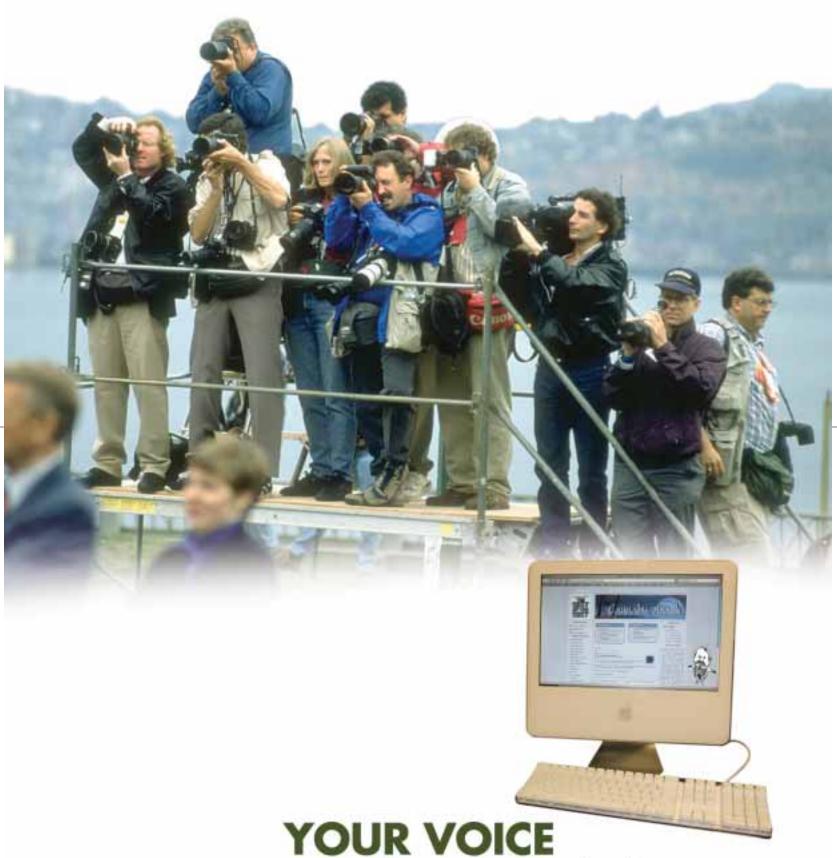


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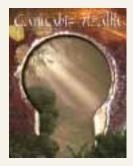
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Editorial



Barb St. Jean:

Over the years, many people have asked me why I use cannabis. Medication choice is a very personal question, one that is usually only shared with loved ones, health care professionals or healers, however as the cannabis debate continues to rage on, we frequently find ourselves defending our personal mythologies, until we get to the point where we just start refusing to answer. After all, no one ever asks what kind of condoms we use...but maybe we should. Harm reduction principles are well understood in the practice of safe sex, so why not cannabis in the practice of achieving personal wellness.

The search for wellness is about more than cannabis, it's about learning to listen to your body in the personal quest for a better quality of life. As Brian Froud and Jessica Macbeth have illuminated in their book, THE FAERIES' ORACLE; true healing must take place on all levels at once—body, mind, and spirit. These levels are inextricably linked, all one piece, and we cannot expect to change one without changing the others. Our bodies do not do things all on their own. The links between different aspects of being are many, complex, and often obscure. And yet, the principle of healing them is simplicity itself. We need only to let go of the things that are hurting us and nurture ourselves with the things that benefit us. So simple! So difficult!

I would like to explain that healing does not always mean that you will be without illness or that a life will not be terminated at what we think is a premature time. To heal means to be whole, living the life you have to its fullest. This is achieving wellness.

I believe my illness, Systemic Lupus Erythematosus (SLE), dates back to pre birth; however it took many doctors and years of research on my part to finally come to that conclusion.

Lupus is considered the disease of 1000 faces, thought to be genetically linked and triggered into life by a chemical or toxin exposure. During my mother's pregnancy, she suffered from chronic kidney stones and relentless pain and was medicated with many experimental pharmaceuticals of the fifties/sixties. No fault to the medical profession, they did what they thought was the right thing at the time, and the knowledge of

potentially dangerous or long-term side effects were little known, however, I believe it was the trigger that caused my immune system to become very dysfunctional.

Imagine seeing inside the workings of a healthy body. I envision antibodies like an army of protector ants; all working collectively to seek out and eliminate any threats of danger. Amazing healing properties, if everything works as it should, but if their management systems are malfunctioning, as in my case, big problems can occur. My body lives with a whole bunch of antibodies, still on that warrior's path, who are very misdirected and misinformed. They often show up at the wrong event and for no apparent or rational reasons decide to stay and party on...

Our bodies and minds tend to react badly to the unwieldiness and immediately send out signals of distress in the form of bizarre symptoms, which can include; migraines, neurological problems, organ and blood involvement, loss of sight, chronic pain, debilitating fatigue and many others. They come and go at will or until you stop their party – which is not very easy at times.

When all conventional medical options have been explored and you have reached the point when you start asking; what's worse "the cause or the cure" and your doctor tells you there is nothing more they can do anyways, you find yourself evaluating the quality of your life and what you are prepared to settle for or not.

In 1996, my GP came right out and told me to go buy some pot. He said that it might help relieve some of the symptoms, but if nothing else, it might help me smile again. Having smoked pot in my teenage years, and really, who didn't try marijuana in the 60's or 70's, I knew from experience it would not hurt me, but it was still a big decision that turned

into a logistic nightmare when I tried to find it. Working as an investment banker, in a very conservative environment at the time, I couldn't just stand on the corner waiting for a dealer to wander by.

In 2000 I attended the very first AGM of the Vancouver Compassion Society, and from that day forward I made a vow to try and help others that were in the same position as me. Just finishing 6 years worth of medical cannabis & drug policy reform research, I can honestly say; I have a very clear understanding of just how dysfunctional our current medical and bureaucratic systems truly are. The similari-

ties to an immune system, that has run amuck, are quite uncanny. Who knows if a cure will ever be found...

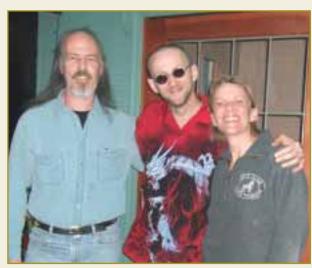
Why do I use cannabis? Because it helps! The immunosuppressant, pain, stress, nausea, etc. relieving qualities of cannabis are well known, at least by the people who use it. And really, that's what it all about, isn't it? It comes down to personal choice and our right to wellness. Cannabis does not take my symptoms away, but it allows me to place them in a different perspective and it helps me to get on with my life of living.

Denny Lillico recently came to visit us in Grand Forks, now his is an amazing story. If you are ever unsure, as to whether or not you believe cannabis helps sick people, all you need to do is have a visit with Denny and see it for yourself. The proof is in the seeing, believing and then trusting. Barb St.Jean

"Angels are said to be the thought forms of God, and heavenly messengers. They are the form builders of the universe and the embodiments of divine will, perched at the top of the continuum of spiritual beings flowing downward to the smallest of faery creatures. All angels mediate cosmic and spiritual forces and will come to our aid when we call upon them. Angels could be called grown-up faeries – or, to put another way, faeries are little angels".

Brian Froud





Brian McAndrew, Denis Lillico, Lorraine Langis



By Lester Grinspoon MD

"Unless we put medical freedoms into the Constitution, the time will come when medicine will organize into a...dictatorship. To restrict the art of healing to one class of men and deny equal privileges to others will constitute the Bastille of medical science. All such laws are un-American and despotic and have no place in a republic. The Constitution of this republic should make special privilege for medical freedom as well as religious freedom."

Benjamin Rush, physician and signer of the Declaration of Independence

The medical marijuana problem is a Janus-like conundrum; one view of the problem is seen through the eyes of patients and another through those of their government. One face regards with dismay the problem of denying marijuana to the growing number of pained, impatient patients who find it useful, often more useful, less toxic and cheaper than the legally available medications. Through the patients' eyes the problem is, of course, how to acquire and use this medicine without swelling the ranks (already more than 700,000 annually) of those who are arrested for using this illegal substance and how to avoid jeopardizing job security through random urine testing. The other face, the backward looking one, is that of an obdurate government as it defensively and inconsistently insists that "marijuana is not a medicine", and backs up this ill-informed, arrogant position with the full force of its vast legal power as it is presently doing in the state of California.

There are many thousands of patients who currently use cannabis as a medicine. Only seven are allowed to use it legally. They are the only survivors among the several dozen patients who were awarded Compassionate Use INDs during a period of time from 1976 until 1991 when the government halfheartedly acknowledged that marijuana has medicinal properties. This program was actually discontinued because of the exponentially growing number of

Compassionate IND applications; the official reason was provided by James O. Mason, then chief of the Public Health Service: "It gives a bad signal. I don't mind doing that if there is no other way of helping these people... But there is not a shred of evidence that smoking marijuana assists a person with AIDS ". Each of the surviving IND recipients receives monthly a tin containing enough rolled marijuana joints to treat his or her symptoms for that month. Because the quality of the

cannabis is poor, it requires more inhalation than a superior quality medicinal cannabis would. In fact, some of the recipients have been known to supplement this Government Issue with better quality street marijuana.

In 1985 the Food and Drug Administration (FDA) approved dronabinol (Marinol) for the treatment of the nausea and vomiting of cancer chemotherapy. Dronabinol is a solution of synthetic tetrahydrocannabinol in sesame oil (the sesame oil is meant to protect against the possibility that the contents of the

capsule could be smoked). Dronabinol was developed by Unimed Pharmaceuticals Inc. with a great deal of financial support from the United States government. This was the first hint that the "pharmaceuticalization" cannabis might be what the government hoped would solve its problem with marijuana as medicine, the problem of how to make the medicinal properties cannabis (in so far as government the believes such properties exist) widely available while at the same time prohibiting its use for any other purpose. But Marinol did displace marijuana as "the treatment of choice"; most patients found the herb itself much more useful than dronabinol in the treatment of the nausea and vomiting of cancer chemotherapy. In 1992, the treatment of the AIDS wasting syndrome was added to dronabinol's labeled uses; again, patients reported that it was inferior to smoked marijuana. Because it was thought that it would sell better if it were placed in a less restrictive Drug Control Schedule, it was moved from Schedule 2 to Schedule 3 in the year 2000. But Marinol has not solved the marijuana-as-a-medicine problem because so few of the patients who have discovered the therapeutic usefulness of marijuana use dronabinol. In general, they find it less effective than smoked marijuana, it cannot be titrated because it has to be taken orally, it takes at least an hour for the therapeutic effect to manifest itself and even with the prohibition tariff on street marijuana, Marinol is more expensive. Thus, the first attempt at pharmaceuticalization proved not to be the answer. In practice, for many patients who use marijuana as a medicine the doctor-prescribed Marinol serves primarily as a cover from the threat of the growing ubiquity of urine tests.

Most of the patients who use cannabis as a medicine smoke or ingest it in some form. In



so doing they are in violation of federal law throughout the country and of state laws in all but nine states. In those states, notably California, which allow for doctor-recommended use of cannabis, buyers' clubs or compassion clubs have evolved as cannabis pharmacies for patients with appropriate physician documentation. Two distribution models have evolved. One is based on the conventional delivery system for medicine: a patient visits a buyers' club (read: pharmacy), where he or she presents a note from a physician, certifying that the patient has a condition for which the physician recommends cannabis (read: prescription). The proprietor of the club (read: pharmacist) fills the prescription and the patient leaves to use the medicine, presumably at home. This model preserves the medical profession's authority to decide who shall use a medicine and for how long. The pharmacy provides a source, in this case a nonprofit one, for the medicine. If the doctor and the pharmacist behave ethically, only those who have a medical need for marijuana can receive it. In turn, patients have a reliable source for the drug, relieving them of the stress of buying it on the street or secretly growing their own. The staid set-up of the club and the attitudes of the proprietors make it clear that the patient is no more expected to use his medi-

cine there than he would be in a conventional pharmacy.

