

# The Emperor Wears No Clothes

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## Chapter 9

### Economics: Energy, Environment and Commerce

We have explained what hemp has historically meant to this country's economy. Now, we must also consider the future of hemp.

We predict that the net effect of ending American hemp prohibition will be to generate "ripple effect" economics - a revitalized American agriculture producing hemp as the raw material for a multitude of industries creating millions of good jobs for skilled and semi-skilled professional workers throughout America. The resulting wealth will remain in local communities and with farmers, smaller businesses and entrepreneurs like you!

We now ask you to look at. . .

#### Energy & the Economy

The book Solar Gas, Science Digest, Omni magazine, The Alliance for Survival, the Green Party of Germany, the United States and others put the total figure of our energy costs at 80% of the total dollar expense of living for each human being.

In validation, 82% of the total value of all issues traded on the New York Stock Exchange and other world stock exchanges, etc. are tied directly to:

- Energy producers such as Exxon, Shell Oil, Conoco, Con-Edison, and so forth.
- Energy transporters such as pipeline companies, oil shipping and delivery companies.
- Refineries and retail sales of Exxon, Mobil, Shell, So. California Edison, Con-Edison, etc.

Eighty-two percent of all your money means that roughly 33 of every 40 hours you work goes to pay for the ultimate energy cost in the goods and services you purchase, including transportation, heating, cooking, and lighting. Americans - 5% of world population - in our insatiable drive for greater "net worth" and "productivity," use 25-40% of the world's energy. The hidden cost to the environment cannot be measured.

Our current fossil energy sources also supply about 80% of the solid and airborne pollution which is quickly poisoning the environment of the planet. (See US EPA report 1983-96 on the coming world catastrophe from carbon dioxide imbalance caused by burning fossil fuels). The best and cheapest substitute for these expensive and wasteful

energy methods is not wind or solar panels, nuclear, geothermal and the like, but the evenly distributed light of the sun for growing biomass.

On a global scale, the plant that produces the most net biomass is hemp. It's the only annually renewable plant on Earth able to replace all fossil fuels.

In the Twenties, the early oil barons such as Rockefeller of Standard Oil, Rothschild of Shell, etc., became paranoically aware of the possibilities of Henry Ford's vision of cheap methanol fuel,\* and they kept oil prices incredibly low - between one dollar and four dollars per barrel (there are 42 gallons in an oil barrel) until 1970 - almost 50 years! Prices were so low, in fact, that no other energy source could compete with it. Then, once they were finally sure of the lack of competition, the price of oil jumped to almost \$40 per barrel over the next 10 years.

*\* Henry Ford grew marijuana on his estate after 1937, possibly to prove the cheapness of methanol production at Iron Mountain. He made plastic cars with wheat straw, hemp and sisal. (Popular Mechanics, Dec. 1941, "Pinch Hitters for Defense.") In 1892, Rudolph Diesel invented the diesel engine, which he intended to fuel "by a variety of fuels, especially vegetable and seed oils."*

By the year 2000, the U.S. will have burned 80% of its petroleum resources, while our coal reserves may last 100-300 years longer. But the decision to continue burning coal has serious drawbacks. This high-sulfur coal is responsible for our acid rain, which already kills 50,000 Americans and 5,000-10,000 Canadians annually. In addition, the acid rains destroy the forests, rivers, and animals.

(Brookhaven National Laboratory, 1986.)

Conversion to biomass fuels should begin immediately to stop both planetary pollution and lemming-life genocide, and to make us naturally energy independent.

### **Clean, Renewable Fuel Source**

Fuel is not synonymous with petroleum and coal. Biomass energy systems can supply a sustainable source of fuel and will create millions of new clean jobs. Hemp biomass derived fuels and oils can replace every type of fossil fuel energy product.

During transpiration, the growing hemp plants "breathe in" CO<sub>2</sub> (carbon dioxide) to build cell structure; the leftover oxygen is breathed out, replenishing Earth's air supply. Then when the carbon rich hemp biomass is burned for energy the CO<sub>2</sub> is released back into the air. The CO<sub>2</sub> cycle comes close to ecological balance when the new fuel crop is grown the next year. Growing trees keeps 10 times the carbon dioxide in the Earth by keeping the infrastructure of the microbes, insects, plants, fungi, etc. alive for each tree. The older and bigger the tree, the more carbon dioxide is kept out of the atmosphere.

