CANNABIS HEALTH

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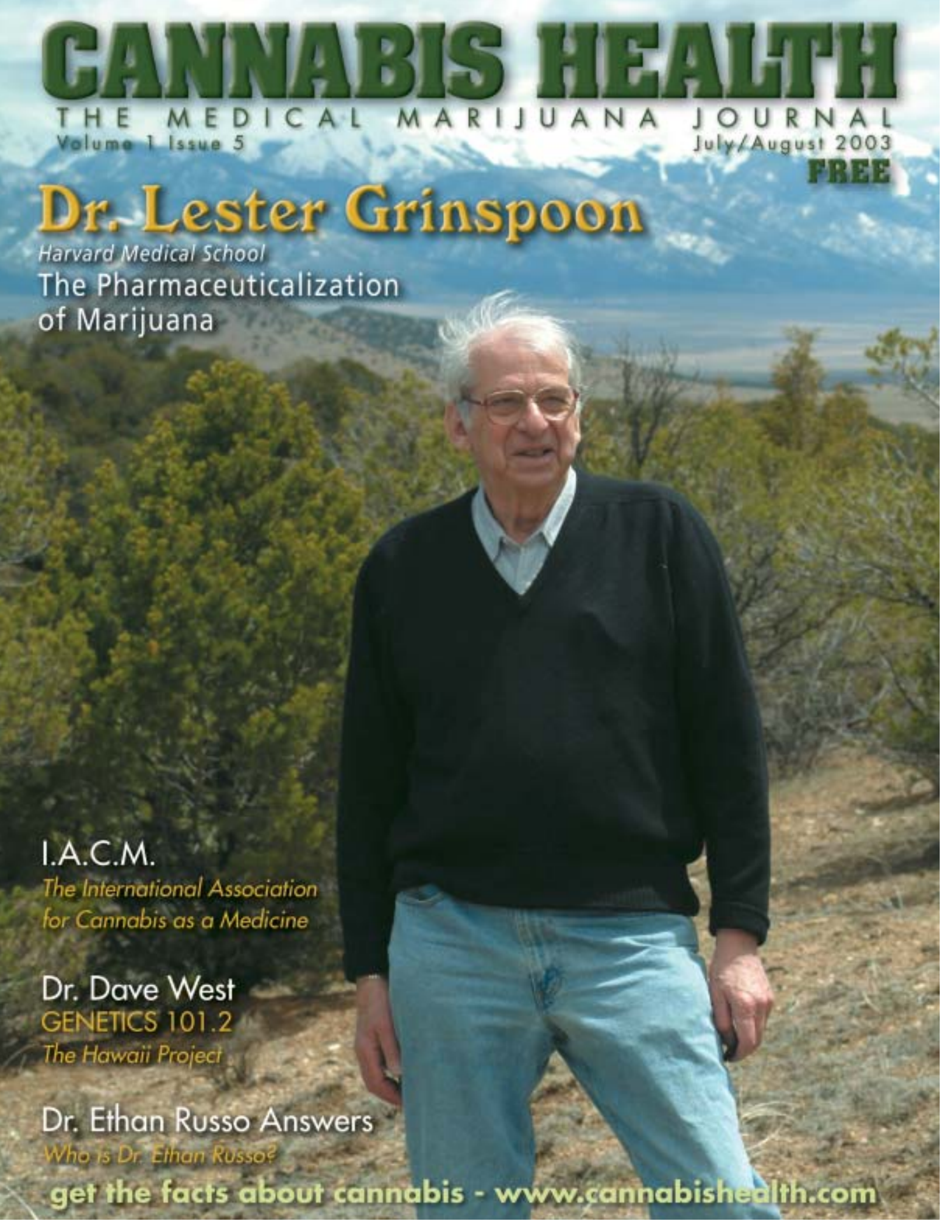
FREE

Dr. Lester Grinspoon

Harvard Medical School

The Pharmaceuticalization of Marijuana



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also read seed bying tip on page 3

Feature Story

Dr. Lester Grinspoon
The Pharmaceuticalization of Marijuana
page 5

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When you see this symbol, visit our website at cannabishealth.com for extended versions of the stories and links to information and resources.

The Cannabis Health Foundation was formed in the spring of 2002 as a non-profit foundation.

The foundation is dedicated to:

- Promoting the safe medicinal use of cannabis.
- Research into efficacy and genetics of cannabis.
- Supporting and protecting the rights of the medical cannabis users.
- Educating the public on cannabis issues.

The first initiative of the foundation is this complimentary hard copy publication of *Cannabis Health*.

Other activities will include financial and practical support for low income patients and the establishment of a legal defense fund.

The free hard copy of *Cannabis Health* is also reproduced in whole on the World Wide Web at cannabishealth.com (the foundation website) with extended stories and hot links to resources and information.

SUBSCRIPTION INFORMATION

If you would like to receive 6 copies per year of the most informative resource for medical marijuana available, subscribe to *Cannabis Health* by sending your name and address and a cheque to Cannabis Health Foundation, P.O.Box 1481, Grand Forks, B.C., V0H 1H0 *(USA send CAN$45.00cdn and foreign send $75.00cdn)*

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NOTE:

In the GW Pharmaceuticals article in issue 4, we did not give the full name of Valerie Corral of WAMM, in the middle of the photo, between Matt Elrod on the left and David Hadorn on the right. The picture was taken on the Sunshine Coast while attending Rene Bojees wedding. WAMM was raided a few months earlier by federal agents who were later prevented from leaving the WAMM property by members blocking the driveway. Members took down the blockade when, after being released, Val asked them to. It was sort of a hostage exchange. Coincidental to the picture, Val and WAMM collaborated with GW on a whole cannabis strain analysis. WAMM recorded patient impressions of different strains for treating various symptoms.

COVER PHOTO

The cover picture of Dr. Grinspoon was recently taken by his son David when they were visiting the San Luis Valley in Colorado. Davids new book, *Lonely Planets: The Natural Philosophy of Alien Life* will be published this fall by Harper-Collins.

also see adverisement on page 1

BUYING SEEDS?

HERE ARE SOME THINGS TO CONSIDER BEFORE MAKING YOUR PURCHASE.

1) IS PRICE A CONSIDERATION?

Seeds imported from Amsterdam produce the highest quality F1 hybrids. Dutch seed companies also produce some of the finest, stable pure breeds available in the world. These pure breeding strains make-up the backbones of most domestic F2 hybrids.

Lenient regulations in Holland have allowed companies there to create world class, high tech, breeding programs. These Dutch seed companies have the resources and access that enables them to take advantage of the most advanced technologies in the world. Parents are chosen from very large groups, thousands of plants are grown out and scientifically analyzed to help choose the best possible individuals for breeding.

Domestic seeds can also be of very high quality. There are many domestic seed companies that have entered the market in the last five years and the results from many of these seed companies range from excellent to very disappointing. Repressive laws in North America have forced domestic breeders to choose parents from much smaller genetic groups than Dutch breeders enjoy. Professional domestic seed producers use careful, experienced, observation to select the best candidates for breeding programs that have produced some of the finest cannabis available anywhere in the world. Many of the domestic strains are F2 hybrids, the results from these seeds are more variable than those obtained from Dutch seeds. However the ease of stocking and lower wholesale prices allows us to offer domestic strains at lower prices than their Dutch counterparts.

Remember, genetics are the most important investment you will ever make in your growing life!

2) ARE YOU GROWING INDOORS, OUTDOORS OR IN A GREENHOUSE?

Most varieties of cannabis will grow indoors under artificial lighting. Some strains grow so tall or have such low yields indoors that they are disregarded by most indoor cultivators. Strains labeled as indoor on our web site have been selected for the best indoor results.

All varieties of cannabis will grow outdoors, somewhere in the world. As you move North or South, away from the equator fewer varieties are available to outside cultivators, and conversely those growing outdoors closer to the equator have more varieties available to them.

Greenhouse growers enjoy the best of both worlds. They can grow bigger plants than indoors and longer flowering plants than outdoors in Northern climates. By using shade cloths, supplemental lighting, heaters and air coolers, conditions in a greenhouse can be manipulated to allow the successful cultivation of almost any variety anywhere in the world. Strains labeled as greenhouse on our web site have been selected for greenhouse growing in Northern Europe, the Northern United Stated and Southern Canada, without shades or supplemental lighting.

3) WHAT KIND OF MARIJUANA DO YOU LIKE?

The exact taxonomy of cannabis is somewhat complicated. A fairly exhaustive study of this subject can be in Marijuana Botany, Appendix 1 Taxonomy and Nomenclature, By Robert. C. Clarke, 1981.

For our purposes we will assume that potent cannabis varieties fall into three main categories: Sativas, Indicas (including Afghanicus) and Ruderalis.

Most Sativas originate in climates with hot, long, growing seasons. Many Sativas have growth patterns that produce tall plants with relatively large inter nodal distances (distance between budding sites). Longer flowering times discourage outdoor cultivation in climates with short growing seasons.

Sativas are often characterized by their enduring, zippy or up high, sometimes described as being more cerebral than Indicas. There are many Sativa strains available, some are pure breeds, some make up a component of a hybrid with other Sativas or Indicas and Ruderalis, they include: Durban, Thai, Burmese, Haze and many other equatorial strains. Haze is a stable hybrid of pure Sativas, considered by many to be the strongest cannabis in the world, and most pure skunk strains are up to 75% Sativas, both are excellent choices for your own, hybrid production. Because of their shorter stature, shorter flowering times and often higher yields, Indicas and hybrids of these strains make up the majority of indoor commercial and personal cannabis cultivation. They usually have growth patterns that produce short, conical or Christmas tree shaped, plants with relatively small inter nodal distances. Shorter flowering times encourage outdoor cultivation in climates with short growing seasons. Indicas are usually smaller or at least shorter than Sativas and can often be more easily hidden outside. Indicas are often characterized by their strong, narcotic high, sometimes described as heavier than Sativas. There are fewer pure Indica stains than Sativas, however, because of their popularity indoors, there are many mostly Indica hybrids. All Indicas originate in South Central Asia. They include: Kush, Nepalese and Persian strains from Afghanistan and Iran. Northern Lights is a stable hybrid that is up to 75% Indica, Afghani 1 and Hindu Kush are also good candidates for your own, hybrid production. Ruderalis is a less potent strain used as a hybrid with Indicas and/or Sativas. They have extremely short flowering times, often auto-flowering under longer photo periods. They tend to grow with a single, prominent, central, cola, and are rarely more than a few feet tall. They usually produce small yields.

Very short flowering times make Ruderalis hybrids popular in climates with very short growing seasons, some plants are mature by late July or August in Northern areas. These strains are not recommended for indoor cultivation, however, they are often a valuable insurance policy in high latitudes, high elevations and other marginal growing areas.

4) WHAT IS YOUR GARDENING TECHNIQUE?

Or more specifically: What are your parameters for plant height and plant density? This applies to hydroponic systems and soil or soil-less mediums.

Are you growing fewer, larger plants?

Gardeners who grow taller plants often grow Sativas or their hybrids, because they continue to get considerably taller during flowering, some grow Indicas and their hybrids, letting them vegetate to larger plants before initiating flowering. This is true, for both, indoors and outdoors or in greenhouses

Are you growing many, smaller plants?

Many gardeners employ high density techniques often referred to as Sea of Green or Screen of Green. This technique uses many smaller plants, spaced closely together, to form a continuous canopy of short plants under high density, horizontal lights. Indicas are often used because of their naturally smaller stature, and shorter flowering times. Sativas are also grown in this fashion, however, they are often put directly into a flowering cycle with very little or not time given to a vegetative cycle, this helps to prevent crowding and tall, stretching, growth. The longer flowering Sativas often make up for the additional time required, with higher yields and stronger cannabis.

also see adverisement on page 1

THIS ARTICLE COURTESY OF KIND SEED COMPANY & ROMULAN JOE

Brian Taylor
Editor-in-Chief

May 24th was truly a landmark day; a whole day of national TV coverage of Canada's new national drug strategy. I am at home, finally, sitting in my comfortable chair, as over the past two months I have spent 45 days in hospital, had two major surgeries and cancer. My last minor procedure is tomorrow, but today I am glued to the television. Never have we seen such a high level of discussion in this country. The logic and the arguments by one credible witness after another lay to rest the myths. Not to be deterred by science or the facts, the usual proponents of prohibition rise to the challenge and frankly sound like idiots. Several times in the midst of the discussion, the interviewer would say something like, now let me get this straight, the smoker gets a fine, and where exactly are people suppose to get this marijuana? Forced to back off, the interviewer finally gets the message and realizes: None of this plan makes rational sense.

I see this move by the Liberals as a positive step in the wrong direction. We need to recognize that having politicians debating this without making awkward pot jokes is a breakthough. We have moved from total pot paranoia to treating possession like a speeding ticket. On May 26th, despite the unworkability of the whole plan, or maybe because of it, public acceptance of cannabis went up. It is now bonified news and the issues are being discussed as current events in grade 11. More and more the debate is sophisticated, considerate and intellectual. My forced sabbatical over the past two months placed me outside the bubble of the cannabis movement and my life collided with a large number of health care people and non-movement individuals. I am pleased to report that through education we are winning over the hearts of the public. My thanks and appreciation to the medical staff in Grand Forks and in Kelowna who provided excellent care and were respectful of the use of cannabis in my recovery. Special appreciation to Barb and all of the staff for the great job they have been doing, publishing the journal and nursing me back to health. It is heartening that our common cause has momentum and the commitment of so many.