The second distribution model resembles a social club more than it does a pharmacy. The dispensing area is plastered with menus offering types, grades and prices. Large rooms are filled with brightly colored posters, lounge chairs and sofas, tables, magazines and newspapers. While some patients remain only long enough to buy their medicine, most stay to smoke and talk. There are animated conversations, laughter, music and the pervasive, pungent odor of cannabis. The atmosphere is informal, welcoming and warm, providing support for patients who may be socially isolated and have little opportunity to share concerns and feelings about their illnesses. This type of club is a blend of Amsterdamstyle coffeehouse, American bar and medical support group. The model was epitomized by the San Francisco Cannabis Cultivators' Club.

Until some kind of legal accommodation makes it possible for patients to obtain marijuana without violating the law, buyers' clubs are the best approach to the problem. Yet the federal government, including the White House, the Drug Enforcement Administration and federal law enforcement at all levels, remains opposed to the idea. While for a short period of time after the publication of the

Institute of Medicine report, "Marijuana and Medicine: Assessing the Science Base", the Feds retreated somewhat from their position that marijuana has no therapeutic value, they are now working diligently to close the cannabis clubs.

Many, if not most, advocates who recognize the importance buyers' clubs believe that the first model is preferable to that represented by the San Francisco club. The former is more businesslike, conforms more closely to the pharmacy model and at least appears to be more vigilant about checking the documentation of people who present themselves as patients. The San Francisco model club, largely because of the on-site marijuana smoking and its relaxed atmosphere, appeared to be more casual in its commitment to confirming medical need, which made even the supporters of buyers' clubs a little nervous.

Yet the importance of the social aspect of

buyers' clubs cannot be underestimated and, in my view, offers a medically significant new model for future conventional use of cannabis as a medicine. It is becoming increasingly clear that emotional support, contacts with and help from fellow-patients, friends, family, co-workers and others, plays a salutary role in battling many illnesses. This kind of support improves the quality of life, and there is growing evidence that it may even prolong life. In one study, socially isolated women were found to be five times more likely to die from ovarian and related cancers than women with networks of friends and families. In another study, women with breast cancer were found to be 50 percent less likely to die in the first few months after surgery if they had confidants. In a four-year study of 133 breast cancer patients, married women had a longer average survival time. Researchers have consistently found that support groups are effective for patients with a variety of cancers. Participants become less anxious and depressed, make better use of their time and are more likely to return to work than patients who are given only standard care, regardless of whether they have serious psychiatric symptoms. There is evidence that even brief supportive therapy can have benefits that last for months. Some researchers have made the controversial claim that mere participation in support groups can prolong cancer patients' lives. The San Francisco buyers' club functioned very much as an informal support group. It was not designed by psychiatrists and social scientists to provide supportive group therapy, but there is reason to believe it did. One of the properties of marijuana may have contributed to its effectiveness: when people use cannabis, they tend to be more sociable and find it easier to share difficult thoughts and feelings. If there is even one kernel of truth to the idea that talking about the stress, setbacks and triumphs in the battle against an illness can help a patient cope and recover, it is clear that the San Francisco model provides the best environment for the dispensing of medicinal marijuana. Furthermore, the existence of this kind of dispensing medical service would solve a difficult problem for the physician who recommends marijuana to a patient, particularly an older one who lacks experience. Unlike most prescriptions which require little more preparation than providing the patient with an understanding of the possible toxic ("side-") effects, many marijuana-naïve patients will require someone to teach them how to use it



comfortably. Such instruction is readily available at a San Francisco-type facility. Unfortunately, we live in a culture that considers such a facility a public nuisance and criminalizes a compassionate form of caring out of loyalty to a symbolic war on drugs. In any event, the present federal government is not going to allow the development of a separate distribution system, and certainly not on the San Francisco model, for this one medicine.

Now that the federal government has embarked on a cruel and so far successful campaign to close down buyers' clubs, what options are available to the many thousands of patients who find cannabis of great importance, even essential, to the maintenance of their health? They can either use Marinol, which most find unsatisfactory, or they can break the law and use marijuana. Why is a government which considers itself compassionate ("compassionate conservatism") criminalizing these patients? What is the government's problem with medical marijuana? The problem as seen through the eyes of the government is the belief that as growing numbers of people observe relatives and friends using marijuana as a medicine, they will come to understand that this is a drug

which does not conform to the description the government has been pushing for years. They will first come to appreciate what a remarkable medicine it really is; it is less toxic than almost any other medicine in the pharmacopoeia; it is, like aspirin, remarkably versatile; and it is less expensive than the conventional medicines it displaces. They will then begin to wonder if there are any properties of this drug which justify denying it to people who wish to use it for any reason, let alone arresting more than 700,000 citizens annually. The federal government sees the acceptance of marijuana as a medicine as the gateway to catastrophe, the repeal of its prohibition. In so far as the government views as anathema any use of plant marijuana, it is difficult to imagine it accepting a legal arrangement that would allow for its use as a medicine, while at the same time vigorously pursuing a policy of prohibition of any other use. Yet, there are many who believe this type of arrangement is possible and workable. In fact, this is the option the Canadian and Dutch governments are presently pursuing as are various states in the United States. Let us consider what might be involved in establishing and maintaining such a legal arrangement in this country.

The first requirement at this time is that the FDA approve marijuana as a medicine. One can argue, however, that FDA approval is superfluous where cannabis as a medicine is concerned. Drugs must undergo rigorous, expensive, and time-consuming tests before they are approved by the Food and Drug Administration for marketing as medicines. The purpose is to protect the consumer by establishing safety and efficacy. Because no drug is completely safe or always efficacious, an approved drug has presumably satisfied a risk-benefit analysis. When physicians prescribe for individual patients they conduct an informal analysis of a similar kind, taking into account not just the drug's overall safety and efficacy, but its risks and benefits for a given patient with a given condition. The formal drug approval procedures help to provide physicians with the information they need to make this analysis. This system is designed to regulate the commercial distribution of drug company products and protect the public against false or misleading claims about the efficacy and safety. The drug is generally a single synthetic chemical that a pharmaceutical company has acquired or developed and patented. It submits an application to the FDA and tests it first for safety in



animals and then for clinical efficacy and safety. The company must present evidence from double-blind controlled studies showing that the drug is more effective than a placebo. Case reports, expert opinion, and clinical experience are not considered sufficient.

The standards have been tightened since the present system was established in 1962, and few applications that were approved in the early '60s would be approved today on the basis of the same evidence. Certainly we need more laboratory and clinical research to improve our understanding of medicinal cannabis. We need to know how many patients and which patients with each symptom or syndrome are likely to find cannabis more effective than existing drugs. We also need to know more about its effects on the immune system in immunologically impaired patients, its interactions with other medicines, and its possible uses for children.

conducted through its National Institute of Drug Abuse (NIDA) a decades-long multimillion-dollar research program in a futile attempt to demonstrate significant toxic effects that would justify the prohibition of cannabis as a non-medical drug. Should time and resources be wasted to demonstrate for the FDA what is already so obvious?

But even if it were legally and practically possible to do the various phased studies to win FDA approval, where would the money to finance these studies come from? New medicines are almost invariably introduced by drug companies that spend many millions of dollars on the development of each product. They are willing to undertake these costs only because of the anticipated large profits during the 20 years they own the patent. Obviously pharmaceutical companies cannot patent marijuana. In fact they are very much opposed to its accept-

In the end, the commercial success of any psychoactive cannabinoid product will depend on how vigorously the prohibition against marijuana is enforced.

support the harsh prohibition has instead provided a record of safety that is more compelling than that of most approved medicines. The modern FDA protocol is not necessary to establish a risk-benefit estimate for a drug with such a history. To impose this protocol on cannabis would be like making the same demand of aspirin, which was accepted as a medicine more than 60 years before the advent of the double-blind controlled study. Many years of experience have shown us that aspirin has many uses and limited toxicity, yet today it could not be marshaled through the FDA approval process. The patent has long since expired, and with it



the incentive to underwrite the substantial cost of this modern seal of approval. Cannabis, too, is unpatentable, so the only sources of funding for a "start-from-scratch" approval would be non-profit organizations or the government, which is, to put it mildly, unlikely to be helpful. Other reasons for doubting that marijuana would ever be officially approved are today's anti-smoking

climate and, most important, the widespread use cannabis for purposes disapproved by the government.

To see some of the obstacles to this approach to the problem, consider the effects of granting marijuana legitimacy as a medicine while prohibiting it for any other use. How would appropriate "labeled" uses be determined and how

would "off-label" uses be monitored? Let us suppose that studies satisfactory to the FDA are somehow completed affirming that marijuana is safe and effective as a treatment for the AIDS wasting syndrome and/or AIDSrelated neuropathy, and physicians are able to prescribe it for those conditions. This will present unique problems. When a drug is approved for one medical purpose, physicians are generally free to write off-label prescriptions — that is, prescribe it for other conditions as well. If marijuana is approved as a medicine, how will off-label prescribing play out? Surely, knowledgeable physicians will want to prescribe it for some patients with multiple sclerosis, Crohn's disease, migraine, convulsive disorders, spastic symptoms, and other conditions for which the use of cannabis is well established by a mountain of anecdotal evidence. But what about premenstrual syndrome? Surely women who suffer from this disorder consider it a serious problem, and many of them find cannabis the most useful and least toxic treatment. What about the loss of erectile capacity in paraplegics? What about intractable hiccups? And then there is depression, not the DSM-IV defined major affective disorder, but the common low-level dysphoric condition for which general practitioners frequently prescribe SSRI's such as Prozac? What about bipolar disorder?

Generally speaking, the more dangerous a drug is, the more serious or debilitating must be a symptom or illness for which it is approved. Conversely, the more serious the health problem, the more risk is tolerated. If

the benefit is very large and the risk very small, the medicine is distributed over the counter (OTC). OTC drugs are considered so useful and safe that patients are allowed to use their own judgment without a doctor's permission or advice. Thus, today anyone can buy and use aspirin for any purpose at all. This is permissible because aspirin is considered to be so safe; it takes "only" one to two thousand

> lives a year in the United States. The remarkably versatile ibuprofen (Advil) and other nonsteroidal anti-inflammatory drugs (NSAIDs) can also be purchased OTC because they, too, are considered very safe; "only" 10,000 Americans lose their lives to these drugs annually. Acetaminophen (Tylenol), another useful OTC drug, is responsible for about 10 percent of cases of end-stage renal disease. The public is also

allowed to purchase many herbal remedies

whose dangers and efficacies have not been well determined. Compare these drugs with marijuana. Today, no one can doubt that it DEA as Administrative Judge Francis L. Young put it, "...among the safest therapeutic substances known to man." If it were now in the official pharmacopoeia, it would serious contender for the title of least toxic substance in that compendium. In its long history, cannabis has never caused a single over-

"Unless we put

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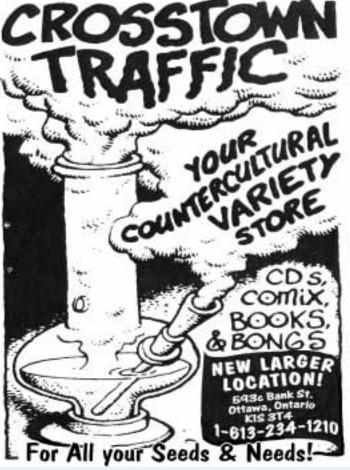
...dictatorship.

Then there is the question of who will provide cannabis. The federal government now provides marijuana from its farm in Mississippi to the surviving seven patients covered by

the now-discontinued Compassionate IND program. But surely the government could not or would not produce marijuana for many thousands of patients receiving prescriptions, any more than it does for other prescription drugs. If production is contracted out, will the farmers have to enclose their fields with security fences and protect them with security guards? How would the marijuana be distributed? If through pharmacies, how would they provide secure facilities capable of keeping fresh supplies? Would the price of pharmaceutical marijuana have to be controlled: not too high, lest patients be tempted to buy it on the street or grow their own; not too low, lest people with marginal or fictitious "medical" conditions besiege their doctors for prescriptions? What about the parallel problems with potency? When urine tests are demanded of workers, what would be the bureaucratic and other costs of identifying those who use marijuana legally as a medicine as distinguished from those who use it for other purposes?

