

Sunil Aggarwal  
 Geography doctoral student  
 General Examination Statement

Committee: Drs. Mayer\*, ZumBrunnen, Morrill, Carter, Russo, Sullivan  
 6/15/06

The three fields of study I have chosen for this examination are:

1. **Health/Medical Geography**
2. **Medicine**
3. **Public Health**

The graduate coursework I have completed in these areas (in chronological order):

<b>COURSE</b>	<b>GRADE</b>
PATH 551: Summer Rotation in Geography: Introduction to Medical Geography	<b>P</b>
HUBIO 5XX: School of Medicine, 1st year	All <b>P</b> 's
MED 565: Healer's Art	<b>P</b>
CONJ 520: Anatomy and Autopsy	<b>P</b>
FAMED 501: Introduction to Family Medicine: Preceptorship, Dr. Peter Grote, "holistically-oriented family physician"	<b>P</b>
GENOME 501: Summer Rotation in Genome Sciences: malaria genomic geography	<b>P</b>
GEOG 574: Seminar on Law and Geography: Geography, Law and Social Control	<b>3.9</b>
HUBIO 5XX: School of Medicine, 2nd year	All <b>P</b> 's with 3 <b>H</b> 's (Clinical Epidemiology; Medicine, Health and Society; Psychopharmacology)
MED 561: Tropical Medicine	<b>P</b>
MED 550: Introduction to Emergency Medicine	<b>P</b>
FAMED 659: School of Medicine 3rd year Clinical Clerkship in Family Medicine, Seattle Country Doctor Community Clinic + 30 hours at Swedish Providence Emergency Department	<b>P</b>
GEOG 581: Seminar in Medical Geography: Social Epidemiology	<b>3.5</b>
UCONJ 531: Introduction to Mind/Body Medicine	<b>P</b>
GEOG 512: History of Geographic Thought	<b>4.0</b>
ANTHRO 561: Seminar in Methods and Theories: War & Society	<b>4.0</b>
GEOG 523: Qualitative Methodology in Geography (GEOG 425 equivalent)	<b>3.7</b>
GEOG 360: Principles of Cartography	<b>4.0</b>
GEOG 515: Evidence and Explanation in Geography	<b>4.0</b>
GEOG 426: Quantitative Methods in Geography	<b>4.0</b>
HSERV 590: Health and Human Rights	<b>P</b>
GEOG 573: Urban Political Geography Seminar: Sexuality and Space	<b>3.9</b>

### **Internships, Independent Studies, Community-Based Learning:**

PSYCH 598: Peace Psychology Directed Reading

GEOG 600: Health/Medical Geography Independent Studies

EPI 600: Clinical Epidemiology Independent Study

Betty Ford Center Summer Internship for Medical Students Inpatient Program (42 hours)

Additional Clinical Mentoring with Dr. Greg Carter (Physical and Rehabilitation Medicine), Dr. Jonathan Mayer and Dr. Wes van Voorhis (Infectious Disease, Travel Medicine, Family Medicine), Dr. Vijay Aggarwal (Nuclear Medicine)

Washington Physicians for Social Responsibility board president, 2004-6—member of delegation that visited health care workers and peace activists in Israel/Palestine

Delegate to 2004 Washington State Democratic Convention

UW Cannabinoid Journal Club attendee (joint labs of Drs. Ken Mackie and Nephi Stella)

Public Comment, Courtroom Advocacy, and Care for political prisoners of conscience and other raised-profile public individuals whose rights to health have been compromised by criminal justice systems and/or flawed public health regulation and control of Substance Abuse mental disorders

Manuscript Reviewer for *Harm Reduction Journal* and *The Geographical Review*

### **Major Papers, Presentations, and Conferences attended:**

Papers and Presentations:

“Can Disease Ecology Account for non-infectious diseases?” Written for Medical Geography Rotation, Summer 2002.

History and Physical write-ups and presentations for inpatients and outpatients.

“Of Malaria and Microsatellites: Geographically Tracking drug-resistant *dhfr* alleles in *Plasmodium Falciparum*” Sibley Lab, UW Genome Sciences, 9/2/03.