Have you wondered why (the US) is spending such inordinate amounts of money and time on controlling this relatively innocuous substance that Canada is about to decriminalize. News that the US has similar or even more lenient decriminalization laws in place in 12 states has finally caught peoples attention. Yes, marijuana is the most important drug in America, not because it is addictive, or a gateway, but because, if the prohibitionist lobbyists loose the pot war they will be forced to admit they are wrong and have perpetrated massive lies and deception. This is not your father's pot, this is about the breakdown of the whole drug mind set.

Could Canadas new laws be the slippery slope? I certainly hope so!

This edition contains a number of well written and timely submissions by experts in their perspective fields. Good advice for Canadian politicians as they make this move to further remove the fear of pot.

Bless the thin edge of the wedge.

BT

Letters

LOVE THE MAG, GREAT JOB

Dear Brian: I've a little story to tell you while I subscribe to your journal. As a section 56 exemptee since Oct. 19/01 expiring July 18/03 (6 month extension) I've seen the medical marijuana issue become so complicated, it is failing those in need the most. I've told H.C. (Health Canada) that their red tape was killing me. Their lies didn't help.

One of my doctors pointed out to me that in 1990 marijuana was the ultimate pain killer. It's the only substance I know of that has caused no deaths, compared to pharmaceuticals. Cindy Cripps has informed me that on Feb. 7/03 H.C. has issued 541 authorizations to possess, and 257 have made the crossover to the M.M.A.R.

My odyssey of applying has made me so mad that I will take it to the steps of the House of Commons. I'm a citizen living in Northumberland County, Ont. and I'm not allowed to talk to my M.P. I have received some help from M.P. Dr. Keith Martin - Esquimalt/Juan de Fuca in dealing with H.C. It is now up to me to stand up for what I believe.

In short, the medical system has failed me and marijuana is the only medication that I can tolerate without adverse side effects. It's one substance for all my ailments and it grows out of the ground. (WOW!) Looking forward to witnessing your success as an informative.

Gordon Strickland

A MIRACULOUS EFFECT

I'm sending this letter hoping some of the many people suffering from the never-ending agony of muscle, joint and bone pain that prescription drugs, including morphia, don't relieve.

I've been smoking marijuana since 1977 to control glaucoma in both eyes. Recently, by chance, I obtained a strain called Hash Plant, that is having a miraculous effect on an extremely painful condition diagnosed as Fibromyalgia. The severity of the pain has kept me bedridden, 18 to 20 hours a day since 1982. I'm not completely pain free, however, 80 to 90% of the pain has gone, allowing me to function again.

On behalf of my family and myself, thank you to whomever is responsible for providing a Miracle.

Anonymous - due to social stigma of pot.

Ned, testing new harm reduction products!

cartoon by Glenn Smith from Osoyoos, B.C.

The Pharmaceuticalization of Marijuana

Dr. Grinspoon and his grandchildren Zachary and Emma Sophia

Dr Lester Grinspoon MD is on the faculty (emeritus) of the Harvard Medical School in the Department of Psychiatry. He has been studying cannabis since 1967 and has published two books on the subject. In 1971 Marihuana Reconsidered was published by Harvard University Press. Marihuana, the Forbidden Medicine, co-authored with James B. Bakalar, was published in 1993 by Yale University Press; the revised and expanded edition appeared in 1997 and is now translated into 10 languages. (Medical Uses www.rxmarijuana.com Uses of Marijuana www.marijuana-uses.com)

by Dr. Lester Grinspoon MD

The government of the United States has a problem where medical marijuana is concerned. While there are many thousands of patients in the United States who currently use cannabis as a medicine, only seven are allowed to use it legally by the federal government. They are the survivors of the several dozen patients who were awarded Compassionate Use INDs during a period of time (from 1976 until 1991) when the government half-heartedly acknowledged that marijuana has medicinal properties. This program was discontinued because of the exponentially growing numbers 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.

Because of increasing pressure from the many patients who find cannabis useful for the treatment of a variety of symptoms and syndromes, and the passage of Proposition 215 in California in 1996, the U.S. government funded the Institute of Medicine of the National Academy of Science to study the question of cannabis' utility as a medicine. Its report, "Marijuana and Medicine: Assessing the Science Base" (published in 1999) timidly acknowledged that cannabis does indeed have therapeutic value. The growing understanding that cannabis is useful as a medicine presents a problem to the United States government: how can it make it possible for people who need it as a medicine to have unfettered access to marijuana, while at the same time prohibiting it to people who wish to use it for purposes the government does not approve of. A possible solution to this problem might be found in the "pharmaceuticalization" of cannabis: the development of prescribable 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 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."

Actually, the first attempt at pharmaceuticalization occurred in 1985 when 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" of cannabis might be what the government hoped would solve its problem with marijuana as medicine, the problem of how to make the medicinal properties of cannabis (insofar as the government believes such properties exist) widely available, while at the same time prohibiting its use for any other purpose. But Marinol did not 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. 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.

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% 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

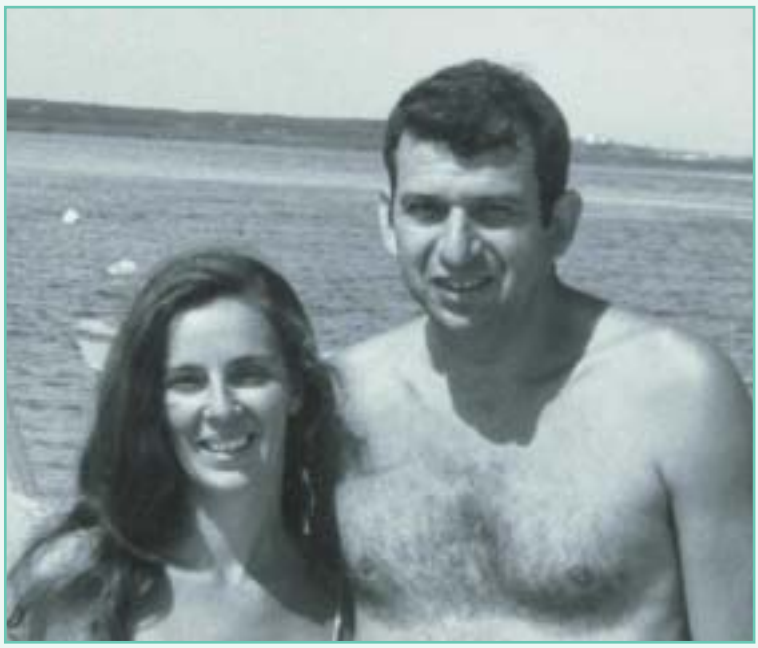
also lack the psychoactive effects which make marijuana useful to some for non-medical purposes. Therefore, they will not be defined as "abusable" drugs subject to the constraints of the Comprehensive Drug Abuse and Control Act. Nasal sprays, vapourizers, nebulizers, skin patches, pills, and suppositories 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 vapourization devices that will be inexpensive when manufactured in large numbers. These devices take advantage of the fact that finely chopped marijuana releases the cannabinoids by vapourization when air flowing through the marijuana is held within a fairly large temperature window below the ignition temperature 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 succeeded in getting Marinol (dronabinol) reclassified from Schedule 2 to Schedule 3. Nevertheless, many physicians will continue to avoid prescribing it for fear of the drug enforcement authorities.

> If they note psychoactive effects at all, they speak of a slight mood elevation-certainly nothing unwanted or incapacitating.

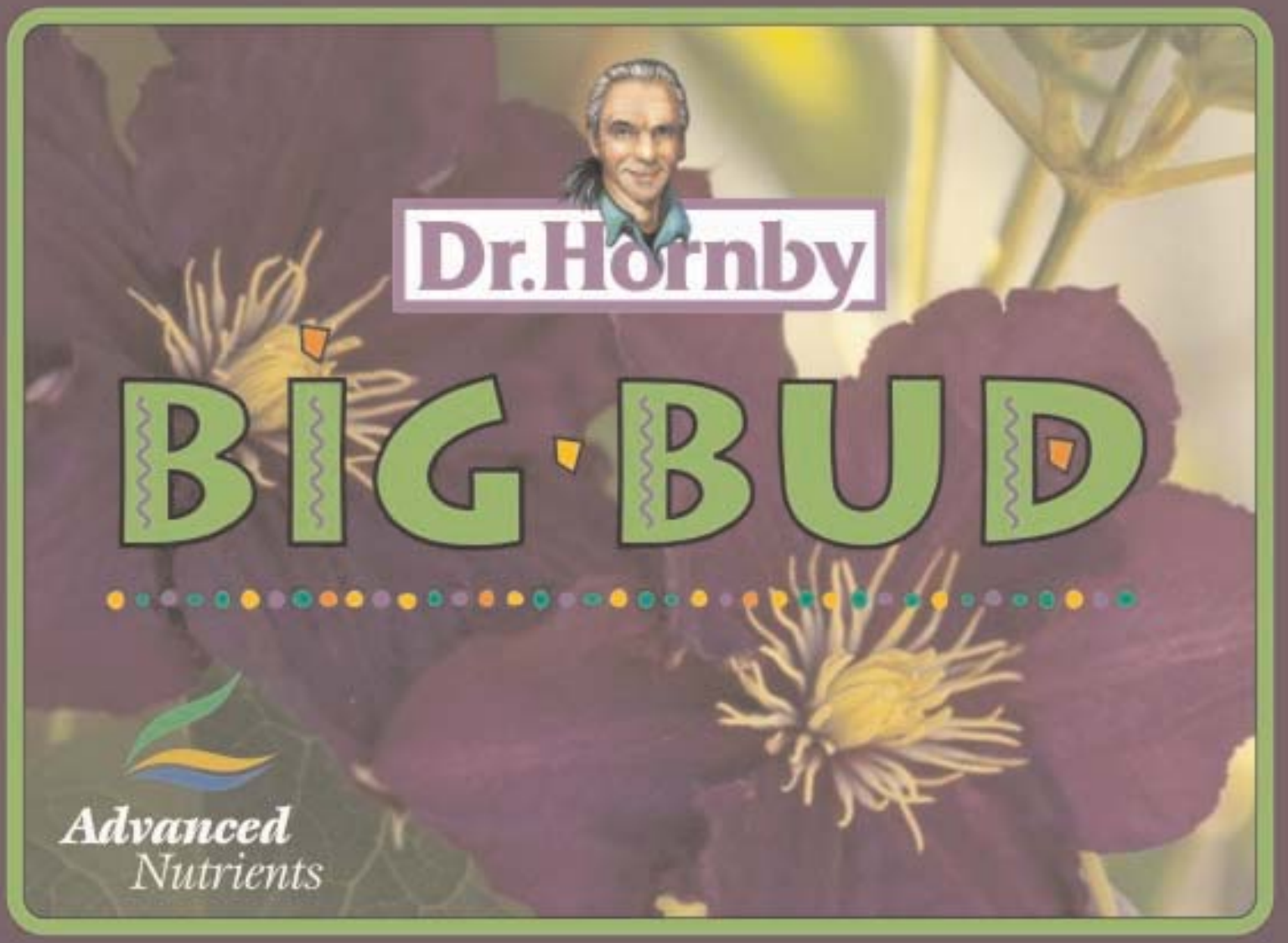
Now that the federal government has embarked on a cruel and so far successful campaign to close down buyers' clubs, what options are available to the many thousands of patients who find cannabis of great importance, even essential, to the maintenance of their health? They can either use Marinol, which 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. Insofar 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 for any other use.

A somewhat different approach to the pharmaceuticalization of cannabis is being 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



Lester and Betsy Grinspoon at about the time Marihuana Reconsidered was published

The Biggest Buds on the Planet!



Dr. Hornby has spent many years of extensive research and profiling resin producing plants. His knowledge, passion and love for this work has produced unparalleled products that supercharge resin production and substantially increase yield.

Big Bud has been extensively researched, developed and field tested. Big Bud is extremely plant specific - the only one of its kind in the world. During field testing, Big Bud overwhelmingly beat all of it's competitors. The reason for this is Big Bud's plant specific ratios of Phosphorous, Potassium, Magnesium and Amino Acids. Big Bud will dramatically increase bud growth, width, weight and resin production like no other bloom enhancing product can. Available in liquid or powder. Guaranteed or your money back!

carefully controlled doses. The company expects its products (extracts of marijuana) to be effective therapeutically 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 the 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 intra-ocular 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 vapourizer) 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 U.S. 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.

These mutually reinforcing laws established a set of social categories that strangle its uniquely multifaceted potential.

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 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 marijuana plant, medical or non-medical. There are no signs that the U.S. is 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 marijuana. 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.

Franjo Grotenhermen, M.D., Chairman of the IACM

The International Association for Cannabis as Medicine (IACM) is a young scientific society dedicated to the improvement of the situation for the medical use of cannabis and the cannabinoids, through promotion of research and dissemination of information. Among the members of the IACM are scientists working in the cannabinoid field, doctors from hospitals and private practices, pharmacists, lawyers, and patients who use cannabis or THC medicinally. We encourage an exchange of knowledge and experience between these groups and between individuals from different countries with different national backgrounds. The foundation of an international scientific society was initiated by members of the German ACM (Association for Cannabis as Medicine) in 2000 after suggestions by people from other countries to expand the ACM to an international organization. Still, most members of the IACM are from the German-speaking countries, but gradually membership is becoming more international.