(Not all the biomass crop gets converted into fuels. Some leaves, stalk stubble and all of the roots remain in the field as crop residues. This carbon rich organic matter adds to the soil fertility, and with each passing season a little more carbon dioxide from the air enters to soil, so the biomass fuel crops slowly reduce the amount of carbon dioxide from our polluted atmosphere.)

Biomass conversion through pyrolysis (applying high heat to organic material in the absence of air or in reduced air) produces clean burning charcoal to replace coal. Sulfur emitted from coal fired boiler smokestacks is the primary cause of acid rain. Measuring acidity on the pH scale, the rainfall in New England often falls between household vinegar and lemon juice. This is bad for every cell membrane the rain comes in contact with, doing the most harm to the simplest life forms. Charcoal contains no sulfur, so when it is burned for industry no sulfur is emitted from the process.

The biomass "cracking" process also produces non-sulfur fuel oils capable of replacing fossil fuel oils such as diesel oil. And the net atmospheric CO<sub>2</sub> doesn't rise when biomass derived fuel oils are burned.

Pyrolysis uses the same "cracking" technology employed by the petroleum industry in processing fossil fuels. The gasses that remain after the charcoal and fuel oils are extracted from hemp can be used for driving electric power co-generators, too!

This biomass conversion process can be adjusted to produce charcoal, methanol and fuel oils to process steam, as well as chemicals important to industry: acetone, ethyl acetate, tar, pitch and creosote.

The Ford Motor Co. successfully operated a biomass "cracking" plant in the 1930s at Iron Mountain, Michigan, using trees for cellulose fuels. (Earth-friendly hemp is at least four times as efficient as trees for fuel, and is sustainable.)

"Progress in Biomass Conversion" Vol. 1, Sarkanen & Tillman, editors; Energy Farming in America, Osburn, Lynn, Access Unlimited.

Hempseed contains 30% (by volume) oil. This oil has been used to make high-grade diesel fuel oil and aircraft engine and precision machine oil. Throughout history, hempseed oil was used for lighting in oil lamps. Legend says the genie's lamp burned hempseed oil, as did Abraham the prophet's. In Abraham Lincoln's time only whale oil came near hempseed oil in popularity for fuel.

### **Biomass for Energy Abundance**

Hemp stems are 80% hurds (pulp byproduct after the hemp fiber is removed from the plant). Hemp hurds are 77% cellulose - a primary chemical feed stock (industrial raw material) used in the production of chemicals, plastics and fibers. Depending on which U.S. agricultural report is correct, an acre of full grown hemp plants can sustainably

provide from four to 50 or even 100 times the cellulose found in cornstalks, kenaf, or sugar cane - the planet's next highest annual cellulose plants.

In most places, hemp can be harvested twice a year and, in warmer areas such as Southern California, Texas, Florida and the like, it could be a year-round crop. Hemp has a short growing season and can be planted after food crops have been harvested.

An independent, semi-rural network of efficient and autonomous farmers should become the key economic player in the production of energy in this country.

The United States government pays (in cash or in "kind") for farmers to refrain from growing on approximately 90 million acres of farmland each year, called the "soil bank."

And 10-90 million acres of hemp or other woody annual biomass planted on this restricted, unplanted fallow farmland (our Soil Bank) would make energy a whole new ball game and be a real attempt at doing something to save the Earth. There are another 500 million marginal unplanted acres of farmland in America.

Each acre of hemp would yield 1,000 gallons of methanol. Fuels from hemp, along with the recycling of paper, etc., would be enough to run America virtually without oil.

### **Family Farms or Fossil Fuels?**

In 2000, when our petroleum resources have dwindled to 20% of their original size, America will have 6 choices to avoid economic and environmental ruin:

- Use more coal, further polluting the environment;
- Continue to fund nuclear power and risk annihilation of the planet.
- Convert forests into fuel, permanently altering life sustaining ecosystems;
  - Continually wage wars over foreign oil;
- Build massive wind, solar, geothermal, and tidal energy systems;
  - Establish energy farms to grow biomass fuels.

The last two choices are the only rational, life sustaining choices.

Farming only 6% of continental U.S. acreage with biomass crops would provide all of America's gas and oil energy needs, ending dependence upon fossil fuels.

Manahan, Stanley E., Environmental Chemistry, 4th edition.