“Peller Plays Roulette” (Roulette v. Seattle--the sidewalk ordinance--and Gary Peller’s ‘metaphysics of law.’); Written for Geography 574: Geography, Law, and Social Control, Fall 2003.

“Health Care Access--Private or Public” (Hill v. Colorado and abortion clinic buffer zones); Written for Geography 574: Geography, Law, and Social Control, Fall 2003.

“Smoking, Nutrition, and Physical Activity: Do Physicians Have a Role to Play in Modifying Patient Behaviors?” Group presentation for HuBio 555: Medicine, Health, and Society: Discussions in Health Policy, Winter 2004.

“Developing a Depression Management System: A Small Follow-up Study.” UW MSTP (Medical Scientist Training Program) Poster Session. August 21, 2004.

“Geographies of Lethal and Nonlethal Violence”; Written for Geography 581: Research Seminar in Medical Geography: Social Epidemiology, Fall 2004.

“Deconstructing the War on Drugs”; Written for Anthropology 561 Seminar in Methods and Theories: War & Society, Winter 2005.

“Health and Prohibition: An Exploration of Seattle’s Medical Cannabis Community”; Written for Geography 532: Qualitative Methods in Geography, Winter 2005.

“Problematic Alcohol Use and Marijuana Law Enforcement: Correlations at Multiple Scales in the US”; final project for Geography 360: Principles of Cartography, Spring 2005.

“The intersection between Political Ecology and Health Geography at the scale of the

- embodied subject.”; co-written with Geography doctoral student Gregory Simon for Geography 515: Evidence and Explanation in Geography, Spring 2005.
- “Clearing the air: what the latest Supreme Court decision regarding medical marijuana really means.” Editorial by Aggarwal S, Carter GT, Steinborn JJ. *American Journal Hospice and Palliative Medicine*. 2005 Sep-Oct;22(5):327-9.
- “From drug war to drug peace: Medical violence embedded in the diagnostic criteria for “Substance Abuse” mental disorder enables systematic human rights violations and must be updated by the medical geography of non-problematic and beneficial psychoactive substance use”; First Draft of Preliminary Exam Statement, 9/12/05.
- “Mental Disorder or Governmental Disorder? Self-administration of illegal neurotransmitter-analogue substances: delineating Substance Abuse mental disorder from health and human rights considerations in the field”; Second and Final Draft of Preliminary Exam Statement, 10/24/05.
- “Persecution of the Ill and Disabled who use Cannabis as Medicine – Health and Human Rights Cases in the American-led ‘War on Marijuana’”; Written and Presented for Health Services 590K/Law H540: Health and Human Rights, Winter 2006.
- “Mental Health and Cannabis: Loose Ends.” Invited presentation at 2006 National Organization for the Reform of Marijuana Laws Conference in San Francisco, 4/21/06.
- “Resistance to the War on Drugs.” Invited speaker for class session of LSJ 380: Contemporary Issues in Law, Societies, and Justice: The War on Drugs and Globalization, 5/31/06.
- “Embodying Forbidden Cannabinated States.” Written for GEOG 573: Urban Political Geography Seminar: Sexuality and Space, Spring 2006.

#### Conferences Attended:

- Western Regional International Health Conferences on Politics, Social Justice, and Global Health, University of Washington, 11/15-11/17/2002; 2/18-2/20/2005.
- National Organization for the Reform of Marijuana Laws (NORML) Conferences March 31-April 2, 2005, April 20-22, 2006 (San Francisco, CA)
- “Practicing Theory, Theorizing Practice: Physician Scholars in the Social Sciences and Humanities”; MD/PhD Social Science and Humanities Conference; May 14-15, 2005; (San Francisco, CA)
- Entheogenesis 2: From Darkness Back to Light, May 21-23, 2005, (Vancouver, B.C.)
- International Cannabinoid Research Society Meeting June 24-27, 2005 (Clearwater Beach, FL)
- Keeping the Door Open 2005: Dialogues on drug use. A symposium: “Beyond Drug Prohibition: A Public Health Approach” October 18-19, 2005, (Vancouver B.C.)
- 2006 American Association of Geographers Annual Meeting, March 7-11, 2006, Incl. NIDA/AAG Symposium on Geography and Drug Addiction (Chicago, IL)
- Fourth National Clinical Conference on Cannabis Therapeutics, April 6-8, 2006 (Santa Barbara, CA)
- Mental Diversity Scholar attendee to Human Enhancement Technologies and Human Rights Conference, Stanford Law School, May 26-28, 2006, (Palo Alto, CA)