Cannabis preparations have been used as remedies for thousands of years. Today the potential medical applications of natural cannabis products or individual pharmacologically active ingredients are considerably restricted by existing laws and decrees. An important strategy to change this situation is to increase the knowledge on cannabis, cannabinoids and the cannabinoid system of the human body and to make this knowledge available to the public, journalists, lawyers and lawmakers, so that they are able to argue on an informed basis and to make informed decisions.

One of the major obstacles to an accepted medical use of natural cannabis is the dearth of well-designed clinical studies. And even for THC (dronabinol) - which is approved for medical use in several countries, among them the USA, Canada, the UK and Germany - there is not much scientific knowledge available on the medical efficacy in many ailments, e.g. spasticity in multiple sclerosis, epilepsy, neuropathic pain or depression. This sometimes causes a situation of considerable disparity between the experience of individual patients and doctors who see that cannabis and THC do work, and the low level of scientific evidence resulting in misunderstandings and different judgments.

For several reasons this situation is improving today, (1) because of the discovery of a neuromodulator/neurotransmitter system with specific cannabinoid receptors in man and animals and endogenous cannabinoids (endocannabinoids) that bind to these receptors, (2) because several respected institutions such as the House of Lords in the UK in 1998 and the Institute of Medicine in the U.S. in 1999 conducted thorough investigations into the therapeutic potential of cannabis, and (3) because large clinical trials with different preparations (smoked cannabis, under-the-tongue spray, capsules filled with cannabis extract), are under way in several European countries and North America.

It is now well established that the endogenous cannabinoid system plays an important physiological role. It is involved in pain perception, short-term memory,

immun-omodulation, regulation of muscle tone, blood pressure, intra-ocular pressure, appetite, in reproduction and various other body functions. Insight into the natural and pathological function of this endocannabinoid system has fundamentally facilitated our understanding of the therapeutic actions of plant cannabinoids, as well as their possible detrimental effects, and it has increased the credibility of patients who claim therapeutic effects from cannabinoids that are in agreement with this new area of basic science.

In recent years moves to allow the medical use of cannabis in many countries have been increasingly successful, but the ways to realize access to the drug differ. While Canada and several U.S. states exempt some qualified patients from the cannabis laws, allowing them the medical use of the drug which they have to find or grow themselves, the Netherlands allow pharmacists to supply cannabis to patients with a doctor's prescription, which is paid by the health insurance. It is expected that in the UK an under-the-tongue cannabis spray will be approved for medical use by the Medicines Control Agency by the end of 2003 or in 2004, and in Germany the government wants to make a cannabis extract available in pharmacies, which is standardized on THC and cannabiol (CBD) according to a formula of the German association of pharmacists. The Swiss government intends to control cannabis use similar to the use of alcohol and cigarettes, making private use by adults legal and taxing the drug, without distinguishing between recreational and medical use.

The IACM is promoting exchange of political information and scientific knowledge by different means, mainly by the IACM bulletin and scientific conferences. A bi-weekly internet newsletter is available in seven languages (English, French, German, Spanish, Italian, Dutch and Swedish). Unlike the scientific conferences of the ICRS (International Cannabinoid Research Society) which are much more concentrated on basic research, the scientific meetings of the IACM are more focused on clinical research and experiences of the efficacy of cannabis and cannabinoids in the treatment of patients. ICRS and IACM may best be regarded as complementary societies and several scientists are members in both.

We are happy about several co-operations, among them an alliance with Haworth Press which is publishing the *Journal of Cannabis Therapeutics*, edited by our board member Ethan Russo, the official journal of the IACM, and with other groups and individuals working on common aims.

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Website: http://www.cannabis-med.org

2003 IACM 2nd Conference on Cannabinoids in Medicine in Cologne, on 12-13 Sept., 2003

Who is Dr. Ethan?

Dr. Ethan Russo

Ethan Russo, MD, is a board-certified child and adult neurologist with Montana Neurobehavioral Specialists in Missoula, MT, and researcher in migraine, ethnobotany, medicinal plants, cannabis and cannabinoids in pain management, and the therapeutic applications of Schedule I plants and chemicals.

Dr. Russo holds faculty positions as adjunct associate professor in the Department of Pharmaceutical Sciences of the University of Montana, and clinical associate professor in the Department of Medicine of the University of Washington.

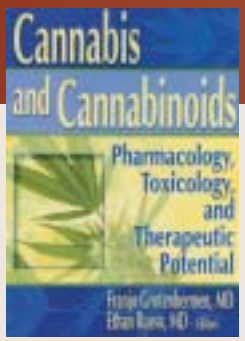
He has published numerous articles in scientific journals and is the author of *Handbook of Psychotropic Herbs: A Scientific Analysis of Herbal Preparations for Psychiatric Conditions*. He is co-editor with Franjo Grotenhermen of the book *Cannabis and Cannabinoids: Pharmacology, Toxicology and Therapeutic Potential*, and author of the novel *The Last Sorcerer: Echoes of the Rainforest*, all from Haworth Press.

Dr. Russo is the founding editor of *Journal of Cannabis Therapeutics: Studies in Endogenous, Herbal and Synthetic Cannabinoids*, whose charter issue was released in January 2001. Two double-issues are also published as books, *Cannabis Therapeutics in HIV/AIDS, and Women and Cannabis: Medicine, Science and Sociology*. He has published over two dozen articles on topics of neurology, clinical cannabis, and medicinal plants.

Dr. Russo has served as a consultant for private pharmaceutical companies, medical-legal cases, and in conservation policies with regards to medicinal herbs.

He lives in the Blackfoot River Canyon surrounded by nature, is married to a pediatric nurse practitioner, and has two teenage children.

Cannabis and Cannabinoids Pharmacology, Toxicology and Therapeutic Potential



Cannabis and Cannabinoids
Edited by: Franjo Grotenhermen, MD, Nova-Institut GmBH, Hurth, Germany
And, Ethan Russo, MD, Montana Neurobehavioral Specialists, Missoula, Montana

Study the latest research findings by international experts in this comprehensive book compiled by two of the world's leading authorities on the subject of Cannabis and Cannabinoids. This book contains state-of-the-art scientific research on the therapeutic uses of cannabis and its derivatives. A glance at the table of contents shows the book not only covers the chemistry and history of the plant, but also follows through with detailed information on medical uses and the extensive research being conducted.

All too often discussions of the potential medical uses of Cannabis are distorted by political considerations that have no place in a medical debate. This book offers fair, equitable discussion of this emerging and controversial medical topic by the world's foremost researchers. The book deals with health aspects of the cannabis plant and the cannabinoids while mainly factoring our societal aspects. Some authors refer to social topics that require discussion even within the bounds of a narrow handling of medicinal aspects.

Cannabis and Cannabinoids examines the benefits, drawbacks and side effects of medical marijuana as a treatment for various conditions and diseases. This book discusses the scientific basis for marijuana's use in cases of pain, nausea, anorexia, and cachexia. It also explores its possible benefits in glaucoma, ischemia, spastic disorders, migraine and many other medical conditions.

"Scientists with different views on the therapeutic benefits of the cannabis plant and with different assessments of the potential harms get a hearing, so that the book reflects and considers the frictions and controversies surrounding many themes in this area.

"Leading experts in their fields have contributed to this volume. Most are members of the International Cannabinoid Research Society, which includes about 200 scientists. Some of them are also members of the International Association for Cannabis as Medicine, which deals particularly with the medical use of cannabis and the cannabinoids." (from Cannabis and Cannabinoids, Preface.)

This reference work is destined to be indispensable to physicians, psychologists, researchers, biochemists, graduate students, and interested members of the public. Great to recommend to your doctor who is supporting you with medicinal marijuana, or to friends who may be doctors or psychologists.

ask dr. ethan

Medicine is an ever-changing science. While suggestions for therapeutic use of cannabis or other drugs may be made herein, this forum is designed solely for educational purposes, and neither the author, publisher, nor other parties, will assume any liability whatever for application or misapplication of any information imparted. We cannot claim scientific proof or accuracy of the material discussed, and no warranty, expressed or implied is advanced with regard to the information. Cannabis is illegal in most jurisdictions, and the reader must apply awareness of this fact when considering its usage. Medical use of cannabis may or may not be a viable legal defense where you reside. Canadian clinical cannabis patients are encouraged to seek exemptions under existing law from Health Canada. The proper forms and procedures are available on their website. Full disclosure and discussion of medical issues with your health care providers is encouraged, as is proper education with respect to effects and side effects of existing medication.

Q 1:

I have epilepsy and I have heard that marijuana is good for people with epilepsy. I was wondering if this is true and if I could get some info on that if you have any. I used to use marijuana but have not for a few years now and have noticed my epilepsy to be worse. Any info would be greatly appreciated. Thank you.

A 1:

Epilepsy, or seizure disorder, is a heterogeneous disorder producing convulsions or other alterations of consciousness that affects 0.5% of the population at any given time. However, about 5% of people will experience one or more seizures during their lifetime. The issue of cannabis use in epilepsy is controversial, but increasingly should be less so as we learn more. Once again, you can find numerous attestations to its benefit from Dr. Grinspoon: http://www.rxmarihuana.com/_vti_bin/shtml.exe/search.htm

We know that the cannabis component CBD is anticonvulsant, as was determined in pioneering studies in Brazil, but reviewed here:
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12412831&dopt=Abstract
Previously it was thought that THC was neutral with respect to seizures, or was even pro-convulsant (made them more likely). However, recent work done in Virginia by a brilliant young scientist, Melisa Wallace, conclusively demonstrates that THC also reduces the likelihood of seizures: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11779037&dopt=Abstract
The most famous patient with seizures who uses cannabis is probably Valerie Corral of the Wo/Men's Alliance for Medical Marijuana: http://wamm.org/
Their selfless work on behalf of patients was thwarted by a DEA raid last fall.
As a neurologist, I can vouch for the fact that many of my seizure patients find cannabis to be a useful adjunct in controlling their seizures, occasionally as a sole agent. Unfortunately, it remains illegal in most areas of the world and "more formal study" will be necessary to convince physicians of its potential in this regard.

Q 2:

My name is Meghan and I was diagnosed with Lupus over 4 years ago. I take eight 2.5mg tabs of methotrexate once a week and was wondering if smoking marijuana would react harmfully to this drug.

A 2:

Systemic lupus erythematosus is a very complex autoimmune disease more common in women. It may affect any of 14 organ systems in the body. Common manifestations include arthritis, chronic pain, skin eruptions, psychiatric manifestations, seizures, and digestive disturbances. Although little or no formal investigation has taken place with respect to cannabis in its treatment, many affected patients do employ it to apparent advantage. Please go to Dr. Lester Grinspoon's site, Marihuana, the Forbidden Medicine: http://www.rxmarihuana.com/search.htm and put the word "lupus" through the search engine. You will find interesting testimonials as to its value as a painkiller, anti-inflammatory, mood modulator, and digestive aid. There is very solid evidence behind these claims. Recently, the anti-inflammatory and immunomodulatory effect of a cannabis component was demonstrated in the related autoimmune disease, rheumatoid arthritis: Abstract: http://www.ncbi.nlm.nih.gov/ entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10920191&dopt=Abstract. Entire article as PDF: http://www.pnas.org/cgi/reprint/97/17/9561
In this instance, cannabidiol (CBD) was responsible for the benefits seen in the experimental study. Most North American cannabis strains contain little CBD.
I was unable to find any specific information about interactions between cannabis and methotrexate, which is an anti-metabolic agent employed in autoimmune diseases and cancer treatment. Many patients receiving chemotherapy employ cannabis to their benefit, but certainly caution is advised. Ideally, I hope that this would be a situation that you could discuss rationally with your physician.

Medically NORML: Physicians Weigh in at National Conference

By Mari Kane
Mari Kane is a freelance writer covering sustainable business and wine. Mari is the publisher of the International Hemp Journal formerly known as HempWorld and the Hemp Pages, is an advisory board member of the Hemp Industries Association (HIA). Mari can be reached at: mari@marikane.com and her writing may be viewed at: http://www.marikane.com/kanewrld/kwfeatur.html 707-887-7508, 8080 Mirabel Ave, Forestville, CA USA 95436

Marijuana as medicine played big at the NORML Conference in San Francisco over the 4/20 weekend. The eminent Dr. Lester Grinspoon gave a marvelous speech on "The Medical Marijuana Problem", which he says will be published in the Journal of Cognitive Liberties. In answering a question from a Florida patient in need of a physician recommendation, the 75-year-old retired Professor Emeritus of Harvard Medical School quipped, "I wish we could develop a drug that will give doctors more balls". John Morgan, MD, made a "blanket condemnation" of poorly written marijuana research, which can snowball into unconquerable mountains of myth.
"In an area in which argument is so important and science is used as a political weapon, there are enormous numbers of papers by our friends in the 'marijuana is too dangerous to use' camp that do not give us advice or debate on 'this is why I'm right or wrong.'"

Dr. Lester Grinspoon at the conference

Dr. Ethan Russo, a consultant to GW Pharmaceuticals, explained the equipment by which the company's sublingual spray is delivered. The system used in England has no controls because "people over there do as they're told," he said, but

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Sensi Grow & Sensi Bloom use additional nutrient components that are not found in any other 2 part nutrients. Our research and development team found that these additional nutrient components make an enormous difference on how your cannabis plants will respond during the vegetative and flowering phases of plant development. All backed by our Performance Guarantee.