To realize the full potential of cannabis as a medicine in the setting of the present prohibition system, we would have to address all these problems and more. A delivery system that successfully navigated this minefield

dose death.



To restrict the art of healing to one class of men and deny equal privileges to others will constitute the Bastille of medical science. All such laws are un-American and despotic and have no place in a republic.

would be cumbersome, inefficient, and bureaucratically top-heavy. Government and medical licensing boards would insist on tight restrictions, challenging physicians as though cannabis were a dangerous drug every time it was used for any new patient or purpose. There would be constant conflict with one of two outcomes: patients would not get all the benefits they should, or they would get the benefits by abandoning the legal system for the black market or their own gardens and closets.

A solution now being proposed, notably in the Institute of Medicine (IOM) Report, is what might be called the "pharmaceuticalization" of cannabis: prescription of isolated individual cannabinoids, synthetic cannabinoids, and cannabinoid analogs. The IOM

Report states that "...if there is any future for marijuana as a medicine, it lies in its isolated components, the cannabinoids, and their synthetic derivatives." It goes on: "Therefore, the purpose of clinical trials of smoked marijuana would not be to develop marijuana as a licensed drug, but such trials could be a first step towards the development of rapid-onset, non-smoked cannabinoid delivery systems." This position was recently echoed by Antonio Maria Costa, Executive Director, Office on Drugs and Crime, the United Nations at the International Symposium on Cannabis in Stockholm on March 7th, 2003:

"I am not sure I understand the controversy about the medical virtues of cannabis: First, if and when they are ascertained, society should definitely make use of them. Who would oppose the advances of medicine? Who would stand in the way of reducing suffering? My concern is to prevent that, by proclaiming the (medical) virtues of cannabis, we open a back door to its wider (recreational) consumption. Society would end up regretting such abuse, just as we now regret tobacco addiction. If proven to be medically useful:, and this is my second point, cannabis should be treated like any other medicine, namely as pharmaceutical preparation to be prescribed for specific symptoms in accordance with properly determined dosages and standards. In other words, either we are serious about the medical properties of cannabis (and we, in this hall, take the question very seriously) or it is just a matter of using such properties as a Trojan horse to reach other goals namely, the de facto decriminalization of its production and trafficking. In this case I would be strongly negative."

Some cannabinoid analogs may indeed have advantages over whole smoked or ingested marijuana in limited circumstances. For example, cannabidiol may be more effective as an anti-anxiety medicine and an anticonvulsant when it is not taken along with THC, which sometimes generates anxiety. Other cannabinoids and analogs may prove more useful than marijuana in some circumstances because they can be administered intravenously. For example, 15 to 20 percent of patients lose consciousness after suffering a thrombotic or embolic stroke, and some people who suffer brain syndrome after a severe blow to the head become unconscious. The new analog dexanabinol (HU-211) has been shown to protect brain cells from damage when given immediately after the stroke or trauma; in these circumstances, it will be possible to give it intravenously to an unconscious person. Presumably other analogs may offer related advantages. Some of these commercial products may also lack the psychoactive effects which make marijuana useful to some for non-medical purposes. Therefore, they will not be defined as "abusable" drugs subject to the constraints of the Comprehensive Drug Abuse and Control Act. Nasal sprays, vaporizers, nebulizers, skin patches, pills, and suppositories can be used to avoid exposure of the lungs to the particulate matter in marijuana smoke.

The question is whether these developments will make marijuana itself medically obsolete. Surely many of these new products would be useful and safe enough for commercial development. It is uncertain, however, whether pharmaceutical companies will find them worth the enormous development costs. Some may be (for example, a cannabinoid inverse agonist that reduces appetite might be highly lucrative), but for most specific symptoms, analogs or combinations of analogs are unlikely to be more useful than natural cannabis. Nor are they likely to









have a significantly wider spectrum of therapeutic uses, since the natural product contains the compounds (and synergistic combinations of compounds) from which they are derived. For example, the naturally occurring THC and cannabidiol of marijuana, as well as dexanabinol, protect brain cells after a stroke or traumatic injury.

The cannabinoids in whole marijuana can be separated from the burnt plant products (which comprise the smoke) by vaporization devices that will be inexpensive when manu-

...the naturally

occurring THC and

cannabidiol of marijuana,

as well as dexanabinol,

protect brain cells after a

stroke or traumatic

injury.

factured in large numbers. These devices take advantage of the fact that finely chopped marijuana releases the cannabinoids by vaporization when flowing air through the marijuana is held within a fairly large temperature window below the ignition tempera-

ture of the plant material. Inhalation is a highly effective means of delivery, and faster means will not be available for analogs (except in a few situations such as parenteral injection in a patient who is unconscious or suffering from pulmonary impairment). It is the rapidity of the response to inhaled marijuana which makes it possible for patients to titrate the dose so precisely. Furthermore, any new analog will have to have an acceptable therapeutic ratio. The therapeutic ratio (an index of the drug's safety) of marijuana is not known because it has never caused an overdose death, but it is estimated, on the basis of extrapolation from animal data, to be an almost unheard of 20,000 to 40,000. The therapeutic ratio of a new analog is unlikely to be higher than that; in fact, new analogs may be much less safe than smoked marijuana because it will be physically possible to ingest more of them. And there is the problem of classification under the Comprehensive Drug Abuse and Control Act for analogs with psychoactive effects. The more restrictive the classification of a drug, the less likely drug companies are to develop it and physicians to prescribe it. Recognizing this economic fact of life, Unimed Pharmaceuticals Inc. has fairly recently succeeding in getting Marinol (dronabinol) reclassified from Schedule 2 to Schedule 3.

A somewhat different approach to the pharmaceuticalization of cannabis is being

Nevertheless, many physicians will continue

to avoid prescribing it for fear of the drug

enforcement authorities.

taken by a British company, G. W. Pharmaceuticals. It is attempting to develop products and delivery systems which will skirt the two primary popular concerns about the use of marijuana as a medicine: the smoke and the psychoactive effects (the "high"). To avoid the need for smoking, G. W. Pharmaceuticals has developed an electronically controlled dispenser to deliver cannabis extracts sublingually in carefully controlled doses. The company expects its products (extracts of marijuana) to be effective thera-

peutically at doses too low to produce the psychoactive effects sought by recreational and other users. My clinical experience leads me to question whether this is possible in many or even most cases. The issue is complicated by tolerance to psychoactive effects. Recreational users soon discover that the more often they use marijuana, the less

"high" they experience. A patient who smokes cannabis frequently for the relief of, say, chronic pain or elevated intraocular pressure will experience little or no "high". Furthermore, as a clinician who has considerable experience with medical cannabis use, I have to question whether the psychoactive effect is always separable from the therapeutic. And I strongly question whether the psychoactive effects are necessarily undesirable. Many patients suffering from serious chronic illnesses report that cannabis generally improves their spirits. If they note psychoactive effects at all, they speak of a slight mood elevation — certainly nothing unwanted or incapacitating.

The great advantage of the administration of cannabis through the pulmonary system is the rapidity with which its effects are experienced. This in turn allows for the self-titration of dosage, the best way of adjusting individual dosage. With other routes of delivery the response time is longer and self-titration becomes more difficult. Thus, self-titration is not possible with oral ingestion of cannabis. While the response time for sublingual or oral mucosal administration of cannabis is shorter than it is with oral ingestion, it is significantly longer than that from absorption through the lungs and therefore a considerably less useful route of administration for self-titration. Furthermore, the design of the G. W. Pharmaceuticals dispenser negates whatever self-titration capacity sublingual administration may have. The device has electronic controls that monitor the dose and prevent delivery if the patient tries to take more than the physician or pharmacist has set it to deliver during predetermined time windows. The proposal to use this cumbersome and expensive device apparently reflects a concern that patients cannot accurately titrate the therapeutic amount or a fear that they might take more than they need and experience some degree of "high" (always assuming, doubtfully, that the two can easily be separated, especially when cannabis is used infrequently). Because these products will be considerably more expensive than natural marijuana, they will succeed only if patients are intimidated by the legal risks, and patients and physicians consider the health risks of smoking marijuana (with and without a vaporizer) much more compelling than is justified by either the medical or epidemiological literature and they believe that it is essential to avoid any hint of a psychoactive effect.

In the end, the commercial success of any psychoactive cannabinoid product will depend on how vigorously the prohibition against marijuana is enforced. It is safe to predict that new analogs and extracts will cost much more than whole smoked or ingested marijuana even at the inflated prices imposed by the prohibition tariff. I doubt that pharmaceutical companies would be interested in developing cannabinoid products if they had to compete with natural marijuana on a level playing field. The most common reason for using Marinol is the illegality of marijuana, and many patients choose to ignore the law for reasons of efficacy and cost. The number of arrests on marijuana charges has been steadily increasing and has now reached more than 700,000 annually, yet patients continue to use smoked cannabis as a medicine. I wonder whether any level of enforcement would compel enough compliance with the law to embolden drug companies to commit the many millions of dollars it would take to develop new cannabinoid products. Unimed is able to profit from the exorbitantly priced dronabinol only because the United States government underwrote much of the cost of development. Pharmaceutical companies will undoubtedly develop useful cannabinoid products, some of which may not be subject to the constraints of the Comprehensive Drug Abuse and Control Act. But, it is unlikely that this pharmaceuticalization will displace natural marijuana for most medical purposes.

It is also clear that the realities of human need are incompatible with the demand for a legally enforceable distinction between medicine and all other uses of cannabis. Marijuana use simply does not conform to the conceptual boundaries established by twentieth century institutions. It enhances many

Two powerful forces are now colliding: the growing acceptance of medical cannabis and the proscription against any use of the plant marijuana, medical or non-medical.

pleasures and it has many potential medical uses, but even these two categories are not the only relevant ones. The kind of therapy often used to ease everyday discomforts does not fit any such scheme. In many cases what lay people do in prescribing marijuana for themselves is not very different from what physicians do when they provide prescriptions for psychoactive or other drugs. The only workable way of realizing the full potential of this remarkable substance, including its full medical potential, is to free it from the

present dual set of regulations — those that control prescription drugs in general and the special criminal laws that control psychoactive substances. These mutually reinforcing laws established a set of social categories that strangle its uniquely multifaceted potential. The only way out is to cut the knot by giving marijuana the same status as alcohol — legalizing it for adults for all uses and removing it entirely from the medical and criminal control systems.

Two powerful forces are now colliding: the growing acceptance of medical cannabis and the proscription against any use of the plant marijuana, medical or non-medical. There are no signs that we are moving away from absolute prohibition to a regulatory system that would allow responsible use of marijuana. As a result, we are going to have two distribution systems for medical cannabis: the conventional model of pharmacy-filled prescriptions for FDA-approved cannabinoid medicines, and a model closer to the distribution of alternative and herbal medicines. The only difference, an enormous one, will be the continued illegality of whole smoked or ingested cannabis. In any case, increasing medical use by either distribution pathway will inevitably make growing numbers of people familiar with cannabis and its derivatives. As they learn that its harmfulness has been greatly exaggerated and its usefulness underestimated, the pressure will increase for drastic change in the way we as a society deal with this drug.

If the cynical attitude of the federal government toward patients who use medical marijuana, its attempt to intimidate physicians who recommend it, its arrest of people who, with permission of the local authorities, grow marijuana for medical patients, and its recent despotic actions against buyers' clubs in California lend credence to Benjamin Rush's concern about medical fascism, then the patients and the people who help them in a variety of ways constitute a resistance movement against medical dictatorship. It is my belief that this resistance will continue until freedom to responsibly use this plant as we choose is secured.

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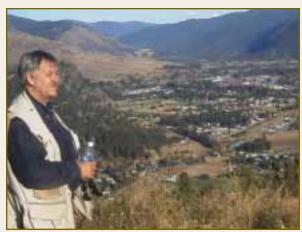
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Dr. Dave West overlooking Grand Forks during his visit summer, 2005

I officially took up the cannabis issue in 1993 after I bid farewell to the commercial seed company where I'd been a corn breeder for nearly two decades. The chemical industry had been gradually scooping up seed companies for most of that tenure. With the advent of biotechnology came the ability to modify crops to fit within agchemical marketing plans, opening the floodgates of acquisition. I decided to explore other uses for my talents.