### 1. Health/ Medical Geography

political ecologies of health, disease, and structural/violence; critical ‘agency-orientated’ geographies of the body; ethnomedical geography

### 2. Medicine

cannabis therapeutics; stress-reduction, mind-body, and pain medicine; substance-related mental disorders; the new subjective medicine

### 3. Public Health

harm reduction, human rights and the right to health, quality of life and health-related quality of life; clinical epidemiology

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Proposed Dissertation Topic:

#### **Living in hiding. A critical political ecology of Cannabis Abuse mental disorder: diagnostic, therapeutic, and public health implications**

The human-environment relationship is an organizing principle of geography, and uncovering its manifold nature drives the discipline and its subdisciplines. The biophysical and sociopolitical environment’s unquestionable relevance in explaining and understanding patterns of human health and disease, such as wellness and illness, morbidity and mortality, suffering and structural violence, is a *bedrock principle* of health and medical geography. This environmentally-driven principle, drawn from the Hippocratic perspective on human health, is strengthened by the basic precepts of the science of ecology, such as the ecosystem concept, by which health/medical geographers are able to discern dynamic biophysical linkages between the human species and other biotic organisms and abiotic factors in the biosphere. Increased knowledge and understanding in the subdiscipline is frequently generated by health-oriented research that focuses on the spatial interplay between particular human agents, aggregate and individual, and particular non-human biological objects, such as germs and crops. This interplay is contextualized against the backdrop of an interdependent and interconnected shared environment, broadly construed to include both biophysical (e.g., terrain, climate, biome) and sociopolitical (e.g., public health regulation, political-economic forces, cultural practices) dimensions at multiple scales, stretching from the local to the global. Further enriching the holistic perspective of health/medical geography is a sophisticated poststructuralist and feminist understanding of the human body that explicitly integrates crucial dimensions of subjectivity and embodiment, in addition to strictly objective and material ones, in theorizing states of health and illness. Recognizing the human body itself as both a materially and discursively created natural object, imbued with subjectivity and shaped by interactions with the environment, guarantees that health/medical geography will incorporate both subjective and objective elements in its full accounting of human health and ill-health. This integrated view is absolutely necessary for a total understanding of human health and suffering; its persistent application in medicine and public health is certain to help humankind move toward the goal of achieving, for all, a state of health experienced as “complete physical, mental and social well-being and not merely the absence of disease or infirmity”—the visionary goal proffered by the World Health Organization in 1946.

This account of the foundational approach and aims of the health/medical geography subdiscipline unabashedly passes over the thorough-going theoretical debate in the field for the last 13 years which has reflected the struggle to incorporate poststructuralist and feminist approaches, such as social theory and subjectivity, into the subdisciplinary purview. I believe that such perspectives have only enriched and enlivened the field, and I welcome them alongside the traditional nature/society orientation of medical geography. I see no reason why ‘innerspace’ geographies that explore the subjective experience of places and contexts cannot seamlessly be integrated with ‘outerspace’ ones that place the human agent in the larger geospatial environmental milieu. Hence, I use the hybrid term “health/medical geography.” The foregoing account also leaves out a second stream in traditional medical geography of health services planning and health care access and delivery optimization. The work in this area is invaluable for helping assure that health care services are available and equitable in given regions and locales.