Advanced Nutrients

Medically NORML: Physicians Weigh in at National Conference

in order to gain acceptance by the U.S. Food and Drug Administration (FDA) and DEA, GWP developed the Advanced Delivery System. With it, the liquid or solid drug is contained in a cartridge. The device is failsafe and access-coded with Big Brotherish features such as a quantity monitor that reports to doctors. "In the U.S. this is how it will be," Russo resignedly stated. Grinspoon's attitude toward marijuana pharmaceuticals was decidedly less enthusiastic. "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, but it is unlikely that this pharmaceuticalization will displace natural marijuana for most medical purposes," he said.

The Volcano vapourizer got high marks among the panelists, with the crowd breaking into applause at the sight of its picture. GWP's Cannabis Based Medical Extract (CBME) proved effective after 15-45 minutes with rapidity depending on the patient's condition, Russo said. Tests showed the appetite was most improved with pure THC, but CBD also had an effect. The THC/CBD mix worked well especially for sleep improvement.

Norml's Paul Armentano summarized the many clinical trials occurring around the world. At least 10 California State-funded trials are ongoing at UC San Francisco and San Diego investigating whole smoked marijuana's effects on HIV-related neuropathy, Multiple Sclerosis and analgesia. They are working jointly with the New York State Psychiatric Institute, comparing oral THC on patients with HIV/Aids.

In England, GW Pharmaceuticals have submitted their findings on 3 years of research into the sublingual use of cannabis extract and may gain approval from the British Government by the end of this year.

The Israeli company Pharmos has created a neuroprotective product called Dexanabinol for the treatment of head trauma and stroke, and recently gained approval from the U.S. government for a Phase III trial in the US.

Data from a German study on smoked marijuana's effects on Tourette's Syndrome is looking very positive, Armentano said, and in Spain there are studies on how compounds in marijuana alleviate certain types of brain tumors.

Next year's convention might return to San Francisco or it may stay close to NORML's home in Washington, DC. The decision will be made this summer.

VICS heads up more research than Health Canada

by Philippe Lucas. Philippe is the founder and director of the Vancouver Island Compassion Society and Director of Communications for DrugSense. He uses cannabis to alleviate the symptoms of hep-C.

When the Vancouver Island Compassion Society opened its doors over 3 years ago, we did so with the hope of helping those with a legitimate need for medicinal cannabis, and of correcting some of the misinformation surrounding this astonishingly versatile herb. Although there are numerous studies suggesting the usefulness and relative safety of medicinal cannabis (including its anti-carcinogenic and anti-tumourific properties[1]), artificial restrictions imposed by the U.S.-led worldwide prohibition on cannabis have seriously affected the ability of countries to conduct clinical research on its medicinal properties. As a result, most of what we know about marijuana comes from in vitro (test-tube) or in vivo (animal testing) studies. Compassion clubs, however, have a very unique membership, and can therefore play an important part in adding to our clinical knowledge and understanding of medicinal cannabis. We quickly found that as the membership at the VICS increased, so did our understanding of the effects of medicinal cannabis on different conditions and symptomology.

Amongst medicinal cannabis dispensaries, it has long been known that certain strains are more effective in alleviating certain symptoms. A general rule of thumb is that Indicas, because of their more narcotic effect, are typically better at alleviating generalized pain than Sativas, which appear to be more effective in treating dystonic movement disorders such as MS or epilepsy. There are many theories as to why this might be: studies have shown that CBD is an effective anti-convulsant and anti-spasmatic, therefore it has been suggested that true Sativas may be higher in CBD than their Indica cousins[2]. Even within the sub-group of Indica and Sativa, there are numerous strains that appear particularly effective at treating certain symptoms (for example, the White family, such as White Widow and White Rhino, are very good pain killers); it was in the interest of our society to find out why this might be so that we could better treat our members. It has always been our hope to share some of the unique knowledge gleaned from

working in a compassion society with the general populace. We wish to inform those currently self-medicating with cannabis[3] on the effectiveness of different strains on different symptoms, but first we have to see if there was any concensus on strain/symptom correlations beyond the rocky shores of Vancouver Island. It was with this research in mind that we developed a strain/symptom survey protocol for distribution to all of Canada's compassion clubs. By surveying the employees of these unique organizations, we will discover if there is any strain/symptom consistency within Canadian clubs. Should we find that our analysis suggests that there is a positive correlation between certain conditions and certain varieties, this may posit a more specific investigation into the cannabinoid profile of these strains, as well as more specific clinical research into why one variety might be more effective than another in treating specific symptoms. Our survey is currently underway and should be done by the summer of 2003.

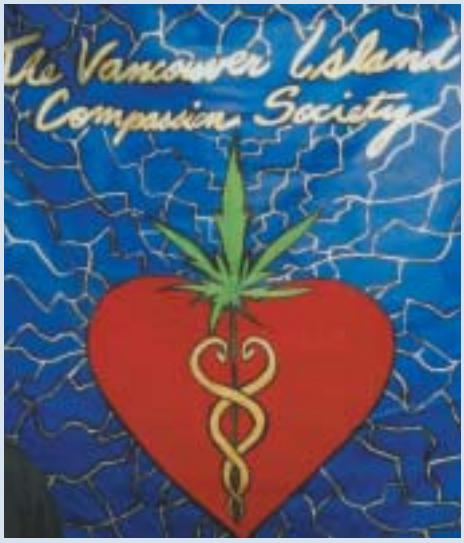
Last fall I heard about a researcher from the University of California, San Francisco who had stumbled upon some remarkable results while researching the effectiveness of hepatitis-C Interferon/Ribovarin treatment on intravenous drug users currently on methadone maintenance. Dr. Diana Sylvestre had very little experience with cannabis use, but in her survey protocol she found that her study subjects had a much higher Interferon treatment success rate if they were also using cannabis to alleviate the symptoms of hep-C and of the treatment itself. The results were so dramatic that, although hard drug use such as cocaine and heroin were negative indicators for successful Interferon treatment, if she included cannabis users in the "Drug Use during Treatment" category, it appeared as if the drug users were doing better than the non-drug users. When I forwarded her results to Dr. Ethan Russo, a neurobiologist with expertise in cannabis, he suggested that the results may be attributable to an immunological response. If we could prove that cannabis actually had a positive impact on the immune system[4], we could further defend and justify its medicinal use.

With these results in mind, we contacted her to suggest a follow-up study using the VICS membership as a study group. In order to further expand upon the relevance of our results, we invited the British Columbia Compassion Club Society to participate in the design and implementation of the survey protocol. Together, we care for almost 500 members with hepatitis-C. If the results of our study (which should be completed by the summer of 2003) show that cannabis has a positive impact on hep-C treatment outcomes, it would not only seriously change the nature of hep-C treatment protocols, but also completely alter the U.S. perception of cannabis as a drug of abuse with no medical value. In other words, our hope is that this research may result in a change of our understanding of this medicinal herb as well as in the laws currently prohibiting its use.

Additionally, we have recently been approached by a researcher from the University of Victoria that wished to study the effects of cannabis on nausea and emesis in pregnant women. With this in mind, we designed a retroactive study of cannabis and pregnancy, as well as the effects on symptomatic nausea resulting from other conditions. We're pleased to announce that UBC and the BCCCS may be joining us in this important research, and that we hope to have preliminary results by early fall.

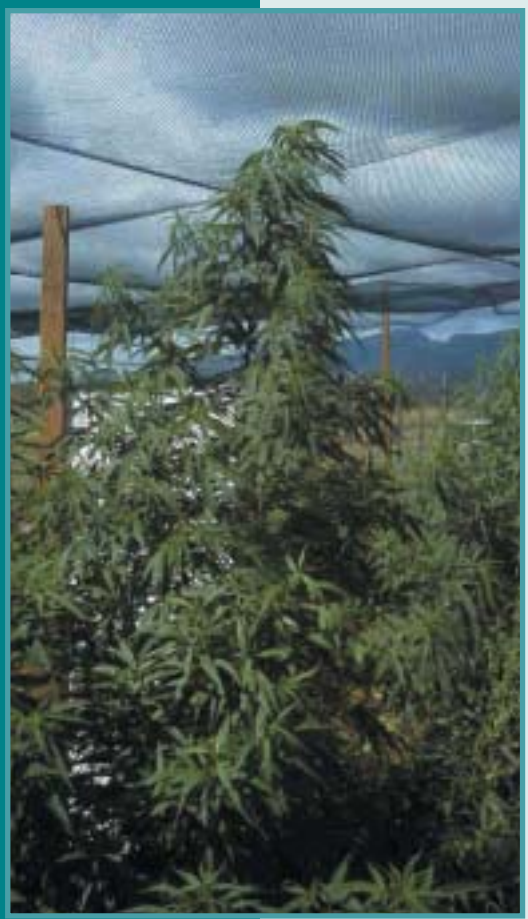
The VICS plans to initiate further research protocols over the next twelve months, including clinical double-blind studies to test the effectiveness of certain strains in treating specific symptoms. Over the next year, it is our goal to use our unique knowledge base and membership to oversee more medicinal cannabis research than any other government or private institution in North America. This information will not be the property of the Federal government or pharmaceutical interests; it will be made public so that we can all benefit from a further understanding of cannabis and its incredible medicinal properties.

1) See www.davidhadorn.com.
2) Interestingly, high THC plants typically contain only trace amounts of CBD; hemp has much higher concentrations of this cannabinoid.
3) Health Canada estimates that there are around 1 million Canadians currently claiming that their use of cannabis is medical.
4) As has been suggested by Dr. Donald Abrams, an AIDS researcher from the University of California, San Francisco



The Ha

above - 2 foot plant
below - 8 foot plant



Dr. Dave

"OK," Brian said after the first lecture, "I've got genes, alleles, loci, chromosomes and heterzygotes. Can you bring that a little closer to earth? What, for instance, if anything, does that have to do with your project in Hawaii?"

Actually everything. OK. School's on again. Let's assume you go back and read the first in this series 'cause you've forgotten it all already, and we'll carry on from there. I left off saying we'd be next looking at one of the truly marvelous inventions of nature, the mechanism responsible for generating all the variation we observe within species. I'm talking about what Darwin referred to as "variation under domestication". All the different breeds: dogs, cats, pigeons, people and … pot. (The alliteration made me do it.)

Let's look at what's happening in the Hawaii project as an illustration. The issue in that case is one of adaptation. What we call "hemp" - or some prefer "industrial hemp" though I think "hemp" is just fine - is a breed of cannabis generally found in the temperate zones of the planet. The plant's life cycle is driven by a genetically programmed response to the length of the night. Nights in the temperate zone begin to lengthen after summer solstice and the plants shift from vegetative growth - which has resulted in long stems - to reproductive phase, so seed will be set and matured by frost.

Now, if you take plants with that genetic program from temperate 45° to tropical 20°, where the days and nights are about equal in length most of the time, the plants immediately experience long nights characteristic of late season in the north. So immediately the plants fire up their reproductive gear and little vegetative growth occurs. Varieties that would easily reach 9' in London, Ontario, are only 2' tall, done growing and setting seed after just 2 months in Hawaii.

Short aside: In the 20th century, the hemp fiber growers of Wisconsin developed a collaboration with the hemp seed producers of Kentucky by exploiting the photoperiod response in reverse. Here's how: When you plant seeds of Kentucky varieties (meaning varieties adapted to finishing seed in the limits of the Kentucky growing season, approx. 35°) in Wisconsin (45°) the plants stay vegetative longer, the reverse of what happens when you move varieties south of their zone of adaptation. If you are after fiber, you want the plants to remain vegetative as long as possible (more vertically elongating stem). So Kentucky produced the seed that Wisconsin planted for fibre. This collaboration lasted until 1957, the last year hemp was planted in Wisconsin. This is the only case I'm aware of where specialized industries developed to harness this feature of the plant in order to maximize productivity.

Alrighty then! We have two situations. One is the egregious misfortune that the germplasm was lost. Two is that there are no tropically adapted "industrial" varieties of cannabis. These two situations are connected in that they are both a matter of lower latitude adaptation, one lower than the other. The lost germplasm, that of the unique American hemp called "Kentucky Hemp", was bred to cornbelt latitudes. As I have described in great detail elsewhere, this hemp arose in Kentucky from the meeting of Chinese and European hemps after 1850. Of the European hemps, only the superior Italian hemp was adapted so far south. What this loss means is that American hemp farmers of some hoped-for future will not have proper varieties for their growing regions. There is a gap, a lag, that must be addressed eventually, and that is what I set about to do in Hawaii. The State of Hawaii wanted crop diversification. Both goals involve the introduction of cannabis with differing photoperiod adaptations. How do we proceed?

If you look across the globe, there are cannabis plants that do grow abundantly in the tropics. So the photoperiod adaptation of those plants needs to be combined with the internode elongation and fiber or seed characteristics of "industrial" cannabis. The plant's architecture must be modified and its growth habit altered. We want to bring in the "agronomic" qualities that "industrial" varieties

waii Project

exhibit, such as tolerance to dense planting. An obvious focus of concern to some is the coincidence of high THC production with short-day photoperiod adaptation. This is a complicated situation because it takes years to create new plant varieties. One must ask, will THC still be a big issue in 10 years? After all, the whole issue of THC in hemp varieties is political. THC never used to matter in hemp. It's a made-up issue. It is as informed by science as were the tribunals of the Inquisition. So, that means a new wind in Congress could sunder years of investment in lowering THC to absurd levels. Looking at the rapid changes taking place everywhere *but* the US, I can imagine there might come a day when someone will ask, astounded, "You mean you bred the THC *out of* the plant?!"