Hemp is Earth's number one biomass resource; it is capable of producing 10 tons per acre in four months. Hemp is easy on the soil,\* sheds its lush foliage throughout the season,

adding mulch to the soil and helping retain moisture. Hemp is an ideal crop for the semi-arid West and open range land.

\* Adam Beatty, vice president of the Kentucky Agricultural Society, reported instances of good crops of hemp on the same ground for 14 years in a row without a decline in yield. Betty, A., Southern Agriculture, C.M. Saxton & Co., NY: 1843, pg. 113. USDA Yearbook, 1913.

Hemp is the only biomass source available that is capable of making the U.S. energy independent. Ultimately, the world has no other rational environmental choice but to give up fossil fuels.

### **So, What's the Catch?**

The "catch" is obvious: The energy companies! They own most of the petrochemical, pharmaceutical, liquor, and tobacco companies, and are intertwined with insurance companies and banks.

According to the press, many politicians now in power are bought and paid for by the energy companies, and their U.S. government arm is the CIA - "The Company" - (Robert Ludlum, etc.). The Bush/Quayle Administration was uniquely tied to oil, newspapers, pharmaceuticals - and the CIA.

The world struggle for money is actually a struggle for energy, as it is through energy that we may produce food, shelter, transportation and entertainment. It is this struggle which often erupts into open war. If we remove the cause, these conflicts may never occur.

(Carl Sagan; and U.S. EPA prediction, 1983, of worldwide disaster in the making with 30 to 50 years.)

### **Energy Security**

If introduced to Third World nations, hemp biomass could drastically cut our overseas aid and reasons for war, while raising the quality of life there by quantum leaps.

New, non-polluting industries will spring up everywhere. The world economy will boom like never before. The race of man would at last be betting on environmental survival instead of indulging in the lemming-like (suicidal) consumption of fossil fuel, which threatens all life on the planet.

### **Free Enterprise and High Profit**

There are many other areas of the economy that would benefit from ending hemp prohibition and the resulting stimulation of commerce in rediscovered hemp products, according to the Hempstead Company, Ecolution, The Body Shop, Hanf Haus, etc.

Legal hemp will return billions of dollars worth of natural resource potential back to the farmers and bring millions of good jobs in energy production to America's heartland.

Hemp energy farmers will become our nation's largest producers of raw materials.

Family farms will be saved. Crops can be tailored to the needs of the nation. Hemp can be grown for BDF (biomass derived fuels) resources at about \$30 per ton. Hempseed crops will again supply the paint and varnish industries with a superior organic and life-sustaining alternative to petrochemicals. Hempseed oil has chemical properties similar to linseed oil. And oil has chemical properties similar to linseed oil. And the market is wide open for highly nutritious and delicious foods made from hempseed with its health-giving essential fatty acids and proteins.

Hemp grown for fiber will take the paper and textile industry out of the hands of the multinational corporations, and back to the local communities.

Research by various hemp business associations indicate there are around 50,000 non-smoking commercial uses of hemp that are economically viable and market competitive.

These include:

### **Long-Wearing High Fashion**

Drawing on hemp fiber's special attributes: absorbency, insulation, strength and softness, clothing manufacturers and designers will once again put hemp into linen to produce new lines of durable and attractive clothing, rugs and textiles of all kinds.

The arrival of imported hemp-cotton blended clothing from China in 1989 marked the beginning of a new era for the rapidly-changing world of fashion. And now, in 1998, companies such as Hempstead Company (Santa Ana, CA); CHA - Coalition for Hemp Awareness (Chandler Heights, AZ); Hemp Connection (Whitehorn, CA), Ecolution (Fairfax, VA); and Ohio Hempery (Guysville, OH) all create beautiful and durable fashions and accessories from many varieties of 100% hemp fabric imported from China, Hungary, Romania, and Poland.

While we applaud the efforts of these nations in supplying first-rate hemp fabrics, we look forward to the day when U.S. hemp fabric will share the runway!

Outerwear, warm bed sheets, soft towels (hemp is four times more water absorbent than cotton), diapers, (even disposable ones that you don't have to cut down trees to make), upholstery, wall coverings, natural rugs, even the world's best soap - all these can now be designed and made from 100% hemp; generally better, cheaper, more durably, and ecologically safer.

Trade barriers on hemp and laws restricting the use of imported cannabis fibers must be removed.

Right now textiles and apparel are the biggest share of imports into the U.S., at 59%. In 1989, textile imports accounted for 21% of the U.S. merchandise trade deficit. Foreign governments often subsidize their textile industries and do not require companies to follow environmental and health regulations.\* Hardy hemp does not cause the huge range of environmental problems associated with cotton.