A significant step forward in the theoretical sophistication and explanatory power of health/medical geography was taken in 1996 with Mayer’s article ‘The political ecology of disease as one new focus for medical geography.’ There, Mayer recounts that the main strength of a political ecology approach is that it “integrates cultural ecology and political economy into one coherent analytical framework” (p.446) In its explicit integration of the concept of human agency, which it derives from its political economy pedigree, political ecology allows one to consider (or tease out) the effects of “‘hidden agendas’ of individuals or groups in a political context, as well as the social forces and struggles over resources and sociopolitical power.” From its ecology heritage, political ecology derives notions of “individual and group adaptation and adaptive processes”, which are basic dimensions of human-environment interaction. Thus, with its blend of social and material concepts and sciences, a political ecology research approach can offer an unparalleled level of explanatory power into the nature and effects of ongoing struggles over natural resources on planet Earth, both biotic and abiotic.

When specifically considering the outlines of a political ecology *of disease* approach, Mayer identifies two major features: locality and disease ecology. With regards to the first, he observes it is a basic feature of political ecology in general and writes that “the political ecology of disease...should demonstrate how large-scale social, economic and political influences help to shape the structures and events of local areas” (p.449). With regards to disease ecology, the second major feature of a political ecology of disease approach, Mayer recalls that disease ecology itself arose from the application of cultural ecology to the study of human disease. Although disease ecology has traditionally been applied to infectious diseases and diseases of malnutrition—many of which are endemic in poorer countries—it can also be applied to other diseases, especially those that arise or are thought to arise, in part or whole, from human interactions such as consumption (or lack of consumption), absorption, or spatial coincidence, with environmentally-derived biological materials (e.g. plants, high carbohydrate foods), chemicals and radiation (e.g. biotoxins, pollution), or spatially-distributed violence and injury-causing objects and events (e.g., landmines, unjust spatial confinement). Because of the wide applicability of disease ecology, a political ecology of disease could therefore potentially address a large number of human diseases, both infectious and non-infectious, that are thought to arise out of particular types of human-

environment interaction. A related area of relevance to health/medical geography that Mayer also introduces is ‘the political ecology of health’, which addresses questions such as: “In a phenomenological and experiential sense, how do political factors mediate the experienced life worlds of specific locations and places, particularly for those who are ill or infirmed?” (p.454) In such a framework, political ecological factors and forces are seen as having a very real and tangible impact on the embodied experience of health (for the sick and hale alike) in a way that is not simply the result of physical exposures to, say, transmissible pathogens but instead invokes far more psychologically mediated pathways of human-environment interaction, such as how large scale social forces affect local and embodied experiences of health and well-being.

Taking these approaches one step further, a political ecology of health/disease framework may potentially be applicable in a contra-positive or negative way to investigate whether a given disease might, in fact, *not* arise out of particular human-environment interactions, although it may currently be thought to do so. This type of approach would allow researchers to question how “cultural ecological” practices and human-environment interactions become coded as disease ecological ones mediated through the forces and effects of political ecology. Diseases best applicable to this negative or critical political ecology of disease approach would be ones whose very identification via current diagnostics relies on the observation or demonstration of certain patient characteristics that in turn depend on particular human-environment interactions. The basic question under such an investigation would be: are clinically identifiable patient characteristics that arise out of particular human-environment interactions in fact indicative of given diseases being present in those patients, or instead are the identifiable patient characteristics indicative of states of health shaped by the forces of political ecology rather than pathology? If the latter is shown to be true, i.e. if political ecology provides a better explanation than pathology for the patient characteristics in question, then a reworking of pathological evidence and explanation as well as patient care for the clinically identifiable characteristics is needed.