Looking at cannabis from a plant breeder's perspective, I saw a need to clarify matters of varietal difference, which is a plant breeder's territory. I came at it from my base as an agronomic crop breeder, so I took up the cause of the agronomic kind of cannabis, e.g., hemp.

I set about explaining the difference between hemp and marijuana and made an effort to raise awareness of the importance of germplasm. When Hawaii wanted to try hemp, I went there and ran a project. It's all about germplasm.

Germplasm

Germplasm. My spell checker doesn't know this word. Thinks it's germ plasma.

"Germplasm" is the collective term for the genetic repertoire of a crop, ranging over all its varieties that the breeder draws on for genes.

Germplasm comes in neat little packages called seed ("achene," in the case of hemp seed, if you want to get technical).

When I matriculated at Hemp U., in 1993, I naturally went looking for hemp germplasm and I found a distressing situation. The industry that had existed in North America had relied on a uniquely adapted American variety of hemp known as Kentucky Hemp. I inquired after Kentucky Hemp at the National Seed Storage Laboratory in Fort Collins, CO, a facility charged with the preservation of the nation's critical germplasm resources. I discovered that it had not been preserved. The whole of it was lost.

Ecce granum! Behold the seed!

Seed is a package with a nice, quasi-plastic wrap, in which we find a nascent plant in a suspended state, battery included. This little plant has already begun to differentiate leaves. Attending this embryo, or "germ," is an energy source, a battery of sorts. It's either

carbohydrate or lipid: sugar or oil. In hemp, it's oil. When conditions turn right, depending on the species the right conditions may require such events as freezing or fire, the battery fires up and jump starts the plant to life, supplying the requisite energy for growth until the solar panels are in place and can take over. The oil in hemp burns hot in the germinating seed. Really. Hemp's seedlings are hotter than other crop's. It's been shown.

Seeds are alive and can die. Seed respires. If time runs out before conditions are right for germination, the seed dies. If seed is to be preserved for long periods, many years, the conditions of storage must be carefully controlled. Commercial hemp seed germination declines rapidly. After three years, it is usually below standards for planting (<80%).

Per my request, they found some bags of hemp seed at the NSSL, but it came from a 1949 crop. It was long dead. And because it was cannabis, it presented the lab with a unique problem that was summed up for me in a truly memorable comment: "If any of it had germinated," the lab informed me, because they weren't licensed for controlled substances, "we would have had to kill it."

Every time I plant a seed...kill it before it grows

The DEA makes no differentiation within Cannabis (I mean the genus when I capitalize it). By their official definition, all Cannabis is marijuana. As such, feral hemp, which is the old crop escaped into the wild that grows in areas where the crop once thrived, annually comes under attack from eradicators. What this really is is a way for Police and National Guard to shift cost to the Drug War for some of their maneuvers and overtime. I kid you not.

For the most part, this feral hemp is the final state of Kentucky Hemp germplasm. Though degraded by many generations of natural selection for survival in the wild, such things as increased branching, shorter

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internode length, and rampant variability, it is nonetheless a resource that should be collected and preserved, since, you know, they lost the original.

There's lots of feral hemp around the continent, but in the US there is one particularly unique stand that I now believe actually predates Kentucky Hemp.

Kentucky Hemp was developed out of accessions of seed sent here from China by missionaries after 1850. (There's a strong probability that KY Hemp arose from the hybridization of Chinese and European germpools that met for the first time in US after 1850.) Prior to that, the lineage of the domestic hemp crop traced to European ancestry.

Previously I assumed the extensive stands of feral hemp in the Plains States were escaped from that grown in eastern Nebraska at the turn of the century. I changed my mind when I learned the surprising story of what became of David Myerle.

Myerle was a "hempreneur," a true enthusiast. His activities centered in the first half of the nineteenth century and you can read about his attempts to establish a viable hempindustry in Tennessee and Kentucky, and later in Missouri, in James Hopkins' classic, A History of the Hemp Industry in Kentucky. Myerle wasn't lucky in business; his failures kept pushing him westward.

Not long ago, a file dating to the 1840s was discovered in the National Archives. The file contains letters and other documents associated with Myerle's final mission: bringing hemp to the Indians. At Myerle's urging, the Indian Agent from Fort Leavenworth did, in 1844, deliver hemp seed to Native Americans on the Plains and they grew it, and then they replanted the harvested seed and sowed it again, and they brought in seed and fiber for sale. Myerle showed them how.

Today feral hemp can be found spread from Kansas, through Nebraska to South Dakota. It is quite plausible that these feral plants have their origin in that seed given the Indians by the US Government. Of course, had I the genetic tools in hemp I used to have in corn, I could prove it. My feeling is that for the hemp to be spread as extensively as it is, it needed to get its start before the land was settled.

Alex White Plume collected seed from these plants which he planted in fields on Pine Ridge Reservation in South Dakota. And each year the Feds have cut down his crop and hauled it off. Alex is now enjoined not to plant it again. We await the 8th Circuit Court's decision regarding the Indian's right to this crop, given them originally by the government so they could be self-sufficient farmers.

Seed is a package with a nice, quasi-plastic wrap, in which we find a nascent plant in a suspended state, battery included.

Ecce granum!

Germplasm can be as rough as the feral hemp on the Plains, or it can be refined by years, centuries and millennia of human selection. Take, for instance, the case of Japanese hemp.

In 1896, the USDA reported "Japanese hemp is beginning to be cultivated, particularly in California, where it reaches a height of 15 feet." Now there's an example of germplasm they should have preserved! Today, it's very difficult to obtain seed of Japanese hemp. I know. I tried. I went to Japan to see if I could procure seed of their hemp for the Hawaii Project. I couldn't. At least not seed

of the true Japanese hemp cultivar.

One thing about germplasm: it's a resource and a national asset, and often a private asset. When people know what they've got, they don't just give it away. At the very least, they license it. Germplasm has legal similarities to software.

Hemp is highly regarded in Japanese culture (see taima.org). Its use there recedes into prehistory. Motifs at the Meiji Shrine in Tokyo show hemp and hemp fiber are used in Shinto religious ceremonies. Hemp is the fabric of Japanese royalty; it is required for their ceremonies. It was nearly lost.

In 1949, General MacArthur, who was running the US occupation, forced the Hemp Control Act on Japan. (Comeuppance, perhaps, for the hassle the US had over hemp in WWII. Recognition, at least, of the military importance of the fiber.) Hemp cultivation declined as a result and the cultural memory faded. As the story was told to me, the time came when the Emperor passed away and suddenly they found themselves in crisis because ancient tradition required the burial garments be made of hemp. Luckily, hemp culture had been preserved in an area too remote to be touched by the occupation and it was saved. Barely.

Ecce granum!

Hemp as a fiber crop had a rough ride in the 20th century. In the 21st, seed is on the ascendancy as the end product. These little packages of genetics are also mighty packages of nutrition. Hemp as food almost seems a modern discovery. Of course, it's not.

But perhaps you would be surprised to hear how, in 1997, the United States Agency for International Development (USAID) funded two erstwhile hemp "experts" on a mission to Russia to encourage Russians to grow hemp! My Adventures in Hemp has





Pollen photo courtesy Dr. Dave West

provided many an irony but none greater than this! Talk about carrying coals to Newcastle! But that is how Yitzac Goldstein (then of Hemp Textiles International) and I found ourselves in Russia, traveling from hemp mill to hemp mill, trying to talk up the notion of growing hemp in accordance with the guidelines for organic certification. It was arranged by a maverick lady at Winrock International, but the money came from USAID. LOL. This is one of those un-told tales.

The hemp mills we visited were in a depressed and depressing state. Oil shortage had shut them down because they were built with oil-heated drying tunnels. Meanwhile, huge mounds of hurds rotted out back. At one mill, we were encouraged by meeting a mill manager with hempreneurial spirit. The floor of his mill was covered with curing cement blocks he made using cement and hurds in a machine he'd engineered himself.

As far as I know, nothing came of our efforts to convince Russians to produce organic fiber. Producing fiber under organic standards is a major undertaking, particularly if the mill also receives non-organic crop, as the lines must be segregated. There has to be sufficient market potential. It was a hard sell to hardened mill managers.

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Yet I believe our visit was not for naught. One day, in the vicinity of Kursk, scene of the greatest tank battle of all time, and not-to-be-forgotten, we were brought to visit an elderly gentleman who had been involved with traditional Russian hemp. The conversation came 'round to the seed and its uses and I asked what he knew of "black butter," something I'd only heard rumors of back then.

Our translator, Lyudmila, didn't know about black butter either and she took a keen interest as the old man told of how it used to be a staple in the Russian diet. The younger generation did not know, had lost the knowledge, of how hemp seeds were processed to a peanut butter-like consistency and what a critical component it was to the traditional healthy diet; or of a drink made from the seeds analogous to soy milk. There, that very day, Lyudmila and the old man, whose name I don't have, forged an alliance to rediscover this lost wisdom.

We came home; time passed. Then in April, 2003, I chanced to see an article from The Moscow Times telling of a small town in the Kursk Oblat that had put a cannabis leaf on its flag in commemoration of its hemp history. My heart leapt to read of the group there dedicated to the recovery of the area's hemp lore headed by a woman named Lyudmila. Though it is a common Russian name, I want to believe.

These days I get my hemp butter, rich in Omega 3s and 6s, from Manitoba Harvest and I wonder how the Russian babushka of old would judge the taste. I don't know. As with those Australian delicacies, Marmite and Vegemite, it's something of an acquired taste. I find it mixes well with peanut butter, and

wouldn't that be a marketable product? Half 'n half? (MH, I'm talking to you.)

Looking at these instances of loss and near-loss of a hemp tradition, product or seed, I see a common thread. They all result from the imposition of a dictatorial, centralized political power structure. From the US occupation of Japan through the Politburo on down to the dictates of the DEA, there is a central theme of loss of local control leading to loss of local knowledge. States can make their own decisions about the death penalty; counties can decide to be wet or dry; but the Feds get to decide who can grow what?!

Seed embodies the opposite of centralization: dispersion. In seed we have the encapsulation of freedom at its most fundamental, decentralized. To me, that is the take-home message of Genesis 1:29. That the first gift of God to men would be seed to keep men free that it was not given to a ruling party or a priestly class to dispense, to control, but directly to man? "Here, this is for you, all the seed-bearing plants." Well...if you believe that stuff. I have a sense that it establishes a precedent, anyway.

Henry David Thoreau's last preoccupation was with seed. He said, "I have great faith in seed. Convince me you have a seed there, and I am prepared to expect great wonders." ¹

Thoreau would go. The originator of the principle of civil disobedience would have put it on the line—wouldn't he? — had he been confronted with our political system that has criminalized the possession of seed. Imagine what he might have said were he to witness the incarceration of his fellow citizens for the crime of possessing seed and growing plants! Especially this plant, then.

Criminalizing the possession of seed! That is what the "drug" laws do. Just look at the wording of the U.S.'s Controlled Substances Act, which serves as the model for other nations' CSAs. Note how carefully the wording









evades and eludes: planting seed is "propagation;" plants are "substances;" and to grow a plant is to "manufacture." It is impossible to avoid the conclusion that these Orwellian twists are intentional obfuscations. What rational person would accept that the mere possession of seed, the mere growing of a plant, is, in and of itself, a criminal act? Where would we be as a species, as a civilization, had there always been co-optation in that realm? Governments get away with things, doesn't make 'em right."

We've been hoodwinked into accepting



Hemp seed photo courtesy Dr. Dave West

their assertion that the growing of plants is an act of "manufacture" when the very word itself means "made by hand." In all other venues, we draw a distinction between agriculture and manufacturing. But the CSA carefully, connivingly, conflates these activities so that certain plants may be proscribed as if they were the equivalent of synthesized substances. Yet, in all cases, it is clear that the negative social impacts are derived not from the natural product but from the extracted, concentrated and chemically altered products made by man; substances designed for the convenience of the black market. The drug laws are the cause of these substances.