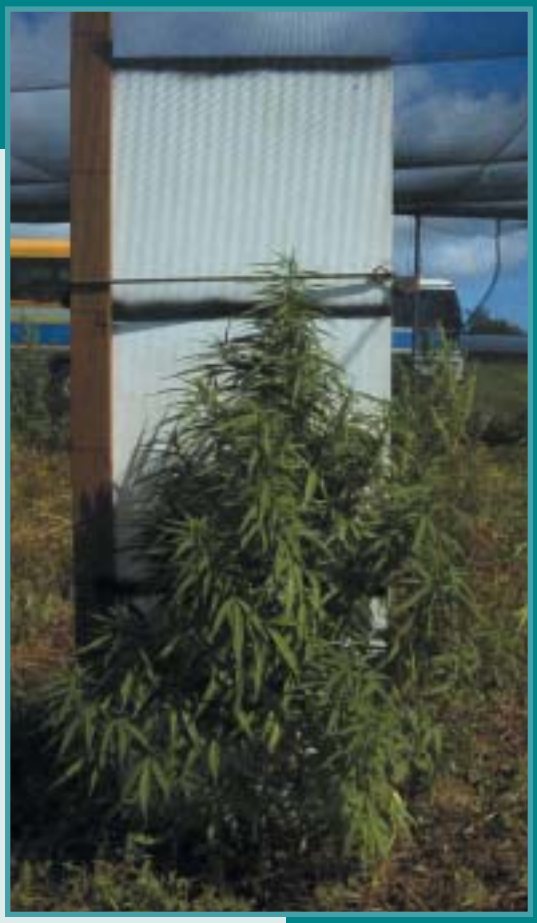
So, without going off on too much of a tangent, whatever happens next, the first step is the same: identify genetic sources of the traits of interest; cross them; select within the variation that emerges. The photos accompanying this article illustrate the range of variation released when you do that. These plants all had the same grandmother. They are all descended from seed born on a single female plant. As for *Gran'pere*, well… Gramma mixed it up a bit, had international affairs.

After the initial critical cross was obtained and a large progeny harvested, the next step was to recombine the population. Because this is an agronomic (as opposed to horticultural) breeding program, pressure (*artificia*l as opposed to *natural* selection) is applied to the population to urge it in the direction of agronomic traits. For instance, we are interested in plants that have achieved 8 feet of growth and are still vegetative after 3 months, as with the individual in the lower left photo. Her cousin (above) went reproductive very quickly and never got taller than 2', but it is setting seed. There could well be circumstances where the short-quick seed producer might be the preferred type. (Jargon alert: we say "phenotype" for the manifest characteristics of the plant. The genetic underlayment is referred to as "genotype." This will be on the test...) In the photos on the right are two individuals intermediate between the extremes on the left, at 4 and 6 feet of growth in the same 3 months. The characteristic *height* would be said to exhibit *continuous* variation.

Pressure is applied by biasing the contribution of gametes from individuals in the population. Example: we had an insect pest identified as the Chinese Rose Beetle. It really chomped down on some of the plants. Yet other plants were left alone. There are two possibilities: that the beetle is leaving the plants alone because there's something it doesn't like about them, they taste bad; or, that some plants lucked out, they escaped. If "taste bad=TRUE", then there is a genetic basis to the health of the uneaten plants and choosing those plants (removing the affected ones before their pollen [male gamete] is shed) will improve the population. However, if "escape=TRUE", then selection won't do any good. So we hope the first hypothesis is true, make selections accordingly as humans have done in the course of domesticating plants and animals over the millennia, and wait with anticipation the next cycle to see if we were effective. Selection is applied to the population, so the character of the plants is gradually, over successive cycles, morphed toward the desired type. The biological stuff is wonderfully plastic this way. But the effectiveness of selection depends on there being a link between the phenotype and genotype. The tighter that link, the more effective will be the selection. It's a wysiwyg situation. But if there's a lot of noise in the system - in this case escapees, not taste-bads - then the breeder will be less effective in recovering in the next generation the trait he selected, and we will find the happy beetles feasting again next cycle on unlucky individuals.

So now we've generated a population of individuals among which we can select for those that combine the desired traits. And that population has been through a round of recombination. What does that mean?

Oops, there's the bell.



above - 4 foot plant
below - 6 foot plant

Canadians for Safe Access

As Health Canada continues to put the lives of critically and chronically ill Canadians in jeopardy through its failed Marijuana Medical Access Regulations, we must organize to protect the right of Canadians to have safe access to medicinal cannabis. It is with this in mind that I'm pleased to announce the launch of a new organization dedicated to defending the rights of Canada's sickest citizens: Canadians for Safe Access (www.safeaccess.ca).

Inspired by the U.S. organization Americans for Safe Access (www.safeaccessnow.org), Canadians for Safe Access will work to both pressure Health Canada to free-up access to medicinal cannabis and to defend the rights of all legitimate users, cultivators, and distributors - including compassion clubs and societies - through legislative strategies, media campaigns, and non-violent direct action. Canadians for Safe Access will work proactively with regional grassroots activists and local, provincial, and federal politicians to protect the rights of those who need cannabis for medical reasons as well as those who risk prosecution by supplying them.

Over 80% of Canadians support the distribution of cannabis for therapeutic purposes, yet most of those who could benefit from it are still forced to risk arrest and to buy it from often dangerous black-market sources – THIS HAS TO END NOW!

In a modern liberal democracy it is morally unacceptable to force the sick and dying into the street to scrounge for their medicine. Canadians for Safe Access will focus the resources of all those interested in correcting this social injustice and work towards the common goal of SAFE ACCESS to medicinal cannabis and anti-discrimination towards users and suppliers.

If you'd like to help, you can go to www.safeaccess.ca and join our mailing list and/or take the Pledge of Resistance (http://www.safeaccess.ca/pledge.htm).

If you work with an organization that supports safe access to medicinal cannabis, you can show your support by registering as a "Supportive Organization" and allowing us to link to your website (http://www.safeaccess.ca/endorse.htm).

Help end this war on Canada's sickest citizens and those who supply them: join Canadians for Safe Access!

Thank you for your time and support,
Philippe Lucas, Alison Myrden, Hilary Black, and Rielle Capler

Cannabis Health gives kudos to Marco Renda for a job well done.

Treating Yourself Medical Marijuana Inc. is a club offering FREE SEEDS with excellent genetics to the medical marijuana grower thanks to the people at Badass Buds in the UK, Serious Seeds and No Mercy Supply in Holland, and Peak Seeds and Hemp Depot here in Canada. In 8 weeks 4200 FREE SEEDS have been sent out WORLDWIDE. The club also offers Health Canada Exemptees medical marijuana AT COST FOR $75 OZ. They also have sponsors such as Celebration Pipes, Bubble Bags and KIF Boxes by BC BOXES donating products that are given away as prizes every month, along with FREE SEEDS and FREE MARIJUANA.
http://www.treatingyourself.com
Marco Renda
weedmaster@treatingyourself.com

John Conroy, Q.C., photo by Kim O'Leary

On March 14th in P.E.I. court, the judge read out the decision on the Ronald Barry Stavert case, who was charged with simple marijuana possession and made application to quash the information arguing that it does not disclose an offence known to law. The accused based his application essentially on the Ontario Court of Appeal decision in R. v. Parker (2000) 146 CCC (3d) 193, which declared the prohibition against possession of marijuana in s.4 of the CDSA invalid due to its failure to provide for legal possession of marijuana for medical uses. Below are some excerpts from the decision, with the full document on the web at http://cannabislink.ca/legal/stavert.htm

The Supreme Court of Canada Appeals

Well, we finally managed to argue the appeals of Caine, Malmo-Levine and Clay in the Supreme Court of Canada on Tuesday, May 6th,2003.

It's hard to figure out how it's going when you're in the thick of it and waiting to get up next or trying to figure out just what the judge meant by a certain question and how to respond. Consequently, it was a bit of a treat to watch the CPAC edition last night so soon after being there and to see it from the judge's viewing perspective.

I think we all did great. While they kept trying to throw Paul off with some weird questions that I thought he had already answered, he kept his cool and kept hitting back like a prize fighter, with important points throughout. I thought he did an excellent job. David was also great. Whatever misgivings anyone may have had (myself included at an earlier time) about him arguing his own appeal, there should be absolutely none left. He covered everything very well and I hope they play the video back over and over again until they get it. Great job, David - you served your community in an outstanding fashion and better than many lawyers with years of training behind them. I was also pleased with my own performance. They seemed to engage well throughout.

In doing these post-mortems it is always easy to think of other things one wishes one had said. I forgot to ask for a break at 4:20 p.m.!! It was a pity they cut out the Intervenors, though both Joe Arvay QC and Andrew Lokan for the B.C. and Canadian Civil Liberties Associations also made great submissions. Those of you that are interested can get an unedited video through CPAC.

In last Saturday nights edited video replay The Crown, David Frankel QC, didn't start until around 1 a.m. Sunday and unfortunately I must have fallen asleep on the couch, because I woke up to my own voice in reply, thus having missed the main reason I wanted to watch - David Malmo-Levine's reply. My memory of it in the court continues to make me laugh when he pleaded with the court to ask him questions now and the Chief Justice responded by saying "Maybe it's because we all agree with you, Mr.Malmo-Levine". Also when he invited them to be our heroes. Again, I think it was great and I'm sure they haven't had that many laughs in a constitutional case ever before. Even Frankel got in a good line about whether David's suit was more than .03% THC.

There is only one thing I can think of that would have made it even better, and that is the presence of Alan Young. His contributions to these cases has been tremendous and it was a very sad day that he was not able to be with us. I join all of you in offering sincere condolences to him and his family at this difficult time.

While the result is anybody's guess, I am more optimistic after watching CPAC and focusing particularly on some of the Chief Justice's questions as well as those of Binnie J. and Iacobucci J. Whatever they decide in about 6 or more months from now, it promises to be very interesting for future Charter challenges to criminal laws. We only need 5 out of 9. I think we have 3 for sure with us and probably 3 against us, so let's hope for 2 more at least of the remaining 3.

The next few months and the rest of this year will bring some very interesting developments. We will need to hammer our politicians for this *continued page 31*

By: Christopher R. Penty
Christopher Penty is a 48 yr. old trial lawyer practising out of his Kelowna office for over 20 years. He tends towards unique litigation and has expertise in the areas of personal injury, civil sexual assault, commercial, estate and tax litigation. He is married and the proud father of a 10 yr. old girl. For recreation he enjoys reading, gardening, skiing and golf, in no particular order.

I am sure it is very well known by the readers of this magazine that there exists today in Canada a serious dichotomy or inconsistency at law. On the one hand, the Federal Government has prohibited the possession, cultivation, purchase or sale of marijuana in any form. On the other hand, they have provided for the existence of a certain class of people to be allowed to possess marijuana for medicinal purposes. Initially there was to be a supply source of marijuana to supply those who hold valid Section 56 Certificates at the time the whole scheme was envisioned by the Federal Government. Unfortunately, that has not come to pass. Medical marijuana is still high priced and purchased mostly from illegal suppliers.

The Canadian legal system provides 3 mechanisms by which this inconsistency might be remedied. The first method arises when the criminal law, which prohibits marijuana possession, is challenged. To date this has met with reasonable success. A recent ruling in R. v. Clarke heard in Nova Scotia on March 31, 2003 struck down the possession laws, as Ontario and Prince Edward Island did before. Until some appeal cases have been heard, as of now, possession of 30 grams or less of marijuana will not be enforced by the Courts in those provinces. In B.C. the courts have recognized the right to possess marijuana, but only for medicinal purposes.

The second legal means is to challenge the laws on a constitutional basis. Earlier constitutional challenges did not meet with success. Lawyers John Conroy, Q.C., Alan Young, and Paul Berstein, together with David Malmo-Levine, have only just concluded arguing their case before the Supreme Court of Canada and it will be interesting to see whether they are more successful on this occasion.

The third method is to bring a class action, which, by costing the Government financially, will force them into action. This class action would involve a Representative Plaintiff, likely one from each Province that wishes to be a part of this class action. The Defendant would be the Federal Government. The Representative Plaintiff would have to be a holder of a Section 56 Certificate who has been frustrated in his attempts to obtain medical marijuana from a legitimate source. If the class action is large enough, the collective damages may be in the millions of dollars.

The first step in such a lawsuit, and one of its key components, is having the action certified by the Courts as a class action. The Courts look at a number of factors to determine whether a class action lawsuit is appropriate such as whether the court action justifies the recovery, whether the action involves complex medical matters, whether the action will help resolve inconsistent laws in the same area, or whether there are alternative methods that might achieve the same end. Such cases are extensively managed by the Courts and they are never to be commenced lightly. The Court will demand a full plan of action from the Representative Plaintiff and his lawyer on how the action is to proceed in terms of what evidence is to be gathered, how it is to be presented, how the lawyers are to be paid, how the class is to be identified, how the members of the class are to be notified, the common issues at law to be resolved, what expert evidence will be put forward, along with a host of other more minor considerations. One concern of such an action is what the cause of action and damages would be. The Plaintiff would have to prove that the Federal Government was responsible for the lack of legal marijuana source for medical certificate holders. This may be problematic, as there are currently licensed growers. However, these licensed growers act under extremely restrictive conditions and are so few that they have not made any real dent in the high price of marijuana.