In order to take this approach, it is necessary to select a disease or group of diseases and determine how they are defined and managed in medicine and public health. Also necessary is a study of the health and health-related behaviors of those who, as a result of being part of particular human-environment interactions, are diagnosed, diagnosable, or at-risk for being diagnosed with the disease or diseases in question; the “at-risk” group should also include those who are identified and/or targeted through public health regulatory prevention and control measures for the disease or diseases in question. The first requirement regarding disease definition can be accomplished by determining specifically how the disease or diseases in question are recognized and diagnosed at the individual patient level, including their medically accepted signs, symptoms, and manifestations and by determining precisely how and with what consequences the disease or diseases in question are being prevented and controlled at the population level through existing public health regulation. The second requirement is fulfilled with a political ecology of health study. The questions to consider in such a study are: for the selected disease or group of diseases, how do individuals and groups *adapt* to diagnoses and public health prevention and control regulations that are defining, addressing, and targeting the disease or diseases thought to arise out of particular human-environment interactions? How do these individuals and groups interpret and experience

the same presumed pathological or pre-pathological human-environment interactions, especially along the lines of health and embodied experience? Thus, by analyzing the medical definitions and public health controls instituted for a disease, and by taking a political ecology of health approach that looks into the nature and health-consequences of particular human-environment interaction geographies, including patterns of adaptation to various forces that impinge on and shape these geographies, questions can finally be addressed about whether certain human-environment interactions do or do not imply, suggest, predispose, or lead to pathology of any kind. This question can be decided by inspecting what the geography looks like. Is it a true disease ecology that is shifting in response to detection, treatment, prevention and control or a cultural ecology that is shifting in response to the forces of political ecology? Is it not possible that some of these human-environment interactions are in fact grounded in cultural ecology but because of political economic forces have become political ecologies, which in turn have come to be interpreted as disease ecologies? The answers to such questions can clearly have tremendous impact in medicine and public health—in part because misdiagnoses resulting from flawed disease diagnostic criteria can result in inappropriate and iatrogenically harmful treatment, not to mention misguided and damaging public health prevention and control schema.

My general plan is to apply this critical or negative political ecology of disease framework to my areas of interest in medicine and public health. Broadly speaking, I am interested in health/medical geographies in the narrowed and politicized spaces between ‘biotic Substance geographies’ and ‘geographies of Substance Abuse mental disorder diagnostics, treatment, prevention, and control’. What sorts of human-environment interactions involving biotic Substances take place in the space between these two geographies, and how are those interactions shaped by the adjacent and articulating geographies? What patterns of health and wellness, morbidity and mortality, results from these human-environment interactions, and how can this knowledge be integrated into medicine and public health? While we live and have evolved within a world of substance (and energy), portions of this substance have come to be known simply as ‘Substances’. These can be divided into biotic and abiotic Substances. The biotic Substances are naturally occurring life-forms or organisms that are an integrated part of the Earth’s biosphere in the same sense as anyone reading these words is (extra-terrestrials notwithstanding). These biotic Substances have unique secondary metabolite biochemical profiles in that they contain chemicals that can robustly interact with endogenous systems of mood regulation, pleasure, muscle relaxation, and reward (among others) in animals. The intentional consumption of these organisms, in whole or in part, by humans and animals, while ubiquitous, historic, and prehistoric, is the locus of intense medical, public health, and international political and law enforcement focus. Some, but not all, of the abiotic Substances are unmodified or slightly modified concentrates of chemicals that occur naturally in the biotic Substances. While their known consumption by humans spans only at most 150 years, they too are the locus of intense focus. Other abiotic Substances have no derivation from biotia, and their consumption spans at most 50-100 years.

The ‘Substance’ nomenclature was first widely popularized as a result of sweeping, comprehensive, and template-setting United States federal legislation passed by Congress in 1970 and still in effect today. The legislation was known as the

