis declined in popularity.

Cannabis preparations were still widely available in legend and over-the-counter forms in the 1930s. Crump (Chairman, Investigating Committee, American Medical Association) in 1931 mentioned the proprietaries "Piso's Cure," "One Day Cough Cure" and "Neurosine" as containing cannabis.[44] In 1937 Sasman listed twenty-eight pharmaceuticals containing cannabis.[36] Cannabis was still recognized as a medicinal agent in that year, when the committee on legislative activities of the American Medical Association concluded as follows:

> . . . there is positively no evidence to indicate the abuse of cannabis as a medicinal agent or to show that its medicinal use is leading to the development of cannabis addiction. Cannabis at the present time is slightly used for medicinal purposes, but it would seem worthwhile to maintain its status as a medicinal agent for such purposes as it now has. There is a possibility that a re-study of the drug by modern means may show other advantages to be derived from its medicinal use.[32]

Meanwhile, in Mexico, the poor were smoking marijuana to relax and to endure heat and fatigue. (Originally marijuana was the Mexican slang word for the smoking preparation of dried leaves and flowering tops of the Cannabis sativa plant—the indigenous variety of the hemp plant.)

The recreational smoking of marijuana may have started in this country in New Orleans in about 1910, and continued on a small scale there until 1926, when a newspaper ran a six-part series on the use of the drug.[44] The fad subsequently spread up the Mississippi and throughout the United States, faster than local and state laws could be passed to discourage it. The use of "tea" or "muggles" blossomed into a minor "psychedelic revolution" of the 1920s. Narcotics officers encouraged the enactment of local prohibitory laws and eventually succeeded in bringing about restrictive Federal legislation. In 1937 Congress passed the Marihuana Tax Act, the finale to a series of prohibitory acts in the individual states. Under the new laws, the already dwindling use of cannabis as a therapeutic substance in medicine was brought to a virtual halt. In 1941, cannabis was dropped from the *National Formulary and Pharmacopoeia.*

Around the time of the passage of the Marihuana Tax Act, Walton postulated sites of action for cannabis drugs. Cortical areas, he found, are affected at low dosage, while at high dosage there seems to be a depressant effect on the thalamo-cortical pathways. Hyperemia of the brain appears to be a local phenomenon, unless centers controlling vasodilation might be located in the thalamo-cortical region. Similar possible mechanisms are suggested for the phenomenon of mild hypoglycemia, usual hunger and thirst and occasional lacrimation and nausea.[44]

Despite restrictive legislation, a few medical researchers have had the opportunity to continue the investigation of the therapeutic applications of cannabis in recent years. In his study of the medical applications of cannabis for Mayor La Guardia's committee, Dr. Samuel Allentuck reported, among other findings, favorable results in treating withdrawal of opiate addicts with tetrahydrocannabinol (THC), a powerful purified product of the hemp plant.[1, 24]

An article in 1949, buried in a journal of chemical abstracts, reported that a substance related to THC controlled epileptic seizures in a group of children more effectively than diphenylhydantoin (Dilantin(R)), a most commonly prescribed anticonvulsant.[9]

A number of experimenters, believing that cannabis products might be of value in psychiatry, have investigated the applications of various forms of them in the treatment of mental disorders. Cannabis had been used in the nineteenth century to treat mental illness.[19, 25, 45, 46] However, aside from some rather equivocal clinical studies, primarily in the treatment of depression,[29, 30, 35, 39] and another report of success in treating withdrawal from alcohol and opiate addiction,[42] no significant contemporary psychiatric studies involving cannabis therapy have been reported to date.

Many current "authoritative" publications unequivocally state that there is no legitimate medical use for marijuana. As compared with the 1800s, this century has seen very little medical research on the array of some twenty chemicals that are found in the hemp plant.[37]

Today's readers may tend to be skeptical about a report of a cure for gonorrhea published over a century ago.[19, 25] Such findings may bear reinvestigation, however, in the light of a report from Czechoslovakia in 1960 that cannabidiolic acid, a product of the unripe hemp plant, has bacteriocidal properties.[7] Some of the therapeutic applications reported in the early medical papers have been corroborated by later investigators, but for the most part the therapeutic aspects of cannabis remain to be re-explored under modern clinical conditions.

In the past twenty years, clinical and basic research on cannabis have dwindled to practically nothing. The record of tax stamps issued by the Federal Bureau of Narcotics for cannabis research, as compared with those for research on narcotic drugs, tells the story of the twenty-year "drought" in the investigation of cannabis products:[43]

	Users for Purposes of Research, Instruction, or Analysis	
Year	Narcotic Drugs	Marijuana
1938	.....	5
1941	94	...
1943	.....	43
1946	323	...
1948	.....	87
1951	078	...
1953	.....	18
1956	284	...
1958	.....	6
1961	344	...
1965	431	16

The rising non-medical use of marijuana both floated and was buoyed by the "psychedelic revolution" of the mid 1960s. The panicked reaction included a renewed scientific interest in the drug.