\* The Washington Spectator, Vol. 17, No. 4; Feb. 15, 1991.

The United States imports more textiles than anything else. The government no longer obstructs hemp textile and apparel importation. But, hemp textiles will not be fully cost competitive until hemp fiber can be grown and processed domestically, avoiding bloated federal import fees and lowering the costs of transportation.

### **Sturdier Paper Products**

The devastated environments and job markets of the American Northwest and other timber regions stand to make a dramatic comeback once hemp is re-introduced to the domestic paper industry.

Recent studies indicate that depletion of the ozone layer threatens to substantially reduce world loblolly pine production (the major source of pulp in paper) - by up to 30% or even 50%, depending on the fluctuation of the density of the ozone shield. But hemp not only resists the damage caused by increased ultraviolet radiation - it actually flourishes in it.

Increased UV radiation causes hemp to produce more glandular oils and increases the weight of the plant.

(Teramura, Alan, University of MD study, Discover Magazine, September 1989.)

Paper mills can return to full production levels and loggers will find new work in hemp trades.

Truck drivers can continue to haul pulp to the mills, and lumber for construction, although the price of lumber will go down as other demands on our timber resources are reduced by substituting farm-grown hemp for forest-grown wood pulp.

(William Conde, Conde Redwood Lumber, Jim Evans, Oregon Hemp)

There will also still be a lot of work to do in reforestation. Our rivers will go through a period of recovery when hemp replaces wood pulp in the paper industry, resulting in a 60-80% reduction of paper-making chemicals being dumped into them.

This means more fish and more fishing, as well as increased camping and tourism in the beautiful and vital new-growth forest regions - and the spared old-growth forests.

## **Biodegradable Replacement for Plastic**

Cellulose is a biodegradable organic polymer. Coal tar, the primary resource for synthetic polymers like nylon, is a non-biodegradable fossil resource. It is not part of the living ecology of Earth. It smothers life wherever it is dumped or spilled.

From hemp, a source of high-grade cellulose, comes paper that is stronger and has better folding endurance than wood pulp paper.\* Hemp cardboard and paper bags will last longer, with a more useful secondary life, than similar products made from wood pulp or plastic.

\* Dewey & Merrill, Bulletin #404, U.S. Dept. of Ag. 1916.

## **Spin-Off Trades & Taxes**

Biochemical resources obtained from hemp can be used in literally tens of thousands of products from paint to dynamite. Each application means new business opportunities and new jobs.

As each new hemp trade develops, money will flow from it to re-energize seemingly unrelated areas of the economy. The American worker and soon-to-be-rich entrepreneurs will bring millions of new jobs and new products to the marketplace.

The will also buy millions of homes, cars and other non-hemp goods - or will they be hemp also? - thus stimulating a real economic expansion based on the "ripple-out" effect, rather than former President Reagan's voodoo "trickle-down" economics which, in fact, pumped money directly into the bloodstream of corporate America rather than benefiting America's heartland.

Revived farms mean more purchases of equipment and each new business creates spin-off jobs in the shipping, marketing and commodities areas.

Farms, banks and investment houses would also realize large profits, and the billions of hemp-dollars in the legitimate economy would increase tax revenues and increase the liquid capital available for investment and purchasing of consumer goods.

Federal, state and local governments would realize a windfall of hundreds of millions of dollars in tax revenues without raising taxes or insanely continuing to poison the earth.\*

"If the marijuana market was legal, state and federal governments would collect billions of dollars annually," said Ethan Nadelmann, former assistant professor of politics at Princeton University (who is now in 1998 director of The Lindesmith Foundation). "Instead, they expend billions in what amounts to a subsidy of organized criminals."

(L.A. Times, Nov. 20, 1989, pg. A-18.)

George Soros' Lindesmith Foundation is supporting many of the medical marijuana and re-legalization state initiatives currently going on around the United States.

In fact, the Lindesmith Foundation financially supported Dennis Peron's medical marijuana initiative (Proposition 215) in California, that passed in 1996.

In 1997-98, Soros funded medical marijuana initiatives in such states as Washington, Oregon, Washington, D.C., Maine and Colorado, and helped fund the referendum that was successful in stopping Oregon's legislature and governor from re-criminalizing cannabis in June 1997.