Controlled Substances Act; it created a chapter under Title 21 of the federal code (“FOOD AND DRUGS”) called “CHAPTER 13 - DRUG ABUSE PREVENTION AND CONTROL.” Note the clear and explicit language that identifies this as a public health disease “prevention and control” regulatory schema. Under this policy, a system of five ‘Controlled Substance’ Schedules was created. In moving from Schedule V to Schedule I, increasing degrees of prohibition apply, with Schedule I ‘Substances’ falling for all practical purposes into the category of total prohibition (with exemptions granted for extremely limited medico-scientific research, religious use, and ‘instruction’). ‘Substances’ in Schedules V through II are allowed for progressively restricted medical use and research but are otherwise prohibited. Biotic substances appear only in Schedules I and II. They either appear directly by name (e.g., “Marihuana”, “Peyote”, “Opium poppy”), or by identification of a unique secondary metabolite made by the organism (e.g., “Psilocybin” referring to a metabolite made by 186 species of mushrooms). On an official government website, the name of the organism that produces the scheduled metabolite is listed alongside the chemical name: <http://www.dea.gov/pubs/scheduling.html>. For an idea of size, currently 125 substances are listed in Schedule I and 57 are listed in Schedule II ([http://ecfr.gpoaccess.gov/cgi/t/text/text-dx?c=ecfr&tpl=/ecfrbrowse/Title21/21cfr1308\\_main\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-dx?c=ecfr&tpl=/ecfrbrowse/Title21/21cfr1308_main_02.tpl)). According to the regulations, these two Schedules apply when “The drug or other substance has a high potential for abuse.”

Given this canonical prevention and control schema of Substance Abuse mental disorder, what, medically speaking, *is* Substance Abuse mental disorder? I have written about this extensively in my preliminary exam statement submitted on 10/24/05 entitled “Mental Disorder or Governmental Disorder? Self-administration of illegal neurotransmitter-analogue substances: delineating Substance Abuse mental disorder from health and human rights considerations in the field” (accessible at: [http://students.washington.edu/sunila/statement\\_2\\_Sunil.pdf](http://students.washington.edu/sunila/statement_2_Sunil.pdf)) The key issue that I noted there was that, according to the DSM-IV-TR, “clinically significant...distress” in a patient that occurs as a consequence of ‘their’ “legal problems” stemming from a Controlled Substance possession arrest is sufficient grounds, or pathognomonic, for diagnosis of Substance Abuse mental disorder. What is troubling about this is that no attempt is made to distinguish psychopathology from transgressions of public health regulation supposedly meant to prevent and control the psychopathology. This would be analogous to diagnosing someone as a Hepatitis A carrier simply because they were caught not washing their hands after using the restroom. Also troubling is the fact that no attempt is made to interrogate the health and human rights issues that undergird the “substance-related legal problems.” Just because a Substance Abuse mental disorder prevention and control law, which on its face is a public health measure, has been flouted—with distressing consequences for the patient—does not mean that this is a sure sign that mental disorder is present in the patient. After all, how a patient’s consumption practices came to articulate spatio-temporally with the public health regime of Substance Abuse mental disorder prevention and control to generate ‘their’ “legal problems” is not simply a function of the patient’s mental health. Depending on the effectiveness and sincerity of the public health regulation, regulatory transgressions may not be a sign of mental disorder, but rather one of *governmental* disorder.

So how did this definition of Substance Abuse mental disorder arise? The American Psychiatric Association's DSM (Diagnostic and Statistical Manual for Mental Disorders) has a long history beginning in 1952. For the purposes of this discussion, in the original DSM, Substance Abuse or drug abuse was listed as a Sociopathic Personality Disturbance—the same category that homosexuality was placed in (which, thankfully, was finally removed in 1973). Both the DSM-I and DSM-II were virtually identical to the ICD (international classification of disease) nosology developed by the WHO. The DSM-III, released in 1980, was a significant break from this; it incorporated approaches that were developed by researchers at Washington University School of Medicine in the 1970's (recall that the Controlled Substances Act was passed in 1970). DSM-III introduced the multi-axial system of diagnostic evaluation. In this schema, Substance Abuse, as class of Substance Use mental disorders, was classified under Axis I, reserved for syndromes, including depression and schizophrenia. DSM-III also for the first time classified Substance Use mental disorders in a separate diagnostic category distinct from personality disorders. DSM-III-R (revised) was released in 1987, and in 1988, the most extensive process yet of reworking the Substance Use mental disorders section was begun. This reworking was completed 6 years later when the DSM-IV was released in 1994. With regards to “substance use disorders” (now generally classed as “Substance-related disorders”), the most significant change in the DSM-IV relative to the previous edition of the manual was specific definition and clear enumeration of four free-standing, pathognomonic diagnostic criteria for Substance Abuse mental disorder, as distinguished from Substance Dependence mental disorder. One of these is the presence of “clinically significant...distress” that is “manifested by...recurrent substance-related **legal** problems” which have “occurred repeatedly” or “been persistent” in the past year (emphasis added). It should be noted that there is no other defined mental illness in all of psychiatry whose diagnosis so significantly relies on the existence of patients' legal problems for evaluation. While it has been hailed for its incorporation of social and cultural factors, it is my contention that the human-environment considerations in this formulation of Substance Abuse mental disorder are woefully inadequate.