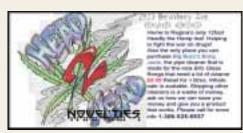
The poet, ee cummings, put it best when he wrote, "a world of made is not a world of born." Let that be our mantra. To grow a plant is not to manufacture, and to possess seed is not criminal. The hubris of that usurpation of our Natural Right to Seed must be faced down. For it is a Natural Right. The 5000 year old guy found frozen always has his bag of seed.

For a time, not long ago, there was an effort calling itself "The First Human Right Organization." I saw their ad in Rolling Stone and sent for their pamphlet. They were making the same argument. I was heartened to see someone had seized the gauntlet. Too bad they seem to have disappeared. I'd like to get another copy of their pamphlet. I gave mine to Alex White Plume.

Ecce granum!

"Convince me you have a seed there, and I am prepared to expect great wonders." 1H.D. Thoreau. 1993. Faith in a Seed. Island Press.









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Cannabis Health journal



Story by Anndrea M. Hermann Agrologist, Hemp Oil Canada Inc. photo courtesy Chantel Solomon

We know as cannabis coinsurers that the love we put in we get back. I have been blessed with the opportunity to have just completed my sixth hemp growing season

working and living in the Canadian prairies. The dream became a goal and the goal is now the reality. This reality is industrial hemp. The fields have treated me very well. I sampled over 77 hemp fields and worked in over 120 this past summer alone. My work is farmer based, we help farmers learn how to better grow hemp and they help us determine which agronomic factors need to be addressed in future research.

My current position is the Agrologist with Hemp Oil Canada Inc. (HOCI), Ste. Agathe, Manitoba. Along with Kevin Friesen, the Seed Production Manager, we advise our growers with everything from understanding the Health Canada licensing procedures, to seeding, combine modifications and harvest. HOCI prides itself in having strong positive relations with our growers and customers; for without both of them we would not be able to do the work that we have so much respect and passion for.

I do not need to tell you about the benefits of either medical cannabis or industrial hemp. However one thing you may not know is that without agronomic research we will not be able to be successful in large scale industrial hemp production, and to keep up

with the production issues like fertility, pest, and disease and weed management. Furthermore, every cropping system, farm, producer, contractor, processor and retailer works somewhat differently so what might work for one might not for another.

At Hemp Oil Canada we have formulated a recipe for success for growing hemp. It includes:

- 1) Obtaining an Industrial Hemp Licence from Health Canada.
- 2) Contracting your production with a reputable company.
- 3) Having access to the right and up to date agronomic information.
- 4) Having the proper infrastructure (i.e. suitable farmland and farm equipment.)

5) Lastly, some luck from Mother Nature.

The licensing application process is fairly easy, and free. You need to get a criminal record check from the local police, GPS coordinates and a map of each field, fill in the Health Canada application forms, arrange to have a pre-harvest crop THC analysis, plus keep all seed tags for Canadian Food Inspection Agency (CFIA) inspections. Instructions for Health Canada's licensing can be found at http://www.hc-sc.gc.ca/dhp-mps/substancontrol/hemp-chanvre/comm-licen/applic-demande/index_e.html

Current varieties are being grown for either grain (i.e. Finola & Crag), or dual purpose for seed and fiber (i.e. USO 14, USO 31 & Alyssa) or for fiber only (i.e. Carmen). Choice of variety depends on the final market end product, farm and processing capability. Height variation can be seen within and between cultivars. Grain only cultivars average 3 to 7 feet and dual-purpose cultivars average 5 to 9 feet tall.

Many people have the impression that hemp means male plants only; this is false, as industrial hemp is dependent upon both the male and female plants. Hemp is classified as either monoecious (one-house), meaning that both the male (staminate) and female (pistillate) parts are located on one single plant or dioecious (two-houses), meaning that the male and female parts are on separate plants. Male plants in dioecious varieties die off after dehiscence (pollen shed) leaving the females to grow and set seed. Industrial hemp is anemophilious, primarily dependent upon wind to carry the pollen grains from the male plant to the female. The average growth period is between 100-120 days depending on variety and location.

Hemp should be sown into a warm, uniform, well-drained, and medium textured seedbed with a pH of 6.0 to 7.5. Ideally, hemp should be sown at a depth of 0.5 to 0.75 inches with a row spacing of about 6 inches. Pre-tillage passes and half rate opposing angles seeding passes can help with weed control in both conventional and organic production. Hemp does not like "wet feet", so caution is taken to avoid seeding into cold wet soils, which can result in poor emergence, more weed pressure and even total crop loss. The suggested seeding date is between mid-May and mid to late June depending on farm classification and pest/weed management practices, with May 25th as an ideal seeding date. The seeds will germinate in 2 to 4 days and will emerge within 4 to 7 days. Hemp seedlings have shown tolerance to frost to - 4 C°. Sowing at a shallow depth into warm (8C°~10C°+) moist soil will facilitate quick emergence and the resulting canopy will promote natural weed suppression.



A thick canopy of vigorously growing hemp can block out the sunlight available to weeds under the canopy and will not only benefit the current cropping but will help in the overall reduction of weed pressures in the upcoming cropping year. The target seeding density is 100 plants per square meter and it is normally met with a seeding rate of 20 to 30 pounds per acre. Seed is a major input cost which averages from 30 to 60 dollars an acre depending on the variety. Bin-run grain is not allowed to be used as seed thus all producers must purchase certified pedigreed seed. This assures the quality of the planting seed and prevents divergence from the true characteristics of the selected cultivar.

The second major input cost is fertilizer. Hemp is a heavy feeder and to take advantage of hemp's vigorous growth habit a typical conventional fertilization program requires 75 to 100 lbs/acre of actual N (nitrogen), plus 50 to 70 lbs/acre of actual P2O5 (phosphate), and lastly K and S (potassium and sulfur) should also be added where found deficient. Hemp is highly receptive to nitrogen in the soil, and the resulting rapid growth has maximum weed control, higher yields and bio-mass. However, to help in reducing input cost all fields should have soil tests conducted to correctly assess fertilization requirements. Both conventional and organic producers should sow the crop into their most fertile land for maximum yields and economic return. In a certified organic cropping system it is best to sow the hemp into a green manure plow down (i.e. clover) field or after a forage crop (i.e. alfalfa), as

these practices enhance soil fertility and reduce overall weed pressures.

Good weed management can be accomplished by preseeding tillage and/or pre-emergent burn-off with glyphosphate herbicides. The use of pre-emergent burn-off is only suggested if needed and should be discussed with the contracting party before the herbicide is applied. There are no herbicides registered for use in Hemp in the Canadian prairies, but a minimal usage permit is being applied for application of Assure II herbicide for fiber only production in Manitoba. Assure II is currently only registered in Ontario for fiber production. Some contracts would be considered null and void if the crop is sprayed, even if total crop loss would have otherwise resulted. The current markets

demand pesticide and herbicide free production, which is attainable with proper crop rotation, adequate fertilization and sound farm agronomic management practices. No matter how sound the practices are, hemp is a crop that is still susceptible to attack from pest and disease. Sclerotinia sclerotiorum stem rot (i.e. hemp canker) is the most noted disease. It is a soil borne fungus that attacks



Hemp stalk - photo courtesy of Anndrea Hermann

the stem with symptoms arising after flowering has occurred and results in the early death of the infected plant. We have yet to see an economic impact, but Sclerotinia has been seen and documented in fields across the Prairies, and is especially prevalent during wetter growing seasons like the one we experienced this past cropping year in 2005. Another fungal disease is Botrytis cinerea (i.e.





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gray mold/head blight) which attacks flowering tops and stalks during high moisture conditions; this has yet to be a major problem but must be taken into consideration. If infected with B. cinerea molding of stored seeds may occur or result in seedling infection the next cropping seasons. Both Sclerotinia sclerotiorum and Botrytis cinerea can remain alive in the soil for years following the first initial infection. The best way to handle these diseases is with annihilation of host vectors, rotation with non-susceptible crops, and using disease free pedigree seed. Pests like grasshoppers, painted lady butterflies, bertha armyworms, hemp borer, and lygus plant bugs have all been noted without any true economic impact as of yet.

One of the requirements set forth by Health Canada is that all varieties except USO 14 and USO 31 are to be sampled by an authorized THC sampler for analysis of the THC level. This sampling should be done when ~50% of the seed is set, normally mid-August. The legal limit for THC is 3000 parts per million, if a test's results are greater than this limit a re-test will be done. If this second test verified the field is over the limit the field would be destroyed, however this has never happened and is not of real concern. The

sampling analysis cost on average \$260.00 in total depending on sampler's rate charge and cost of the lab analysis. The test results must be reported to Health Canada's Office Controlled Substance Industrial Hemp Regulation Program within 14 days after the results are returned; this is normally taken care of by the

sampler. By this time, most producers are preparing for harvest.

Harvesting hemp is one the biggest production challenges. Hemp should be combined while still fairly green, greener than often expected, to limit wrapping of the fibers and seed loss due to birds and shelling. The long fibers become more difficult to cut and

thresh as the stalk matures. Mature seeds are unaffected by frost but maturation is accelerated in developing seeds. Depending on the cultivar selected for production, methods of harvesting are

either swathing or straight cutting. No matter the method used hemp is easier to cut when using new or sharpened knives or sickles, and guards. The only cultivar that can be swathed is Finola, as its average 3.5 foot stature means less fiber and typically no equipment modifications are required. Swathing should occur as soon as shelling is apparent at approximately 85% maturity, cutting 6 to 12 inches off the ground and then combined at ~ 10% seed moisture. Straight combining of Finola should occur at 12.5-15% moisture and dried via aeration to 9% or lower for storage. Straight cutting is preferred to minimize germination in the swath during high moisture and shattering but it can aid in the drying process. Cultivars such as USO 14, USO 31 and Crag should be straight cut at about 20~25 % moisture when using a combine without



Shawn Crew, Anndrea Hermann, Kevin Friesen, Field Festival /05 photo courtesy of Neil Gobel.





Sid Johnson and Anndrea Hermann photo courtesy of A Hanks.

modifications and straight cut at ~17% moisture with a modified combine. Cutting height is usually half the height of the plant, normally 3 feet above the ground level, and the harvested grain dried in aeration bins to ~9% or lower for proper storage, with 6% to 8% being ideal. Typical yields range from 500 to 1000 lbs/acre depending on the cultivar, farm classification, fertility, and Mother Nature.

Combine modifications have been beneficial in easing harvest. John Deere conventional combine owners have made modifications to the feeder chain by replacing it with a continuous rubber belt. This allows harvesting at a drier moisture level and minimizes wrapping that typically occurs around the drive shaft and sprockets at the top of the feeder chain. To facilitate harvesting with a Case IH Axial Flow combine, a rotor kit was invented to fit over the front of the rotor and replaces the elephant ears, bearing housing, and adds a paddle which smoothes out feeding that helps reduce fiber wrapping and pounding. For uniform feeding draper headers are favored over the usual auger type headers. Some producers will also narrow the opening on the header to keep the hemp running down the middle of the feeder chain area and away from the drive sprockets on

the sides. Depending on the sheer volume of straw producers typically disable their straw choppers which drops the straw out instead of chopping it.

The stubble should be promptly mowed, cut or haybined at opposite angles of combining and baled immediately after harvest to prevent the stalks hardening off. The bales can be used as animal bedding or as walls for silage piles. Eventually fiber processing facilities will be contracting the fiber for production into bio-composites, industrial grade matting and insulation and for clothing material, just to name a few possibilities.

It is crucial that the grain harvested be dried immediately to prevent spoiling and loss of grain, or grade, and thus loss of profit. Preserving grain quality is met by reducing auger unloading speeds or by using belt conveyors which minimizes seed hull damage and cracking that can result in rancidity. Grain can be stored for one to two years if it is stored in dry, cool conditions, out of direct sunlight and free from rodents. Under Health Canada's regulations the hemp grain is required to be locked while in storage, to prevent vandalism. Representative bin samples will be required by the contracting party after harvest and drying. This helps in

insuring the quality of the grain for further processing. Once the grain has been dried and requested by the contractor it is processed into hemp oil, hemp flour, hemp protein powder, hemp toasted and roasted seed, hemp oil gelcaps, sterilized hemp seed, hulled hemp seed, hemp coffee and into a wide range of personal body care and food products. It is sold by bulk for private company product lines and is distributed world wide to retailers and consumers. By the time the grain is being processed the entire process of contracting and applying for Health Canada's licensing starts over again. This completes the cycle from contracting to the retail customer.