The real question is whether a class action will bring about the desired results, that is access to a reasonably priced supply of marijuana for those holding medical certificates, or whether the other actions currently ongoing, such as the constitutional arguments that have just been made, will have that result. Failing that, one can always take comfort that at least for now, and for some foreseeable period in the future, simple possession of less than 30 grams of marijuana is not a crime that will be enforced by the Courts in some of Canada's provinces.

What to do if you get busted

Alan Young
Photo by www.jeremybenning.com

The question of the legal impact of the Rogin decision is rather muddy. Whatever your view may be it is still risky to smoke pot walking down the street. Rogin is a Superior Court judge, so stare decisis (the law of precedent) dictates that lower court judges are bound. Therefore, any lower court judge (where 99% of marijuana possession cases are heard) is bound by this decision. Anyone appearing in court should not be asking for an adjournment but should emphatically demand that all charges be stayed. Stare decisis does not govern the police. They will continue to charge. Until the Court of Appeal resolves

the issue, it is business as usual on the streets. If the Court of Appeal upholds Rogin then the police must abide by this decision and once the Supreme Court of Canada upholds the decision it would be binding across Canada. So, in actual fact there is no valid law currently in Ontario but a trial judge must make this ruling in a given case if you are unfortunate enough to be charged in this legal limbo. The police will not stop enforcing the law until directed to do so and they will not be directed to do so until the Court of Appeal upholds Rogin (which is not an inevitable conclusion).

Michael Patriquen – Update: Michael is currently dying and in tremendous pain. He is being denied medical marijuana in prison, even through he has a legal exemption from MMAR authorizing use. Cannabis Health sent a formal request to the Honourable Wayne Easter, Solicitor General Canada; to correct this atrocity now before Michael becomes the first casualty of our government's dysfunction. As the death penalty does not match his crime of compassion.

John Conroy stepped up to the plate and took on Michael's case with no regard to reimbursement for even his own costs – bless your heart, John. If you would like to help, please send your donation to: John Conroy "In trust for Michael Patriquen" Every little bit helps…Thanks.

There is an urgent application before the courts to be heard by the time you read this, June 2nd 2003

GW – Update: German drugs and chemicals group Bayer AG said on 21 May it had agreed with GW Pharmaceuticals to market a cannabis-based multiple sclerosis and pain drug from the British company. Bayer said it had received exclusive rights to market the drug in the United Kingdom and had the option for a limited period of time to negotiate rights in the European Union as well as Canada. The United States, however, is not part of the deal and a launch in the worlds largest pharmaceuticals market is at least two or three years away. The company said it had paid GW a signature fee and would later pay additional fees on regulatory approval in the United Kingdom for treatment of multiple sclerosis, neuropathic pain and cancer pain, totalling 41 million US dollars,. GW will supply the product, and get a share of product revenues. Bayer will market the drug under the name Sativex. GW Pharmaceuticals had submitted its medicine for approval by the Medicines Control Agency in March. UK approval of the drug was likely by the end of the year, a spokesman of GW said. *(Sources: Reuters of 21 May 2003)*

All Nutrients are

For your medical Marijuana needs - Advanced Nutrients' Grow-Micro-Bloom is the absolute best 3 part fertilizer. Beating General Hydroponics consistently, and here's why.... Advanced Nutrients' Grow-Micro-Bloom contains all chelated micro nutrients. Our micronutrients are chelated with EDDHA as well as EDTA and DPTA. General Hydroponics only chelates their iron with EDDHA, EDTA and DPTA. All the rest of their micronutrients are not chelated. Also, Advanced Nutrients has 2 sources of calcium for your plants - calcium carbonate & calcium chelate. Calcium chelate is very expensive, but then we have never spared any cost to make our nutrients better. Calcium is very important to your plants because without it your plants cannot take in their macro and micro nutrients. By using calcium chelate your plants receive an even sustained

Not created equal!

feeding. Using calcium carbonate alone, your plants get a spiked feeding of macro and micro nutrients. Advanced Nutrients uses more Magnesium Phosphate than General Hydroponics. Through our extensive research, Advanced Nutrients has found that marijuana loves Magnesium Phosphate. Magnesium phosphate along with EDDHA and calcium chelate are all very expensive ingredients. In fact EDDHA is four times the cost of EDTA and eight times the cost of the micro nutrients used by General Hydroponics. All Advanced Nutrients products are the only nutrients in the industry to offer a performance guarantee. All of our nutrients are produced and extensively field tested in British Columbia, Canada. Advanced Nutrients are the only nutrients fully endorsed by the Cannabis Research Institute.

Advanced Nutrients Ltd. was founded in 1996 by owners Michael Straumeitis, Robert Higgins and Eugene Yordanov. The trio has been a formidable force in manufacturing and distributing a wide variety of products to the hydroponics industry. Michael Straumeitis brings to the table 22 years of experience in hydroponics that is paired with the business background and marketing skills of Robert Higgins and Eugene Yordanov.

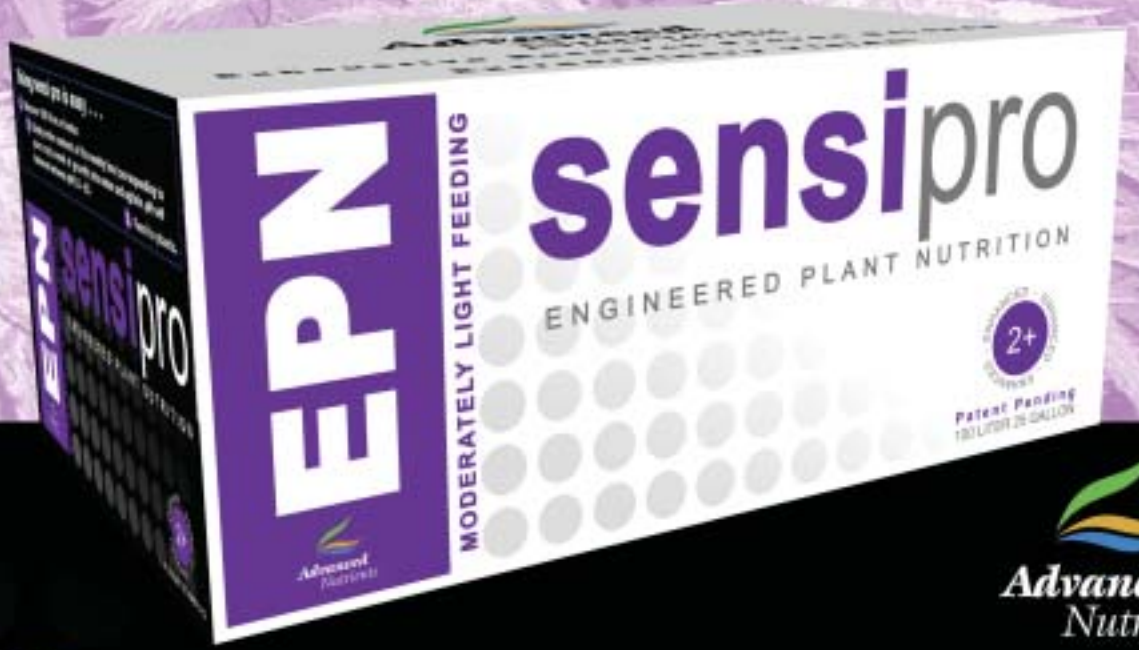
Today, *Advanced Nutrients* is recognized as the leader of plant-specific nutrients that have been developed and tested exclusively on the cannabis plant. The tenacity of purpose on the part of the owners of this company combined with a research team have now produced a line of over 70 plant-specific products developed specifically for growing medical marijuana. The product line incorporates the latest plant science advances utilizing full-spectrum macro and micro nutrients, amino acids, hormones, vitamins, enzymes, yeasts and yeast extracts, microbes, beneficial bacteria and beneficial fungi. Some of the *Advanced Nutrients* products include organic and synthetic components to maximize plant growth. They have also developed several natural products to assist in combating insects, molds, fungus, bacteria, and other contributing factors that cause crop failure. The *Advanced Nutrients* product line is currently available in over 380 retail outlets with demands for worldwide distribution.

PRODUCT DEVELOPMENT

Their research was initiated by first analyzing the past 91 years of scientific papers published about the cannabis plant and then assembling a specialized team of researchers including five Ph.D. holders with disciplines in plant physiology, plant pathology, plant biology, plant genetics and microbiology. *Advanced Nutrients* also has a staff of 55 individuals including chemists and assistants who aid in the research and development of these nutrients, and to ensure product quality control and stringent manufacturing standards are strictly adhered to. Although Health Canada has issued hundreds of licenses to medical marijuana patients, allowing them to grow or possess marijuana, the science community cannot obtain a permit to grow cannabis for research and development purposes. So, *Advanced Nutrients* relies on several select licensed medical marijuana patients to assist in the research and, in turn, they assist these patients by providing them with nutrients and technical knowledge.

The patients allow the researchers to develop and monitor all facets of the growing environment. The nutrient regimen is set up and strictly adhered to, with the aid of a lab assistant. The patient provides plant tissue samples as requested and several tests are conducted that precisely determine the specific nutrient demands of the cannabis strain being grown. This precision monitoring of plants includes testing the moisture levels within each plant, growth rate, cell division, root development, specific nutrient demands and nutrient uptake, THC and cannabinoid production, resin production, and yields. Several specific tests are conducted that determine the nutrient progress within the cannabis plant and the exact nutrient uptake in each plant. This information is then used to ensure that each element the plant demands is made available with precise timing and delivery of all essential nutrients in perfect balance. *Advanced Nutrients* researchers currently monitor approximately 40 different strains through various test sites and have been able to classify many of the strains into specific feeding regimens specific to that particular group. Research is also being conducted to further develop strain specific nutrient formulas that will prove vital in the medical applications of cannabis. Current studies are also being conducted for genetic fingerprinting of cannabis strains and develop a reference library to categorically identify the various strains and their specific beneficial properties. Research thus far has proven that many theories of traditional feeding techniques provide only mediocre results when it comes to cannabis plants.

The Laws of Nature
Want their Virginity back!



Advanced Nutrients

Sensi Pro Engineered Plant Nutrition is Simple to Use. Empty entire contents of the weekly box (corresponding to your crop's week of growth) into 100 Litres of water, and agitate, then feed to plants. Sensi Pro Engineered Plant Nutrition pH self balances between pH 5.5 - 6.5

SensiPro has been exhaustively researched and developed with over 2 years of field testing. During the field trials, weekly tissue samples (of many strains) were taken and analyzed over the entire life of the plant.

Our analysis of the plant tissue samples determined the precise amount and ratios of elements required, at specific stages, throughout the plant's life cycle. This analysis was the basis for the SensiPro Engineered Plant Nutrition System.

Once Advanced Nutrients determined what the nutritional needs of the plants were, we started researching, field testing and incorporating other ingredients that proved to substantially enhance yield, plant and root growth. These ingredients are Beneficial Bacteria, Beneficial Fungi, Hormones, Amino Acids, Enzymes, Vitamins, Organic Plant Extracts, Organic Ingredients, Yeast Extracts and Carbohydrates.

All of these ingredients are presently used in the SensiPro Engineered Plant Nutrition System, and are delivered to your crop in a specific chronological order in the plants life cycle. All the guess work has been taken out! No other supplements are required!

Sensi Pro is strain specific, formulated in 5 different strengths to suit your plant's specific requirements.

- Light Feeding - 1200 ppm Peak
- Moderately Light Feeding - 1400 ppm Peak
- Medium Feeding - 1600 ppm Peak
- Moderately Heavy Feeding - 1800 ppm Peak
- Heavy Feeding - 2000 ppm Peak

SensiPro will absolutely out-produce any other company's nutrient programs on the market today. Guaranteed!

However, plants do respond remarkably differently when the correct ratios of nutrients are made present.

The latest line of products from *Advanced Nutrients* is an engineered plant nutrition feed system called SensiPro. This system is based on a patent pending process of delivering the exact quantities of necessary elements to the plant at a precise time interval for the entire life cycle of the plant, all packaged in one feed kit. Each kit contains all the micro and macro nutrients, amino acids, hormones, vitamins, enzymes, yeasts and yeast extracts, beneficial bacteria and beneficial fungi to ensure a healthy robust yield.