There are many substances humans consume that fill the space between ‘Substance geographies’ and ‘geographies of Substance Abuse mental disorder diagnostics, treatment, prevention, and control’. In total, there are currently 292 Controlled ‘Substances’ specified in American federal public health code: 125 in Schedule I; 57 in Schedule II; 34 in Schedule III; 68 in Schedule IV; and 8 in Schedule V. Any and all of these 292 substances—plus alcohol—can be referred to with the diagnosis of Substance Abuse mental disorder, effectively eliding their diverse pharmacology. A tremendous amount of confusion is created by this scattered grouping of 293 chemicals and organisms into a catch-all term of ‘Substances’, ‘drugs’, or worse, ‘dope.’ Frequently alcohol is distinguished from the rest with vapid phraseology such as “alcohol and drugs.” With such terminology, it is easy to see how and why the most problematic aspects of certain ‘substances’ in the list of 292 Controlled Substances become mis-attributed to any other particular ‘Substance’ in the classification. The only way to address this nonsensical hodgepodge of ‘Substances’ and move forward is to patiently, methodically, and thoroughly distinguish the human-environment interactions, unique pharmacology, and human experience with each of these substances *individually*, one-at-a-time. In many cases, doing this would require a separate compendium for each.

Thankfully, much excellent work has already been published about many of these substances individually, and more desperately needs be done and incorporated into medicine and public health. I look at this vast Substance-scape and have chosen to focus in on biotic Substances, which have a far more extensive history of human use than the abiotic ones (though the two are surely interconnected!) and which are far more easily studied with a political ecology lens. The number of distinct biological organisms represented in the 'Controlled 292' probably number in the low hundreds (with psilocybin- and dimethyl- or related-tryptamine-containing organisms making up the vast majority). It is worth noting that several of the 292 substances appear endogenously in *Homo sapiens*! (such as dimethyltryptamine, morphine, and diazepam) However, nine organisms referred to directly or indirectly in the Schedules receive much more attention than the others. These are: *Papaver somniferum* L., *Erythroxylum coca* Lam, *Cannabis sativa* L., *Lophophora williamsii* J.M.C., 186 *Psilocybin-containing fungi spp.*, *Catha edulis* Vahl, *Tabernanthe iboga* L., and more recently *Banisteriopsis caapi* C.V.M. & *Psychotria viridis* Ruiz&Pav. More commonly, these are known as opium, coca, cannabis, peyote, magic mushrooms, khat, iboga, and ayahuasca. For pressing reasons this committee is already aware of such as health, human rights, and sustainability, I choose to study the human-environment relationship with regards to *Cannabis sativa* L., and in so doing undertake a critical political ecology of Cannabis Abuse mental disorder. With such an approach, I hope to fuse body politics with political ecology.

Some current human-*Cannabis sativa* L. facts:

Cannabis is a naturally occurring plant (Kingdom Plantae; Phylum Magnoliophyta; Class Magnoliopsida; Order Rosales; Family Cannabaceae; Genus *Cannabis*; Species *sativa*) domesticated early in prehistorical times and now found in nearly every country of the world. According to UN statistics, globally about 161 million people annually consume cannabis flowers or flower-derived products (2003/4 underestimates) or about 4% of the world population aged 15-64. Many millions of humans and animals also annually consume non-flower cannabis products such as nutritive hemp seed (source of omega-3 fatty acids and edestin—highest complete source of protein and essential fatty acids in the Plant Kingdom), hemp seed oil, seedcakes, etc. The plant is also used (yet grossly underutilized) as an industrial raw material for biomass fuel, cordage, cellulose, and other applications.