For up to date information on hemp production, contracting, agronomic information and processing contact **Arthur Hanks**, Executive Director, The Canadian Hemp Trade Alliance at www.hemptrade.ca and/or us at Hemp Oil Canada Inc. at www.hempoilcan.com.

Adding hemp to your final vocabulary will not only change your health but change your life!! Peace and keep on hempin!!





CBCofC & Hempology IOI cont...

Written by Gayle Quin. Gayle has been involved with Hempology 101 and the CBCofC for less than three years, but in that time has developed many edible and skin products while actively speaking and writing for the cause.

The second trial of 2005 was on January 5-7. It was a great surprise to us when Honourable Judge Harvey found Ted guilty of trafficking in cannabis (resin) for the production of edible and skin products at the club. Reasons for Judgement and Sentencing may be found on Hempology.com, October 14,

Dr. Hornby's Scorpion Juice stings the things that harm your plants by increasing your plant's ability to fight off harmful fungi, molds, and bacteria. Scorpion Juice strengthens your plant's immune system and vigor so you get bigger, more resiny buds. When your plants need to get juiced, dose them with Scorpion, backed by our industry-leading performance guarantee! Nothing but the best to grow the best. Take your plants above and beyond at: "Giving a hand in growing a better world" We carry a complete line of all plant products. Tel: (250) 296 2899 Tell-free: 1 877 586 5855 ill: hallenherbe@shaw.cs - www.hallenherbe.com 197 Falcon Drive, Highway 97 South Higms Lake, British Columbia CANADA Y2G 9G7

Smith admits possessing, in fact creating these items, albeit not for a great deal of profit and basically for humanitarian purposes." In pp18 she continues with, "we are not talking about medicinal marijuana. The definitions by the government are clear. They do not include cannabis resin." She stated, "I am not without sympathy for what it is you are trying to do, and I accept that...many people are frustrated with the government." Ted was sentenced to a 9month conditional discharge. Ted filed an appeal, which the Department of Justice

agreed to and invited the Court to enter an acquittal. (See Hempology.com, Sept.29/05.)

Later in Jan. Honourable Judge Kay found Ted Guilty of possession for the purpose of trafficking as a result of sharing joints at UVIC. He was sentenced to 1 day in jail. Ted has filed an appeal before the B.C. Court of Appeal and will be representing himself early in

Many of the club members have had a remarkable reducin the use pharmaceuticals, if they have

cannabis readily available as an alternative. This has led us to launch an independent research study to show in dollars and sense the value of cannabis as a medicine. (See Hempology.com, Sept 22, 2004, for a copy of the survey.) We are particularly proud of this study, as it is the first of its kind in the world to our knowledge.

The CBC of C offers a wide range of medic-

2005. In sentencing (pp3) she stated, "Mr.

include several varieties of dietary products, as well as topically applied ointments and oils, cannaplasts and lip balm, all containing the marvelous benefits of cannabis.

inal products as well as raw herb. These

The club offers 7 kinds of cookies: ginger. chocolate chip, double chocolate, peanut butter, oatmeal, peanut butter chocolate chip, and an extra-strength cookie made with bud instead of leaf.

Budda Balls were carefully designed to be easy on compromised digestive systems such



Photos by Marnie Garfat

as those with Crohn's disease and diabetes, and are a complete meal replacement. They contain oats, hemp protein, soy protein, coconut, sunflower seeds, almond powder, honey, cannabis infused olive oil and lecithin.

Ryanols are veggie capsules containing grape seed oil (good for dissolving bad cholesterol) infused with cannabis and lecithin. Veggie capsules are used as an alternative to gelatin capsules, which are derived from animals. Ryanols are a convenient, affordable, and effective way of ingesting

We also offer a lozenge for severely compromised digestive systems as well as sore throats. They are made of Chinese Wolf berries, Slippery Elm, and Cannoil.

Mental attitude has everything to do with





CBCofC & Hempology IOI cont...

physical reflection, and state of being (well-ness-illness). If cannabis is capable of creating a state of self-worth, care and love, our bodies are free to heal themselves providing we supply it with all the nutrients it needs. Thoughts should be looked at as nutrients that feed our life force, and without, no amount of nutrition provided will make much difference. So cannabis seems essential to our mental, physical and spiritual well-being.

That having been said, it seems apparent that the best way to defend ourselves is through education. It is my great pleasure to teach you how to make Cannoil, a cannabis infused oil you can use to do your own baking; and make into massage oils and lip balms. This is distinctly different from making hashish or honey-oil, which is a concentration of the resins.

We are going to infuse the cannabinoids directly into the oil we are using, which is usually olive oil because of its own benefits. Massage oils are half the strength of cookies. We still prefer the more traditional method of a double boiler. Put 2-3 inches of water in the bottom pot and place on the stove. In the top pot put 1 ounce of good leaf (1/2 oz for massage oil, or 1/4 oz buds for Cannoil), and 1 cup of olive oil or 1/2 lb of butter. Boil for 4-5 hours - remember to check the level of the water every couple of hours and add more if necessary to keep from boiling dry. You don't need high heat, just enough to keep the water boiling. Too high a temperature and you start to destroy the active chemicals. Instead it gets cooked at a temperature that activates inactive cannibaniods and cannibinols; thereby increasing its potency. Take the top pot off and set aside to cool. Strain the cannabis/oil mix through 1 or 2 layers of cheesecloth into a clean measuring cup and squeeze as much oil out as possible. Don't worry about getting it all out because now you are ready to make a Cannaplast! Now I usually divide the oil into 2 containers, ready for use. I make 50 cookies or 100 lozenges from 1/3 cup of cannoil. You can also bottle it at this point to add to whatever food you like in the quantity you need at the time. The next thing you need to remember is that low heat applies to baking as well. Cookies are baked at 250F for 1/2 hour. Cakes need to bake at the least 300F, so brownies and things like that are usually preferred.

It's time to reveal the secret ingredient! LECITHIN! That's right, lecithin. It comes from soybeans, eggs, corn, wheat and nuts. You can get it in liquid or powder for baking (also great for greasing your muffin tins with), or in capsules as a supplement. Lecithin is found in all living cells of the human body. It aids the body's use of fats and oil-soluble vitamins by emulsifying them to a form we can use. This is why we add it to our cannabis baking, to help

our bodies use all the Cannoil. Lecithin breaks cholesterol to help prevent Arteriosclerosis. Lecithin is essential to a healthy nervous system as it is found in higher concentrations in the Myelin sheath, (the fatty protective coating of the nerves) so you can see how it will help things like Multiple Sclerosis and White Finger. A type of Super Lecithin (lecithin combined with other nutrients) has been found to arrest Alzheimer's disease. It can also restore memory banks, prevent gallstones from forming and lower your blood pressure. A lack of lecithin can cause forgetfulness, nausea, and intolerance to fats, high blood pressure, joint and muscle problems such as bursitis, cramps and soreness.

Cannabis has been a preferred topical treatment since it began growing beside the campsite. A bud can be applied directly to an open wound and it will not only act as a styptic (stops bleeding), but also as an antiseptic, (stops bacterial infections), antibiotic (stops infections), anti-viral (herpes), anti-inflammatory (stops swelling), and an analgesic (stops pain).

Cannabis oils come in a variety of forms

for our use. We can infuse cannabis directly into oils, and we can express health-giving oil from its seeds. Oils may be combined for specific uses as most plants work synergistically (better together). Our skin is our largest organ and is capable of absorbing medicine as well as expelling waste. It makes sense to apply medicine directly to the site of need whenever possible. In this day and age this is a very viable form of application because most people using a North American diet have compromised digestive systems.

Salve may be used anywhere you would use a first-aide ointment. The base oil is olive oil, which has healing properties of its own. Salve is made by adding beeswax to the desired consistency. You can use it for cuts and scrapes, burns and new tattoos, fungus infections, dermatitis, eczema and bruises. Properties include antibiotic, anti-fungal and anti-toxicant.

The massage oil is not only good for a fabulous body rub, but takes pain and swelling away from arthritic joints, and is enabling surgeries to be postponed and cancelled



Photos by Marnie Garfat

CBCofC & Hempology IOI cont...



Photos by Marnie Garfat

St. John's Wort and cannabis oil is especially good for the circulatory system. It helps all aspects of bruising from stopping pain, facilitating your body to reabsorb the bruise without clotting. It will strengthen capillaries and veins, which is important to compromised livers, as well as varicose veins, and was given favourable reports from migraine sufferers. St. John's Wort and cannabis oil is also good for scrapes and cuts, and minor wounds and burns, making it an excellent first-aid remedy. This combination is also one of the best things to stop abdominal cramps and break down blockages, as well as relieve stomach-aches. It will soothe inflammations of the skin and is a specific for recurrent ear infections.

Chinese Mint, Eucalyptus and cannabis oil is wonderful to rub on your chest for chronic

 bronchitis, asthma, influenza (flue) and whooping cough. It can be used for fever, headaches, sore throats, rashes, stomach bloating as well as neuralgic and rheumatic pains. It may also be used as a rub for your pets to help repel fleas and mites.

Chinese Mint, Camphor and cannabis oil will help lung complaints, local rheumatisms, sprains and strains, bruises and neuralgia. It is also used as a rub for stomach and bowel complaints such as spasmodic cholera, flatulent colic and diarrhoea.

Arnica and cannabis makes an excellent treatment for inflammations caused by things like arthritis and sprains. It will reduce swellings and relieve pain. Arnica works by stimulating blood circulation and is an accepted ingredient for many arthritic and athletic preparations. It also soothes minor burns, ulcers, eczema, and acne. This oil is not to be used on broken skin or open wounds, as arnica can act as an anti-coagulant (stops blood from clotting).

Lip Balms have Shea butter added for both



skin moisturizing and as a sunscreen. They are easily flavoured with pure essential oils for either personal taste or specific health issues.

Cannaplasts are a poultice made of recycled plant material produced in the making of cookies and oils, wrapped in new cheese-cloth. They are applied directly to insect stings and bites, varicose veins, sore joints and muscles. They relieve arthritic inflammation and rheumatic pains. Cannaplasts may also be used to help sore or inflamed eyes, pull sties and alleviate pinkeye. Cannaplast are warmed and placed upon upset or cramping stomachs, irritable bowels, or for menstrual complaints

Also use on broken bones, sprains, strains and bursitis, (for appropriate lengths of time).

They work best if you apply some massage oil first.

Cannabis can be used to replace almost any type of allopathic medicine; from diuretics to anti-depressants - ear oil to throat sprays, and salves to reduce tumours. Extracts have been found to be effective on everything from bacteria and fungi, to the herpes virus and staphylococcus that are resistant to penicillin and other antibiotics. You can virtually make medicine from every part of the noble cannabis plant, be it male or female, kola, root, or seed. That one of the planet's most precious plants is still oppressed must be one of our society's greatest travesties.

Finally, on Jan 29, 2006, the CBC of C will be celebrating 10 years of providing cannabis products to people with incurable medical problems. The oldest public 'compassion' club in Canada with over 1,700 members, the CBC of C would like to thank everyone who has supported us over the past decade.









Rick Doblin

Author, Curt Robbins, is a freelance writer who focuses on counter-culture topics.

While images of joints and bongs will permeate cannabis lore for decades to come, alternative consumption methods have existed for thousands of years. From the drinking of tea-like Indian bhang (cannabis buds soaked in hot milk and spices) to the ancient middle eastern tradition of marinating cannabis flowers in olive oil for anointment to the skin, the smoking of cannabis is actually a fairly contemporary means of ingestion.

The emergence of the medical marijuana movement has motivated the development of alternative cannabinoid consumption methods. Joining sublingual sprays, tinctures, pills, and edibles is a relatively old technology: vaporization. This method of extracting THC and other valuable cannabinoids from the

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cannabis plant offers the advantages of decreased harm to the lungs, considerable long-term cost reduction, and significantly decreased smell during consumption (aiding in stealth).