RESEARCH STUDY

A 2002 study was conducted by the Plant and Science Department of the University of Mississippi, who are responsible for the development of cannabis studies in the United States. The study was a comparison of various nutrients on the overall development of cannabis plants and specifically their yield and cannabinoid profiles. Test results revealed that *Advanced Nutrients* outperformed the specified nutrient feed regimen set forth by their researchers and showed a 21% increase in yield with an increase of 42% in THC production

THE UNIVERSITY OF MISSISSIPPI

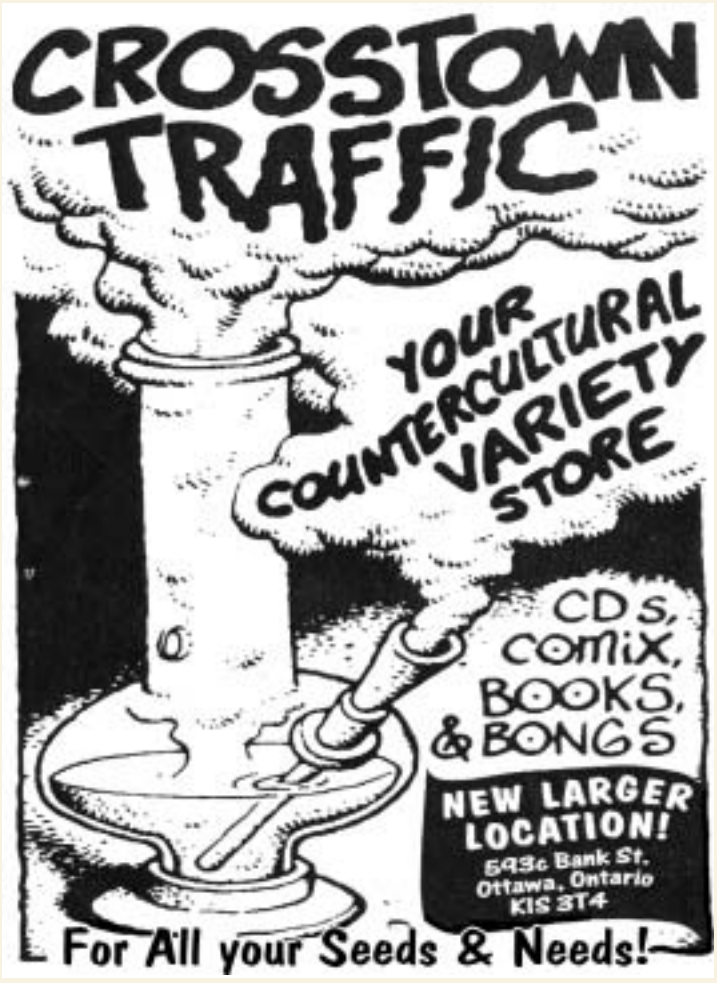
Re: Mohmound A ElSohly, Ph.D. Research Professor.

Effect of 2 different fertilizers on THC and other cannabinoids contents, total biomass production and seed production potential in a high yielding varitety of Cannabis Sativa.

This study was conducted to assess the effect of two different fertilizer treatments on Δ^9– tetrahydrocannabinol (THC), other cannabinoids (THCV, CBD, CBC, CBG, CBN) contents, total biomass and seed production in high yielding variety of Cannabis sativa. Selected seeds were grown under similar environmental conditions in indoor cultivation and, after 30 days, seedlings were transferred to research garden, School of pharmacy, University of Mississippi.

..THC content of the plants treated with *Advanced Nutrients* formula was found significantly higher....

Research plot was prepared in a 2000 sq.ft. area and was divided into 2 parts, each plot with a 1000 sq.ft. area. Plants in plot A were treated with *Advanced Nutrients* formula, whereas plants in plot B were fertilized with the regular fertilizer composition used to grow corn and sorghum, recommended by soil testing laboratory, plant and soil science department, Mississippi state University, MS. Delta 9-tetrahydrocannabinol (THC) content of the plants treated with *Advanced Nutrients* formula was found significantly higher than those treated with regular fertilizer. Similarly, in comparison of the plants treated with the regular fertilizer, those treated with *Advanced Nutrients* formula produced more useable biomass and seeds. Therefore, within the limits of this study it can be concluded that *Advanced Nutrients* formula can be useful to grow Cannabis sativa to achieve higher yield in terms of potency and biomass. See table 1 for analytical data on the biomass produced from both plots and fig. 2 for the biomass yield data.



Plot ID	Percentage of Cannabinoids					
	THCV	CBD	CBC	THC	CBG	CBN
A	0.13±0.002	0.53±0.04	0.24±0.01	11.35±0.20	0.00	0.17±0.002
B	0.10±0.01	0.34±0.06	0.18±0.01	7.99±0.46	0.23±0.13	0.14±0.01

***Table 1**: Variations in THC and Other cannabinoids in the harvest samples. Plot A was treated with Advanced Nutrients Formula, whereas regular fertilizer was used in Plot B.*

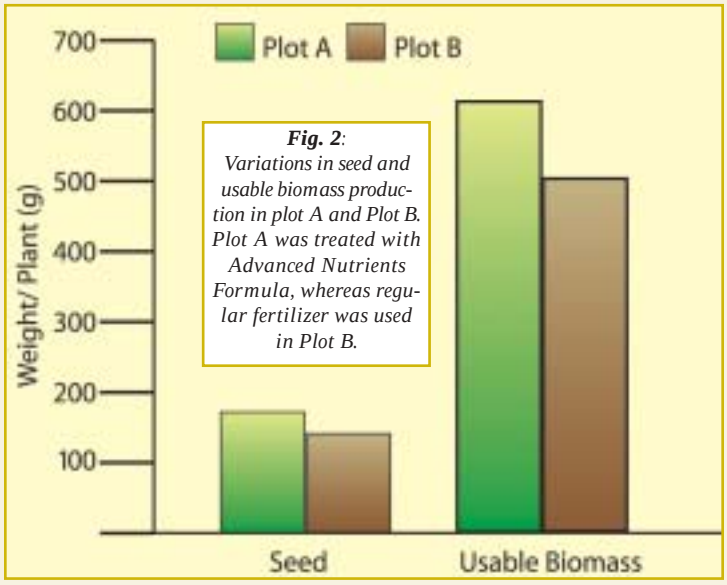
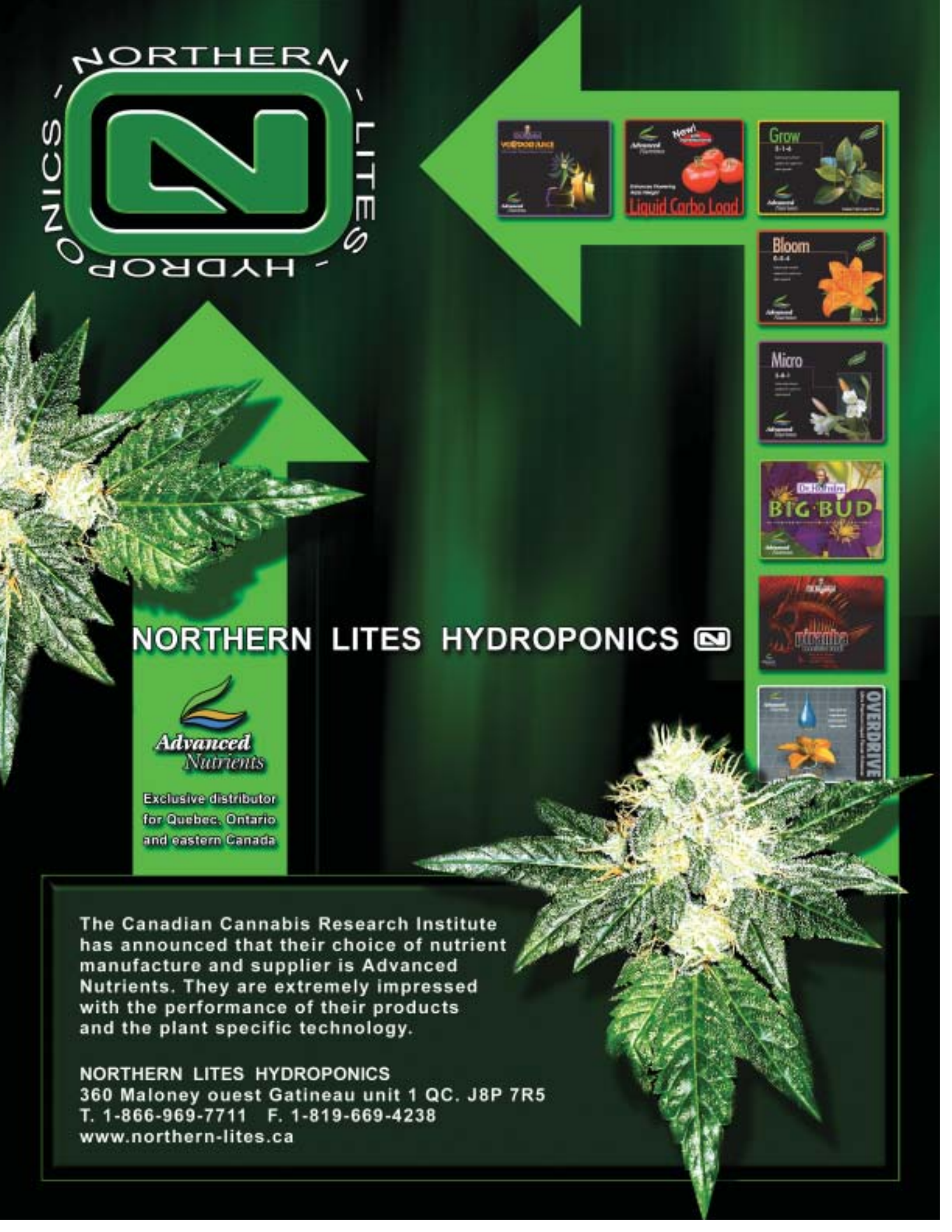


***Fig. 2**: Variations in seed and usable biomass production in plot A and Plot B. Plot A was treated with Advanced Nutrients Formula, whereas regular fertilizer was used in Plot B.*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Jeffrey's Journey

A determined mother's battle for Medical Marijuana for her son "…Jeffrey's Journey is not only for parents concerned about a child's illness and treatment, but will also serve as a guide for all seriously ill individuals and their families and physicians seeking answers about the best treatment available." - Jeff Yablan, M.A., Medical Marijuana Project

by Philippe Lucas

"Jeffrey's Journey" is the very real and harrowing story of a young boy named Jeffrey and his inner battle with severe emotional and behavioural problems. Written by Debbie and LaRayne Jeffries - the boy's mother and grandmother - Jeffrey's tale takes him from the depths of prescription drug despair, to the high of successful cannabis-based treatment. Before Jeffrey even reached adolescence, he had been diagnosed with multiple emotional and behavioural conditions: ADHD *(Attention Deficit Hyperactive Disorder)*, PTSD *(Post Traumatic Stress Disorder)*, OCD(*Obsessive-Compulsive Disorder)*, ODD *(Oppositional Defiant Disorder)*, IED *(Intermittent Explosive Disorder)*, and Bi-Polar Disorder... to name but a few. Along with these diagnoses came a plethora of pharmaceutical treatments: from Adderall to Zoloft and Zyprexa, Jeffrey was prescribed over a dozen anti-anxiety, anti-depressant drugs, many of which have never even been tested or approved for use by children. After seeing that most of these either had no effect or worsened Jeffrey's condition, Debbie began to explore the use of medicinal cannabis.

This was a rapid and significant transition for the Jeffries family, who describe themselves as conservative Christians. Debbie admits that when California's Proposition 215 (which led to the legalization of medicinal cannabis in California) appeared on the state ballot, she voted against it. However, after contacting WAMM (Wo/Men Alliance for Medical Marijuana) and speaking with founder/director Valerie Corral and speaking with an informed physician, she decided to try this untested therapy. Debbie recounts the morning of Jeffrey's introduction to marijuana therapy through cannabis-laced muffins: "Within 1/2 hour of ingesting the first piece of muffin, I had a new child. We were driving to school, and as I merged into a new lane of highway traffic, Jeff looked over at me and smiled, "Mommy, I feel happy, not mad, and my head doesn't feel so noisy!" This was the beginning of a successful treatment regimen that soon led to Jeffrey being able to make friends and have an 8th birthday party with other kids at the local Chuck E. Cheese's, something that would have been previously unthinkable for the Jeffries.

Sadly, there have been some setbacks. Last year's federal bust of the WAMM cannabis garden led to a break in Jeffrey's line of medicine, which led to a decline of his emotional/behavioural state. This was only restored once the Jeffries were able to once again access the particular strain that helped calm Jeffrey's mind and resultant behaviour.

"Jeffrey's Journey" is the tale of a family's sorrow and desperation, and the hope that finally came from an unlikely source: cannabis. Although therapeutic cannabis is by no means a cure-all, it has been able to give the Jeffries happiness where there was once only fear and frustration. As I finished Jeffrey's Journey, I had to wonder how many more families might be struggling with similar problems, and how many severely emotionally handicapped children might benefit from the information in this brave book.