Eleven studies funded by the National Institute of Mental Health 1967 concerning cannabis were either specialized animal experiments, part of an observational sociologic study of a number of drugs, or explorations of chemical detection methods. No human studies were included.

Of the fifty-six projects funded during the next fiscal years 1968-69 only two used humans.[52] The next year was somewhat less cautious with eight out of thirty-five projects devoted to clinical studies.[53]

Some of the preliminary results are in from these studies. Much is still unpublished.

According to Harris, the toxicity factor of marijuana derivatives is over two hundred and that chronic smoking of marijuana is less harmful to the lungs than tobacco cigarettes.[49]

Domino described the cross tolerance of THC and alcohol in pigeons[47] corroborating Jones' clinical observations.[50, 51] These rediscoveries demand therapeutic trial.

In August 1971 certain secret Defense Department documents were declassified. While at NIMH as a consulting research psychiatrist in 1967 I had become aware of the existence of clandestine research at Edgewood Arsenal in Maryland.

From 1954-59 Dr. Van M. Sim was in charge of the project. He reported to *Medical World News:* "Marijuana . . . is probably the most potent anti-epileptic known to medicine today."[49]

Dr. Harold F. Hardman, then with the Defense contracting group at the University of Michigan's Department of Pharmacology reported effects of profound hypothermia and felt marijuana derivatives to be potentially quite useful in brain and traumatic surgery.[48]

The principal focus was, however, on the possible use of THC homologs as incapacitating agents. Besides the aforementioned government agency and university, the private sector was represented by the Arthur D. Little Company of Cambridge, Massachusetts.[55]

Recently in the course of a study of effects on driving, it was incidentally discovered that cannabis lowers intraocular pressure, thus being possibly useful in the treatment of glaucoma.[56]

Thus, a helix is made. Modern technologic methods confirm O'Shaughnessy's observations 130 years ago. After swinging away from the knowledge of marijuana's properties through the worship of new synthetics, an unrelated rise of marijuana use socially, illegalization and removal from availability for clinical use, medicine rediscovers marijuana.

The flame of knowledge is at a low ebb, kept alive by isolated scientists and clinicians; it is now being rekindled by these recent circumscribed revelations.

Unless existing restrictive state and federal laws governing marijuana are changed, there will be no future for either modern scientific investigation or controlled clinical trial by present-day methods.

The tide is turning. The Federal Bureau of Narcotic and Dangerous Drugs, National Institute of Mental Health and The Food and Drug Administration Joint Committee recently authorized human therapeutic trial of cannabis products. We may now look forward to reinvestigation of the numerous possible medical uses of marijuana.[54]

A concerted effort is indicated for full-scale investigations where knowledge is lacking. Acute and chronic effects of cannabis should be restudied by modern methods. Metabolic pathways of action and detoxification need exploration by the pharmaceutical means of today. Chronic toxicity studies must be undertaken to examine possible long-term effects of cannabis use. (Cunningham in 1893 found no gross central nervous system changes with chronic administration of hemp drugs to primates over several months.[8])

Medical science must again confront the problems of cannabis' insolubility in water and its variable strength. Since human and animal responses vary a great deal, individual doses must be titrated. The popular "double blind" type of study methods will require revision. The reporting of personal drug experience was once acceptable to the scientific community.[15, 22, 25, 29, 34, 39, 44] Humans who are drug "sophisticates" will again become indispensable to psychoactive drug research, as wine tasters are to the wine industry, for only humans can verbally report the subtle and complex effects of these substances.

Government agencies having stimulated little significant clinical research in this field, the pharmaceutical industry should take the initiative in starting basic research and clinical studies into the purified congeners of cannabis for their chemical properties, pharmacologic qualities and therapeutic applications.

Possible Therapeutic Applications of Tetrahydrocannabinols and Like Products

Analgesic-hypnotic [16, 18, 19, 23, 25, 27,33, 45]
Appetite stimulant [18, 25, 27]
Antiepileptic-antispasmodic [9, 18, 27, 33, 40, 45, 49]
Prophylactic and treatment of the neuralgias, including migraine and tic douloureux [3, 16, 17, 18, 19, 23, 25, 28, 31, 33, 38, 40, 45]
Antidepressant-tranquilizer [6, 16, 18, 19, 23, 25, 31, 33, 40, 45]
Antiasthmatic [18, 25, 45]
Oxytocic [25, 45]
Antitussive [3, 16, 25, 38, 45]
Topical anesthetic [8]
Withdrawal agent for opiate and alcohol addiction [5, 23, 24, 38, 42, 45, 47, 50, 51]
Childbirth analgesic [12]
Antibiotic [7]
Intraocular hypotensive [56]
Hypothermogenic [48]