Medical quality vaporization requires a device called, appropriately enough, a vaporizer. Available in a wide variety of forms—from temperature controllable forced air vaporizers, such as the \$700 German-produced Volcano, to simple manually operated glass devices for under \$20—vaporization is more than a cultural experiment. In fact, it is becoming common for smoking cafes and compassion club dispensaries to rent or offer free use of high-end vaporizers.

In the world of vaporization, the terminology is different. All metaphors related to the combustion of cannabis suddenly fail to apply to this often high-tech method of separating THC from the cannabis plant for administration to a patient. No longer do generations-old references to "burning a spliff" or "torching some herb" suffice. Instead, one toasts or vapes one's stash.

A Brief History

While high-end vaporizers are relatively novel, references to the vaporization of cannabis date back at least as far as the 5th century B.C. Greek writer Herodotus described a plant cultivated by the Scythians that they threw upon red hot stones within a closed room, producing a vapor. Herodotus humbly noted that the Scythian vapor bath produced an effect "...that no Grecian vaporbath can surpass. The Scythians, transported with the vapor, shout aloud."

In 1989, a self-purported U.S. government employee who identified himself simply as "Dr. Lunglife" provided a manuscript to High Times in New York City. The paper detailed the process for building a basic vaporization machine from parts purchased at a local Radio Shack electronics store (see Vaporizing THC Oil: An Alternative to Smoking Marijuana in the May 1989 issue).

In 1994, at the 7th Cannabis Cup in Amsterdam, Sensi Seed Bank employee "Eagle Bill" demonstrated what is believed to be the first temperature controllable heat gun version of a vaporizer. Using only trim leaves and bottom-of-the-plant buds, Eagle Bill wowed passers-by with a clean, powerful high. Shortly thereafter, commercial vaporization units began to trickle onto the market.

"The whole process of vaporization is just going to become easier, more convenient, and less expensive,"



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The Reality

Objectively, vaporization provides many of the "convenience" advantages of smoking while avoiding most of the—albeit controversial—health risks associated with the burning of cannabis leaves and flowers. It offers rapid onset (a characteristic of smoking, but not eating) and very efficient extraction and utilization of cannabinoids (clearly superior to smoking). This greater efficiency means that vaporization sings a siren song not heard on the island of smoking: a cost savings resulting from stretching one's medicine supply. In a world where cannabis prices often compete with those of gold and the most ill are typically those with the least financial power, this is a tremendous advantage (especially for patients consuming high volumes).

Vaporization allows most patients to consume one-half of what they typically would smoke to produce the same effect. For those who are chronic smokers, this can result in thousands of dollars in savings over a period of only one or two years.

While vaporization offers significant midto long-term cost savings compared to smoking, it sports a heavy duty upfront expense—at least for the most efficient machines that are best suited to medicinal users. The benchmark, at least for the time being, is the Volcano. At more than \$600 USD, however, this model is simply beyond the budget of many pot users. Fortunately, prices will surely decrease as market competition, technical innovation, and demand increases.

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Many patients report that vaporization produces a more heady, sativa-like high. "It does seem to be more of a body engagement when one smokes cannabis as compared to vaporization," said Dr. Rick Doblin, founder and president of the Multidisciplinary Association for Psychedelic Studies (MAPS) in Sarasota, Florida. "Maybe that's from the smoke or the particulate matter...it's hard to say exactly. But there does seem to be an ethereal, heady effect that comes from vaporization," he said.

The emergence of the medical marijuana movement has motivated the development of alternative cannabinoid consumption methods. Joining sublingual sprays, tinctures, pills, and edibles is a relatively old technology: vaporization.

The Science

When one burns any herb, the goal is to extract the substances of medicinal or psychotropic value. Unfortunately, research has shown that burning cannabis typically produces more than one hundred toxins, when a handful of cannabinoids and terpenoids is all one really wants. The combustion of cannabis is akin to collapsing an entire building, when all you need is to redecorate a single room.

Despite studies linking marijuana smok-





ing with a decrease in the likelihood of contracting lung disease, a lack of toxins is simply superior to an abundance of what may or may not carry negative health consequences (especially for weak or very sensitive patients). Chemic Laboratories Massachusetts illustrated this when it found that the Volcano can produce vapor that is 95% pure THC, with only three additional compounds present in the vapor (one of which is a cannabinoid). Regardless of the pleasures of smoking, many patients must necessarily seek the most efficient and least risky consumption methods available. Currently, this is either vaporization or edibles (with tinctures running a close third).

One of the most confusing elements of vaporization is the temperature at which it takes place. This is due, in large part, to the fact that vaporization occurs within a range of temperatures, not at a specific thermal point. To be more precise, each cannabinoid (more than 60 have been discovered) vaporizes at a slightly different temperature.

Thus, different cannabinoid profiles are produced by variations in vaporization temperature. While the average recreational smoker will be hard pressed to perceive minute differences, a near-combustion temperature (about 220 degrees Celsius, or 428 degrees Fahrenheit') will produce a noticeably different medical effect or high type than a setting at the base of the vaporization temperature range (about 50 degrees cooler). This can have an impact for medical users who find maximum efficacy from a particular cannabinoid profile.

According to MAPS' Doblin, lower vaporization temperatures result in a headier, more ethereal high, while higher temps produce a more body-engaged, indica-type effect. He recommends using higher temps in order to extract a maximum volume of cannabinoids.

Torching vs. Toasting

A thorough and fair comparison of smoking and vaping is outside the scope of this article. However, because the vast majority of patients smoke their medicine, comparing vaporization with this universal benchmark creates helpful and realistic reference points. The greatest difference between a common form of smoking, such as a joint, and the pinnacle of vaping, the Volcano, lies not only in the efficiency of the extraction of cannabi-



noids, but also in the completeness of the collection and consumption of the transfer medium (vapor or smoke).

For example, when consuming a joint, much of the smoke is lost and never consumed, escaping into the air. This is obviously less true of bongs and pipes, but significant loss from "sidestream" smoke still

While burning herb is a one-pass process (for a given quantity), vaping involves several passes over a single portion of marijuana.

occurs. In fact, a 1990 study by Mario Perez-Reyes (Marijuana Smoking: Factors that Influence the Bioavailability of Tetrahydrocannabinol) revealed that as much as 40-50 percent of the THC in a joint is lost to sidestream smoke.

While most vaporizers are not designed as well as the Volcano, many models do offer the efficiency of capturing all vapor for consumption by a patient, allowing none to escape or go to waste.







While burning herb is a one-pass process (for a given quantity), vaping involves several passes over a single portion of marijuana. Depending on the resinous nature of the sample, up to 10 vaporization passes (10 bags of vapor, in the case of the Volcano) can be made over a single portion of cannabis. The first two passes produce the greatest strength vapor, with each concurrent pass producing less and less medicine (the collection bag becoming less hazy). For best results, one should stir the "duff" (toasted cannabis) after every two or three vaporization passes.

True to the thousands of uses of the hemp plant, the spent duff that is a by-product of vaporization continues to offer utility. Toasted cannabis herb is well suited in the kitchen, complimenting soups, casseroles, and meats during cooking. It can even be used as a crude potpourri.

Both smoking and vaping offer excellent titration (dosing). Like smoking, edibles, and tinctures—but unlike pill solutions such as Marinol or the new sublingual spray Sativex—vaping provides the economy of allowing patients to grow their own medicine, providing the added benefits of affordable supply and personalized strain selection via targeted genetics.

Finding Perspective

It should first be noted that the "superiorities" of vaporization are sometimes subjective, especially for recreational smok-







ers, but often for medical consumption as well. Even some hardcore medical users prefer smoking. "I'm a cigarette kinda girl," said Alison Myrden, a noted Ontario-based multiple sclerosis patient/activist who has tried the Volcano. "I have too much trouble with my hands due to the MS to play with vaporizers or pipes," she said.

Myrden's situation highlights the reality that there is no best consumption method for cannabis. MS patients such as Myrden and others with severe neurological disorders (epilepsy, dystonia, etc.) often are forced to seek simplicity. The stress reduction that accompanies one's preferred and highly subjective ingestion method is of significant note. The psychological stress produced by displeasure or frustration can easily eclipse the benefits of a technically superior means of consumption.

Caregivers and others in the medical marijuana community should consider vaporization as simply another option in the ever-widening range of consumption avenues.









Harm Reduction

According to the latest peer-reviewed research conducted by Dr. Dale Gieringer of NORML and published in the Journal of Cannabis Therapeutics, vapor produced by the Volcano was overwhelmingly populated by THC, but does contain trace amounts of other compounds (collaborating the previous findings of Chemic Laboratories).

"The major finding of this study was a drastic quantitative reduction in non-cannabinoid compounds in the vapor from the Volcano," read the Gieringer study. "This strongly suggests that vaporization is an effective method for delivering medically active cannabinoids while effectively suppressing other potentially deleterious compounds that are a byproduct of combustion," it summarized.

A leading edge unit such as the Volcano produces cannabis vapor that is pure enough, in fact, that it qualifies to be used as a scientific medical device. Doblin points out that the purity of cannabis vapor produced by a professional unit is great enough that even severely challenged medical patients should harbor little worry regarding health risks.

"Vaporization does such a good job of reducing the risks that we're aware of that I think there's an excellent chance that high potency marijuana, vaporized, can be considered a medicine by organizations such as the [U.S. Food and Drug Administration]," said







Doblin. Thus, vaporization is a technical advancement in the consumption of cannabis that is also serving as a political tool for researchers like Doblin.

The Future Will be Vaporized

While smoking will probably never fully disappear from the cannabis landscape, the future of vaporization promises to increase efficiencies and convenience even further. Smaller, more portable units will continue to emerge that provide results approaching the quality of today's Volcano. While rabid detractors perpetually fail to establish a link between smoked cannabis and lung cancer, a significant percentage of the cannabis community will prefer smoking over vaping. Vaporization, however, will continue to lure greater numbers of disciples, both recreational and medical.

"The whole science and technology of vaporization is developing in a really good way," said Doblin. "The whole process of vaporization is just going to become easier, more convenient, and less expensive," he concluded. "I think there's going to be a lot more people moving to vaporization in the future."

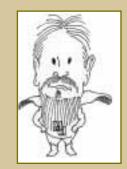
1) Thus, the urban legend of the perfect vaporization temperature being 420 degrees is actually true. In Fahrenheit, 420 degrees is within the recommended upper range of the vaping temperature scale.











FIND MIGHTY MIKE

Find Mighty Mike hidden somewhere in this issue to win a prize. Send the page number and location where you found Mighty Mike to info@cannabishealth.com or snail mail to Box 1481, Grand Forks, BC VOH 1H0 with Mighty Mike Contest in the subject line.







Rhode Island Medical Marijuana Bill Passes

FOR IMMEDIATE RELEASE JANUARY 3, 2006 Rhode Island Becomes 11th Medical Marijuana State First Medical Marijuana Bill Since Supreme Court Ruling Passes Via Historic Veto Override CONTACT: Bruce Mirken, MPP director of communications, 202-543-7972 or 415-668-

PROVIDENCE, RHODE ISLAND — The Rhode Island House of Representatives voted to override Gov. Donald Carcieri's veto of the Marijuana Policy Project's medical marijuana bill today, making Rhode Island the 11th state to make medical marijuana legal and the first to enact a medical marijuana law since the Supreme Court's June decision in Gonzales v. Raich. Rhode Island's medical marijuana law is the third to be enacted by a state legislature, and the first passed by overriding a governor's veto. (The other eight states' medical marijuana laws were enacted via ballot initiatives.)

"Today's vote proves yet again that the movement to protect medical marijuana patients from arrest is unstoppable," said Rob Kampia, executive director of the Washington, D.C.-based Marijuana Policy Project, which spearheaded the effort to pass the bill. "Last June, White House Drug Czar John Walters proclaimed 'the end of medical marijuana as a political issue in the wake of our loss in the U.S. Supreme Court, but he couldn't have been more wrong. The public, the medical community, and Rhode Island legislators agree that patients with cancer, AIDS or multiple sclerosis should not be arrested for using medical marijuana on the advice of their physicians. We will continue to roll back the government's war on the sick and dying, and the White House drug czar can't stop us any more than he can make water flow uphill."