MAP posted-by: Richard Lake, Pubdate: Fri, 02 May 2003, Source: DrugSense Weekly, Website: http://www.drugsense .org/current.htm. Details: http://www. mapinc.org/media/2899

Note: Philippe Lucas is Director of Communications for DrugSense. He is also the founder and director of the Vancouver Island Compassion Society, a medicinal cannabis organization based in Victoria, B.C., http://thevics.com/ URL: http://www.mapinc.org/drugnews/v03.n638.a03.html

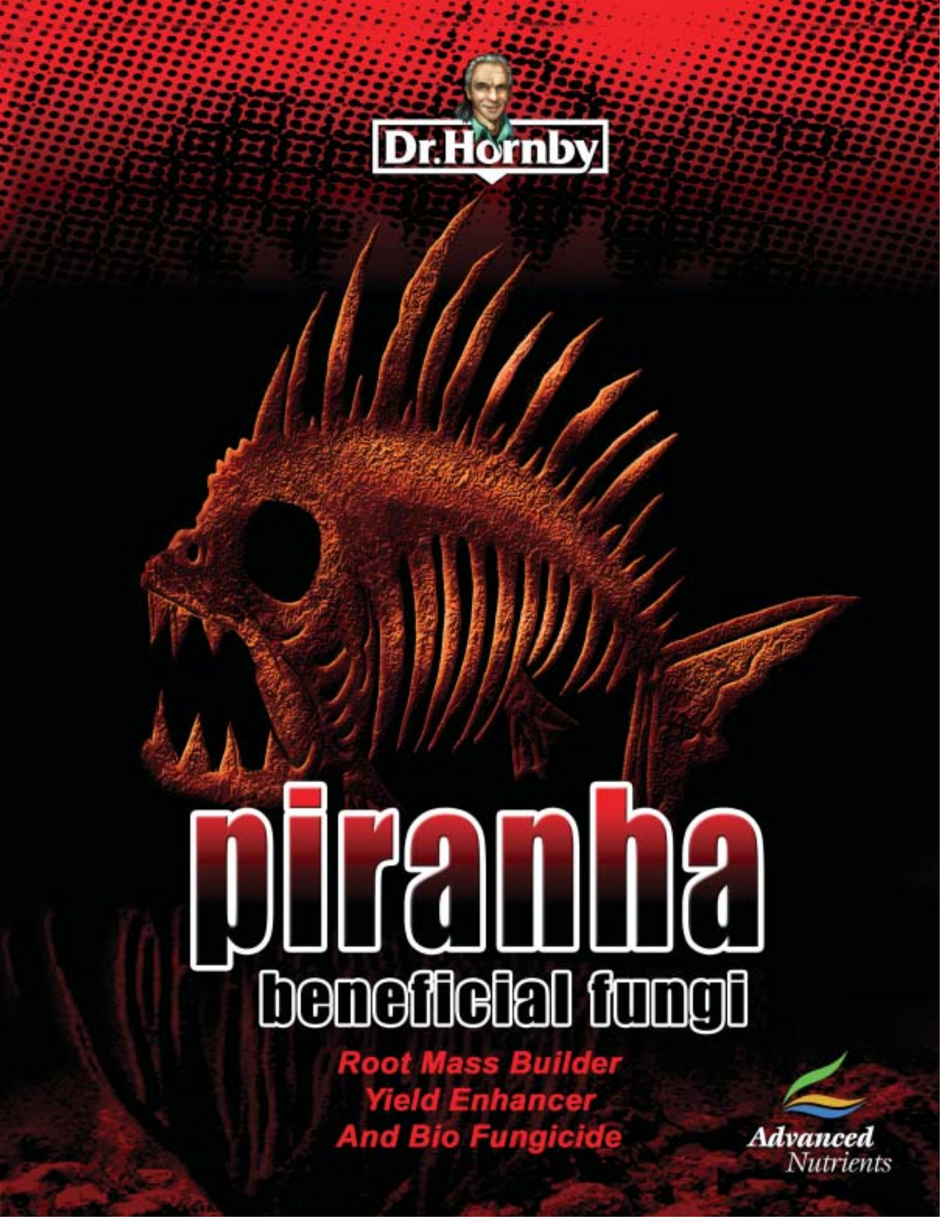
McGill Research for Health Canada

After receiving a grant from the Canadian Institute of Health Research, McGill University scientists are leading the world in a study to examine the effects of cannabis on neuropathic pain. This is the first trial of smoked cannabis on non-HIV and Multiple Sclerosis patients, as well as being the first trial where subjects will smoke cannabis as outpatients. It was important to researchers that as much as possible the study replicated the real life conditions under which most patients live on a day-to-day basis.

The main hypothesis of this study is to show that cannabis containing 8% THC is superior to lower concentrations in reducing neuropathic pain. The main objectives for this study are as follows: • To examine the effects of short-term, low-dose cannabis use on patients with chronic neuropathic pain. • To study issues of safety, placebo discernment, and dose estimation for clinical effects. • To examine the effects on quality of life and mood.

continued page 31

Dr. Hornby



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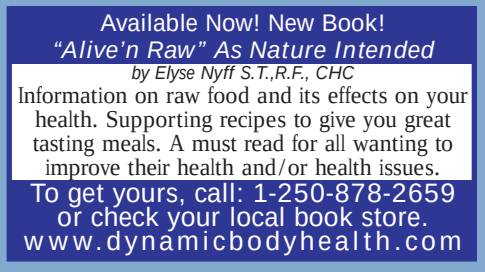

continued from page 28 • To evaluate the mechanisms of the actions of cannabinoids on neuropathic pain using quantitative sensory testing. • To supply experience and data for larger clinical trials.

The Canadian government is still not ready to distribute the cannabis that is has contracted to have grown, so the product is being supplied to McGill University by the National Institute of Drug Abuse {NIDA}.

Note: NIDA currently is not growing any cannabis with a potency level higher than 4%. McGill requested THC at 8%. When questioned about this discrepancy and the possible jeopardization of the integrity of the study, McGill suggested that I speak with NIDA. To-date NIDA has not responded.

Sources: *www.mcgill.ca/public/releases - Dean Beeby Canadian Press, Sunday April 20, 2003 - www.medical-marihuana.ca*

Legal Eagle

continued from page 19 stupid traffic ticket scheme and put an end to all penalties and stigmatization.

My next task is to try and prevent the federal government from letting Mike Patriquen die in prison simply because they are hypocritically freaked out about letting him have a cannabis cookie from Health Care where others get their methadone!! As an alternative they want him to do real narcotics. An Application for various interim orders pending the main hearing will be made in federal court in Vancouver on Monday June 2nd, 2003 at 9:30am, in an effort to prevent the continued violation of his constitutional rights pending the hearing.

Canadian officials consider Dutch example of pharmacy sales

The law, which became effective March 17, makes the Netherlands the first country in the world to treat marijuana like an ordinary prescription drug. Senior Health Canada officials visited the Netherlands in February to learn more about a new law that allows pharmacies to distribute government marijuana to patients with a doctor's prescription. A Netherlands government official, visited Ottawa on March 14 to discuss providing Dutch cannabis to Health Canada, among other issues.

Source: http://www.herald.ns.ca

Marijuana Medicinal Access Regulations Unconstitutional.

In January, Justice Sidney Lederman of Ontario's Superior Court declared the Marijuana Medicinal Access Regulations unconstitutional. "Laws which put seriously ill, vulnerable people in a position where they have to deal with the criminal underworld to obtain medicine they have been authorized to take, violates the constitutional right to security of the person," Lederman wrote in a 40-page ruling. He gave Ottawa until July 9th to fix the regulations or supply the pot itself. Health Canada has appealed the decision but the deadline remains.

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ANNOUNCEMENTS

Green Aid. The Medical Marijuana Legal Defense Fund (USA). Contributions welcome. www.green-aid.com or call 1-888-271-7674 (US), 1-415 677 2226. Donations are tax deductible (US).

Have you been banned from the U.S. for marijuana charges? Please contact us at Cannabis Health, att. Banned. Sorry we have been unable to respond to the flood of the calls and letters, keep the faith, we will get back to you.

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Colorado Med. Users: Colorado Cannabis is helping people join the Colorado Patients Registry. We offer grow advice, registration assistance and referrals. Contact us at mail@coloradocannabis.com

U.S./Canadian medical marijuana benefit concert, Hands Across the Border: Persons interested in the organization of a major musical event in the fall or late summer of 2003 please contact Cannbis Health, attention "Benefit Concert". We are seeking organizers, volunteers, bands, financial backers, etc. This is a call for assistance with this project. The organizers are open to ideas and suggestions.

Drop on by the website that tells the REAL stories and valiant struggles of Federal Medical Marijuana Exemptees in Canada. We KNOW you are curious.... so, see you here. Check out the National Media attention we have received for this issue already. Remember we are here to stay... Chow for now. Gary Lynch, Alison Myrden Web Designer. Federal Medical Marijuana Exemptee. **The Medical Marijuana Mission**. **www.themarijuanamission.com**

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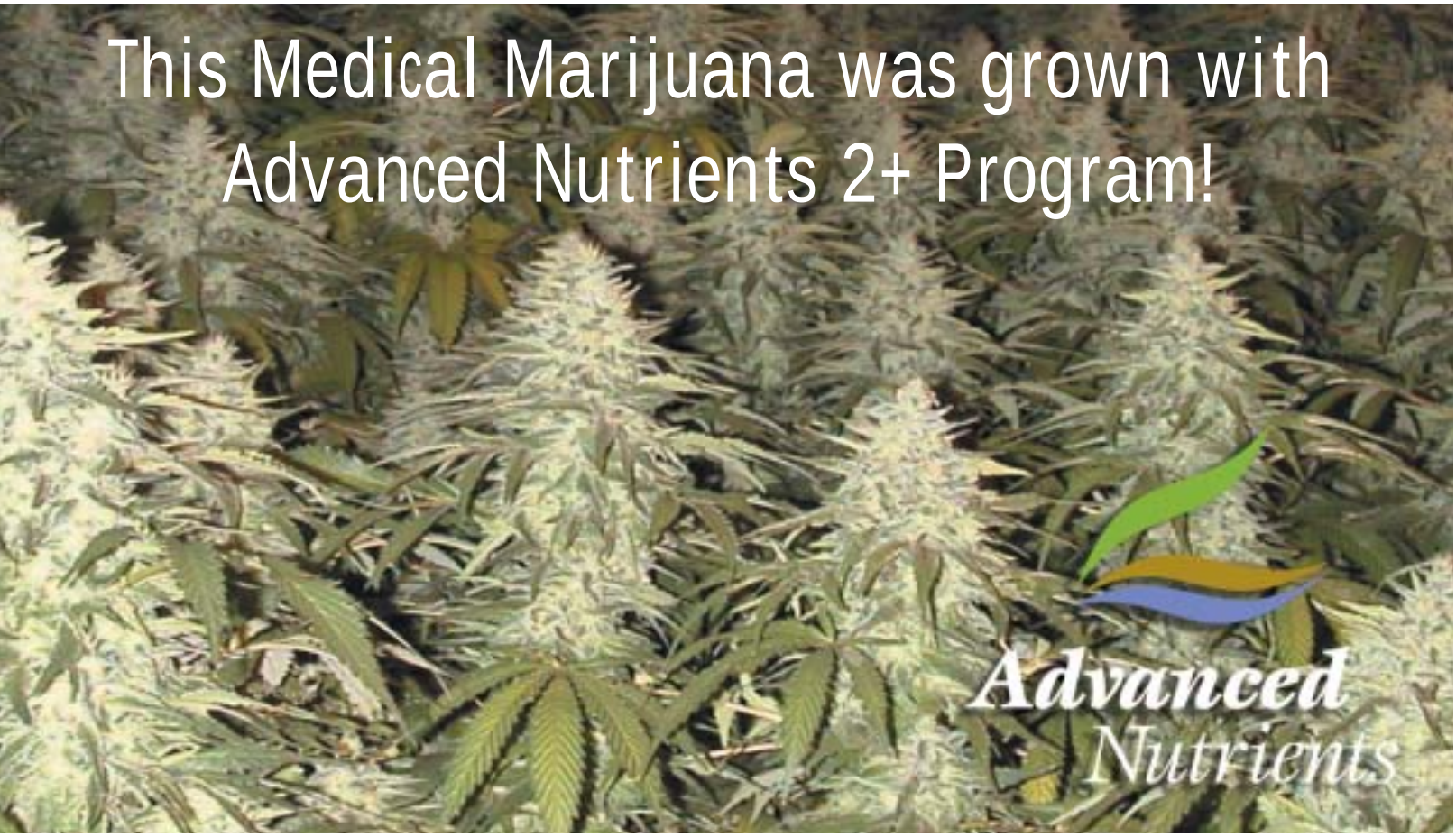

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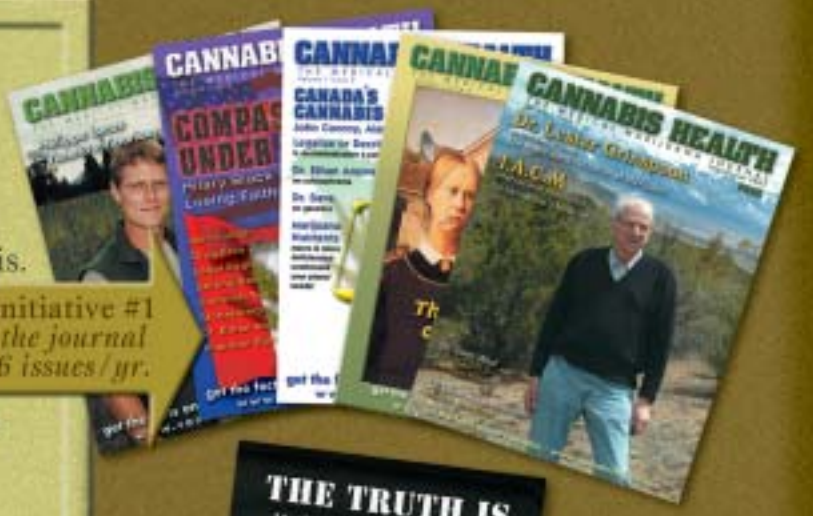
Who is CANNABIS HEALTH?

The Cannabis Health Foundation was formed in the spring of 2002 as a non-profit foundation.

The foundation is dedicated to:

Promoting the safe medicinal use of cannabis.
Research into efficacy and genetics of cannabis.
Supporting and protecting the rights of the medical cannabis patients.
Educating the public on cannabis issues.

The first initiative of the new foundation is the publication of ***Cannabis Health Journal***. Other activities will include financial & practical support for low income patients and the establishment of a legal defense fund.



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Cannabis Health Foundation and its projects are supported by **donations**, **advertising** in the *Journal*, **subscribing** to the *Journal* or the **purchase** of **Cannabis Health** T-shirts, posters and other products.

Special acknowledgement to the thousands of hours of volunteer work put in this first year by staff and friends of the Foundation!

For More information or to support the Foundation please contact us at
www.cannabishealth.com or 1-866-808-5566