Medicine, being an empiric art, has not hesitated in the past to utilize a substance first used for recreational purposes, (Morton "discovered" ether for anesthetic purposes after observing medical students at "ether frolics" in 1846. [Howard W. Haggard: *Devils, Drugs and Doctors,* Harper and Row, New York, 1929, p. 99.]) in the pursuit of the more noble purposes of healing, relieving pain and teaching us more of the workings of the human mind and body. The active constituents of cannabis appear to have remarkably low acute and chronic toxicity factors and might be quite useful in the management of many chronic disease conditions. More reasonable laws and regulations controlling psychoactive drug research are required to permit significant medical inquiry to begin so that we can fill the large gaps in our knowledge of cannabis.

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"We are able to inform you that ancient grandfathers, the great stands of cedar and redwoods, are in danger of extinction by chainsaws. The maple, chief of trees, is dying from the top down, as was prophesied by Ganiodaiio, Handsome Lake, in 1799. Great rivers and streams are filled with chemicals and filth, and these great veins of life are being used as sewers.

"We were told the female is sacred and carries the gift of life as our Mother Earth, the family is the center of our life and that we must build our communities with life and respect for one another.

"We were told the Creator loves children the most, and we can tell the state of affairs of the nation by how the children are being treated.

"When we return to Onondaga, we will begin our Great Midwinter ceremonies. We will tie the past year in a bundle and give thanks once again for another year on this earth.

"This was given to us, and we have despoiled and polluted it. If we are to survive, dear friends and colleagues, we must clean it up now or suffer its consequences.

. . . But Lyons also remembered turning to Leon Shenandoah, chief of the Grand Council of the Six Nations Confederacy. "My chief, he doesn't say much, but I asked and he said, 'They're not taking it serious enough. I don't think they realize what's going to happen to them. What's coming.' He would have liked to see less posturing. We have our prophecies. We know what is coming down the road.'"

— Onondaga Chief Oren Lyons, on the Global Forum he helped organize on Environment and Development for Survival held in Moscow, January 15 to 19, 1990.

A STRATEGY TO DEREGULATE AMERICAN HEMP

In 1937, a Special Interest Group Got the Cannabis Industry Banned by Attacking "Marijuana" While Concealing the Many Valuable Uses of the Plant. Today, a Public Interest Group, BACH, Intends to Deregulate Cannabis by Promoting "Hemp" and Showing How Everyone Benefits From This Reform.

We start with a natural core constituency: Civil libertarians, Rock-n-Roll/Rasta/Jazz music fans, paraphernalia makers and users, medical users, sympathetic media and officials, Vietnam vets, entrepreneurs, the art community and the "Sixties Generation." We can rapidly win over farmers, economists, environmentalists, holistic/natural medicine advocates, the unemployed, hunger relief projects, tax reformers and free market/anti-Big Government forces and others.

THE FARMING COMMUNITY is our linchpin, linking the Northwest, Midwest and South. It is in financial trouble and will be the first major beneficiary of hemp commerce.

TEXTILE, FUEL, PAPER INDUSTRIES AND MARKETS, MEDICAL AND RECREATIONAL USERS are concentrated in coastal and urbanized population centers.

SHIPPING, INVESTORS, COMMODITIES MARKETS AND BANKS link these regions, create a role for the Interstate Commerce Commission (ICC) in deregulating hemp and add to the financial pressure for reform.

We anticipate strong resistance in pharmaceuticals and plastics, where entrenched forces stand to lose a share of the market when hemp products come into common use.

But this pressure will soon be offset by the support of hemp industry consumers, investors and workers who benefit from new spin-off industries.

CAMPAIGN SUMMARY

PHASE ONE: **ORGANIZATION:** Develop and target literature and lobby campaigns, alert our consituency, explain the economic and social significance of this reform to potential allies and win "celebrity" endorsements. We need to demonstrate an interstate supply and demand network to establish the economic vitality of hemp commerce, thereby drawing financial and political support and setting the stage for ICC intervention against state laws that impede trade.

PHASE TWO: **PUBLIC RELATIONS:** Launch a program of speaking engagements and advertisments (PSAs and paid) to redefine the hemp debate, sway the general public and create a climate of support based on people’s self-interest. Our goal is to disassociate hemp from "drugs" and align it with jobs, prosperity and traditional American self-sufficiency.

PHASE THREE: **DEREGULATION:** Introduce non-threatening deregulation legislation, support initiatives/referenda, set up test cases to pursue legalization through the courts and use business pressure to win ICC action.

BACH Business Alliance for Commerce in Hemp
P.O. Box 71903, Los Angeles, CA 90071-0093
310/288-4152