MPP worked closely with a coalition of Rhode Island patients, medical experts and health advocates to build support for the bill. Organizations working to pass the bill included the Rhode Island Medical Society, the Rhode Island Nurses Association, and AIDS Project Rhode Island. In association with the Rhode Island Patient Advocacy Coalition, MPP recently sponsored a billboard near the statehouse and encouraged patients and other supporters to call and write their state representatives to urge them to override the governor's veto.

Medical marijuana legislation continues to receive support in state legislatures around the country. Medical marijuana bills were introduced recently in Michigan and Wisconsin, and MPP has retained lobbyists to advocate for medical marijuana legislation in

"Today's vote proves yet again that the movement to protect medical marijuana patients from arrest is unstoppable,"

Illinois, Minnesota, and New York. Similar legislation is poised to pass in New Mexico.

With more than 19,000 members and 100,000 e-mail subscribers nationwide, the Marijuana Policy Project is the largest marijuana policy reform organization in the United States. MPP believes that the best way to minimize the harm associated with marijuana is to regulate marijuana in a manner similar to alcohol. For more information, please visit http://MarijuanaPolicy.org.



Last Chance!!!!!

Enter to Win this First Nations Medicine Bag! Winner to be Announced in the May/June issue of Cannabis Health

Every subscription, article, letter, art, photo and/or "Truth Is" submission and advertiser received before March 31, 2006 will be entered for a chance to win this exquisite oneof-a-kind medicine bag, worn during the opening ceremonies of the Festival of Freedom at the Forks. Created by Mikisew Cree First Nation artist, DorothyAnn, a gifted soul who is inspired by the world around her. "A piece of my soul goes into each medicine bag" DorothyAnn says of her creations. Her bags are made with 100% hemp, cord and hand dyed lining. The stones are: crystals, turquoise, 100 year old trading beads, handmade pure silver and

pewter Mexican beads. She even adds a piece of sweetgrass bless the bag and a signed,

numbered card is included. From her soul to yours, peace. This bag is valued at \$2,500 CDN. The winner will be announced in the May/June 2006 issue of Cannabis Health Journal. Good luck to all.

Where is the compassion in all this?

This is an open letter to anyone who might be experiencing the difficulty of trying to survive on a disability income having to self-pay for the only medication left for those who really have no other option in terms of Canada's present Pharmacopoeia of Pharmaceutical drugs. In fact, Cannabis is the only Medicine I have left for treating symptoms and a possible cure to the present health crisis I'm currently dealing with on a daily basis. In fact, all Pharmaceutical drugs to date, prescribed for my conditions, are contra-indicated for folks with chronic liver disease.

Cannabis has truly worked for me, in terms of pain management, hunger inducement, treatment for sleep disorder, anxiety and as a preventative measure, possibly slowing down the replication of Chronic Hepatitis C "C Geno-type 1a.

I was treated in 2002 with a Pharmaceutical drug called Interferon 2b as well as pills (six per day) used as an anti-viral. The drug product company Roche Pharmaceuticals called this product Rebatron. (Sounds like an X-box game.)

After seven months on this frightening product, I was told the treatment results were

Here it is folks,

your chance to join the thousands of tobacco connoisseurs growing their awn smoking and ceremonial plants.

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negative. The result sure was negative, at least for me anyway. I now have autoimmune disorder, Osteopenia, future possibility of Ischemic heart disease and maybe cancer. I truly believe that these conditions are the direct result of this medication. Of course now I have a lot more to deal with post-treatment. I believe more will be revealed as my life progresses. Though there are those whom this treatment has helped tremendously, this was not the case in my treatment with this drug. I've interviewed many individuals treated, a large percentage of individuals are now in therapist's offices and prescribed S.S.R.I. drugs, i.e. Prozac, Celexa, Effexor. Some are developing cancer and going for their third round of these drugs, even though they have developed cancer. (These individuals have to pay for this treatment themselves and are willing to do so.)

Pharmanet denied me any further funding for drug treatment as the drug is only given once to those of us living in poverty; if one can self-pay they will gladly give you the drug, costing \$18,000.00 (C \$20,000.00) with no guarantees. To me it was a blessing to me that I was unable to receive any further funding, though I tried through advocacy to sway their decision. Please see (Monday Magazine article: May 22.04. Title: Insult to Illness.)

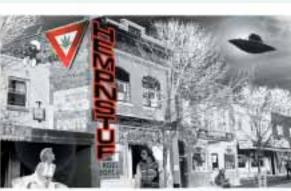
In 2004 I began researching options of treatment for my condition via credible sites on the Internet. I became convinced that Medical Cannabis could work for me on many levels, symptom management, preventative measures and, dare I say, a potential cure (Yet to be discovered). What I can tell you is that the wasting condition I once had is gone; I've increased in body mass by 40 lbs! I sleep very well and can tolerate most of the pain I feel daily. My blood work is the best it's been in years. Further tests will be needed to know for sure as to the potential of what was once called the "Holy plant" of medicine. The plant has a matrix of 60 or so Cannabinoids depending on its strain. Though the Delta 8 C

9 feature in the plant helps in much symptomatic relief; it's not the whole story. What is important is that the whole plant IS the whole medicine. Even the plants roots have been used over the centuries for dissolving tumors and cancer. Yet, try to find cannabis root.

Now, all this good stuff being said, in 2004 I entered into the world of compassion clubs, Doctors forms, Specialist forms, Government forms (B.C. (pwd)-disability, C.C.P. disability, The office of the M.M.A.D.) These forms might kill someone before the actual disease will. In fact just to receive nutritional supplement funding took three years of fighting for a whopping \$164.00 per month. In fact, the past two years have been a go-it-alone advocacy just to survive.

Adding to all this stress is the added financial costs, creating more stress in someone combating several chronic illnesses and to keep cannabinoid levels high in my system. To obtain cannabis for medical use, I've needed to sell many of my belongings, obtain loans from agencies preying on the poor and destitute that must pay back these loans at a very high rate of interest and finally a small disability visa (R.B.C.) which is now over limit. I am a Medical Cannabis Licensee under the M.M.A.D. and order one half of my prescription due to economics. As well, I use my local club (The Cannabis Growers and Buyers Club) affectionately known as "Ted's" here in Victoria B.C. I'm grateful to both these agencies for providing affordable great medicine as well as going to great lengths to protect individuals with immune deficiency issues from bacteria and microtoxins and fertilizers used in commercial growing.

Yet, I ask the readers, how can someone on an income of \$1044.00 afford to spend half their income on medication? And survive and stay healthy in today's economic climate. I've







Where is the compassion in all this?

personally come across growers who offered me 1/5 of my prescription (which is totally illegal). One in particular, is now on city council here in Victoria trying to fund their political career of the back of the unfortunates. (What else is new?) I was prescribed Marinol, a pharmaceutical cannabis drug at \$80.00 per month. This product was not funded under the Medical Services Plan of B.C., and yet the province approved Cesamet, another synthetic cannabis drug, actually its pharmaceutical name is Nabilone. The funding came in for this product, and was covered by M.H.R. at a whopping \$1280.00 per month. Is there any logic to this? Of course not, it's all about money and pharmaceutical control, later I discovered that Cesamet is not a medication for individuals with liver disease, which is my primary problem. (Baffling!).

So it all comes down to the almighty dollar once again. This is a fight for control and choice, and financial gain off the back of soci-

eties most unfortunate; the poor, sick and dying. Greedy growers, greedy politicians, greedy pharmaceutical companies, all positioning for control of what was once called the "Holy plant". A truly un-holy trinity. The cost of this medication need not be so high. Understandably; growing has costs, yet the cost might be no more than \$15.00 per ounce.

What I also find baffling is in a country like ours where there is nothing in the Canadian pharmacopoeia useful to helping me; I'm forced to pay almost half my income to the Federal Government for a treatment they are selling to me, via Prairie Plant Systems. Why this medication is not covered, and concessions are not made for individuals living in poverty, trying to survive just one more day, is equally as baffling. I'd like to thank those who have helped me in advocacy and thank those clubs, growers and branches of Government who are operating with integrity and compassion; you are all a rare breed indeed. As we all

know, so much for "A government for the people, by the people. It truly has become a government for the corporation by the corporation". In this case the giant pharmaceutical conglomerates that care nothing for the individual, rather, only for their quarterly profits. It's a sad case. Many growers out there are following suit to this growing consciousness. If there are growers out there who are growing from integrity, I ask for your help, as I've nowhere else to go. To those who started this movement, I'm grateful beyond words, to those money driven and power hungry you now have become that which we thought we were all fighting together, the enemy, the establishment based of hierarchy and control. Once again I ask you, where is the compassion in all this?

D M. Victoria. B.C



Cutting Edge Cannabis Culture

We have been rockin' the Shock in Edmonton, Alberta for five years strong. We have two Shell Shock locations in the central and south sides of the city. The premier location, in Strathcona, where it all began, is located at 8124 Gateway Boulevard. We have been cultivating our second shop in Whitemud Crossing, 4211 106 street. Both shops offer an executive look at cannabis and counter culture. They have and will always make you feel like you are the most important person that has ever walked into the shop. Your support is all that matters and that will never change. They are pleased to give you advice and training on what to use and how to use it. From your first bubbler to your first bong; from a regular stem to a percolating one; from a coffee grinder to a space case and from blunts to vegan papers, Shell Shock can fulfill all your needs. Shell Shock is a shop with more than just bongs and pipes; it is about the people.

When it comes to knowledge on drug testing, Shell Shock is where you want to be. With five years of hard research beneath their belt, all your questions can be answered and your fears calmed. Shell Shock will spend hours making sure that the product you choose is the best suited for your situation.

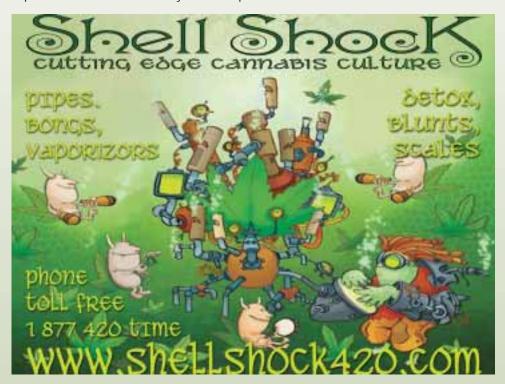
Shell Shock is a strong promoter of vaporizer technology and, a few years ago, we were the first one's to have the volcano available for rent. Our glass collection includes pieces by Shine, PJ, Cool Liquid, Benz Glass, Chameleon, Nault Glass, Pixie, Lethal, Galaxy, Intrepid and others from around North

America. Check out the Mighty Traveler piece from Benz Glass with three turtles, a manta ray, two jelly-fish, a coral reef with fish, and a giant octopus bowl. A piece for the true collector, or order you custom piece today.

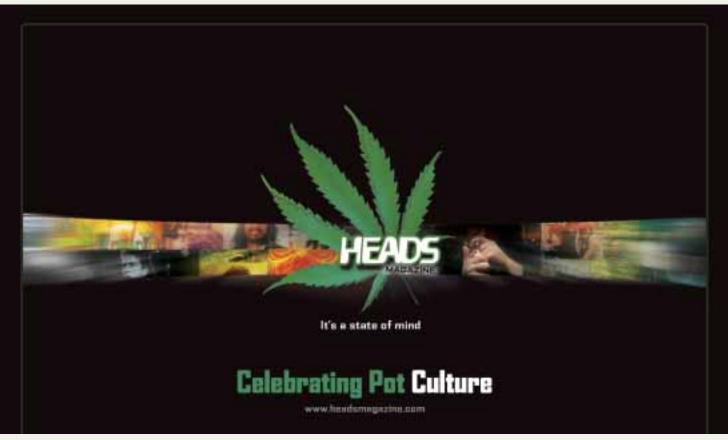
Our website makes us available for all those who have heard of Shell Shock but are not able to come into the shop for the entire experience. We showcase many of our top products and the best of the best of our glass collection in the catalogue. For those of you, who don't live near; check out Shell Shock on the web at www.shellshock420.com.

Shell Shock is a place where you can talk to real people who care. Keep it Blazin'











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