### **Green Economy**

When American farmers grown hemp to supply American industries with the primary feedstock for fiber, fabric, fuel, food, medicines, plastics and recreational/relaxation herbal products we will see a rapid greening of the land and economy.

The green economy based upon the use of agricultural resources to supply industry will create a diversified locally based system of production. This decentralized green economy will enable everyone to participate and share in the wealth of a truly free market democracy. For there can be no true democracy unless every citizen has the opportunity to share in the wealth of the nation.

### **Land and Soil Reclamation**

Land reclamation is another compelling economic and ecological argument for hemp cultivation.

Until this century, our pioneers and ordinary American farmers used cannabis to clear fields for planting, as a fallow year crop, and after forest fires to prevent mud slides and loss of watershed.

Hemp seeds put down a 10 to 12-inch root in only 30 days, compared to the one-inch root put down by the rye or barley grass presently used by the U.S. Government.

Southern California, Utah and other states used cannabis routinely in this manner until about 1915. It also breaks up compacted, overworked soil.

In the formerly lush Himalayan region of Bangladesh, Nepal and Tibet there is now only a light moss covering left as flash floods wash thousands of tons of topsoil away.

Independent Bangladesh, (formerly East Bengal, India) which literally means "canna-bis-land-people" (it was formerly called East Bengal province, a name derived from *bhang-cannabis*, *la-land*), signed an "anti-drug" agreement with the U.S., promising not to grow hemp in the 1970s. Since that time, it has suffered disease, starvation and decimation, due to unrestrained flooding.

Hempseeds broadcast over eroding soil could reclaim land the world over. The farmed out desert regions can be brought back year after year, not only slowing the genocide of starvation, but easing threats of war and violent revolution.

### **Natural Guard**

Instead of a National Guard, why not establish a Natural Guard of environmental soldiers to be our front line for survival - planting trees, harvesting biomass (e.g. hemp) from marginal farm lands?

A Natural Guard of electricians, plumbers, engineers and laborers who work rebuilding the infrastructure of America; our roads, bridges, dams, canals, sewers, railroad tracks, etc.

Isn't this the humane, civilized and socially responsible way to use our human resources, rather than warehousing people like animals in prisons?

### **World War II:**

Our energy needs are an undeniable national security priority. But first, let's look what Uncle Sam can do when pushed into action:

In early 1942, Japan cut off our supplies of vital hemp and coarse fibers. Marijuana, which had been outlawed in the United States as the "Assassin of Youth" just five years earlier, was suddenly safe enough for our government to ask the kids in the Kentucky 4-H clubs to grow the nation's 1943 seed supply. Each youth was urged to grow at least half an acre, but preferably two acres of hemp for seed.

(University of Kentucky Agricultural Extension, Leaflet 25, March 1943)

In 1942-43 all American farmers were required to attend showings of the USDA film *Hemp for Victory*, sign that they had seen the film, and read a hemp cultivation booklet. Hemp harvesting machinery was made available at low or no cost. Five-dollar tax stamps were available and 350,000 acres of cultivated hemp was the goal by 1943.

"Patriotic" American farmers, from 1942 through 1945, who agreed to grow hemp were waived from serving in the military, along with their sons; that's how vitally important hemp was to America during World War II.

Meanwhile, from the late 1930s through 1945, "patriotic" German farmers were given a comic book-like instruction manual by the Nazi government, urging them to grow hemp for the war.

**The Most Recent Time America Asked Our Farmers to Grow More Marijuana . . .**

**. . . was in 1942, in a 14-minute propaganda piece entitled:**

## Hemp for Victory

*Following is a transcript of the film's dramatic narrative (courtesy of High Times):*

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 American 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, and 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 the 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, through 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 sown closely, the closer the rows, the better. These rows are spaced about four inches. This hemp has been broadcast. Either way it should be sown 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 on the left yield the most fiber and the best. Those on the right are too course 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 practiced 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 corm stubble. When the cutter bar is much shorter than the hemp is tall, overlapping occurs. 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 1943 is 300,000 acres of fiber hemp. Thus hemp, the old standby cordage fiber, is staging a strong comeback.

This is Kentucky hemp going into the dryer at a 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. All such plants will presently be turning out products spun from American-grown hemp: twine of various kinds for tying and upholsterer's work; rope for marine rigging and towing; for hay forks, derricks, and heavy duty tackle; light duty fire hose; 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; and other ships accordingly. 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!"**