Modern methods for Cannabis Abuse mental disorder prevention and control have almost exclusively relied on the widespread policy of strict cannabis prohibition, a policy that was adopted at the federal level in the United States in 1937. Since comprehensive global Cannabis Abuse mental disorder prevention and control regimes were put into place in 1961 with the adoption of the UN Single Convention Treaty on Narcotic Drugs, an estimated 26 million cannabis-related arrests have been made. Of these, ~17 million have been made in the United States, and over 7 million of those have occurred since 1995. Of the ~1.6 million 'drug-related' arrests made in the United States annually, 770,000 are cannabis-related (the largest fraction), with one cannabis-related arrest occurring every 41 seconds. Currently, there are between ~32,500-40,000 prisoners in federal, state, and local jails and prisons in the United States incarcerated for violations of cannabis prohibition, (about 6-8% of all 'drug prohibition' prisoners in the US) with

many serving long sentences. According to US Federal law, the most severe penalty possible for a cannabis-related transgression is the death penalty, though it has not been used in this way yet. Other countries such as Saudi Arabia, Indonesia, Malaysia, Singapore, Philippines, Qatar, China, however, do execute for these crimes.

Currently, 5 individuals receive dried, rolled cannabis flowers monthly from the federal government under a now-closed Investigational New Drug program. Eleven US states have laws protecting the medical use of cannabis. California has between 150,000-200,000 individual patients who have been granted ‘asylum’ by a physician for cannabis use with over 1500 doctors granting such asylum protections. Across California, there are approximately 230 municipally-regulated, above-ground cannabis dispensaries currently operating, with 36 in San Francisco alone. Approximately 35 cannabis dispensaries have been raided in California since the 2005 6-3 Supreme Court decision upholding the supremacy of the federal Controlled Substances Act over state medical cannabis laws. In Oregon, approximately 11,000 individuals live with medical asylum protections; 2,151 physicians have granted these. In Washington State, perhaps as many as 10,000 individuals have medical asylum protection, with over 5,000 in King County alone. Both the University of Washington Medical Center and Harborview Medical Center in Seattle have written and endorsed practice guidelines for physicians who grant medical cannabis asylum protections.

To conclude, I will leave you with a brief reflection on the 5 individuals who receive cannabis from the US federal government:

In fund-raising auctions of ‘normalization of cannabis consumption’ political circles, the empty containers of fully legal American marijuana supplied to the now five remaining Americans legally permitted to consume cannabis fetch a handsome and high price. While materially these objects are simply empty, sometimes-rusted, dull grey metal tins with a taped-on black-and-white informational label, their symbolic value is immense. This is because they once were filled with a globally prohibited green vegetable plant matter grown at a federally funded cannabis farm in Oxford, Mississippi and rolled into cigarettes at the Research Triangle Institute outside of Durham, North Carolina. This is where the metal tins are used to package the cannabis cigarettes which are shipped monthly to five secured pharmacies in the United States where they are picked up for delivery and consumption by five individuals whose health care providers long-ago attested in writing to the vital health and medical benefits that consumption of cannabinoid-rich cannabis plant matter affords them. (I have personally met three of these patients: George McMahon-who suffers from nail-patella syndrome, Irv Rosenfeld-who suffers from multiple congenital cartilaginous exostoses, and Elvy Musikka-who suffers from congenital cataracts and glaucoma.)

The marijuana bud or plant matter that these tins once contained was produced and supplied for consumption with the full financial backing and imprimatur of the United States Federal Government, the National Institute on Drug Abuse, and the United States Food and Drug Administration as part of a “Single Patient Investigational New Drug Program” that was reluctantly started three decades ago

by the USA on the order of a high court federal judge who ruled that “medical necessity” to marijuana was a right that one man with glaucoma-related deteriorating vision possessed and which the US government is legally obligated to respect, protect, and fulfill—despite the its policy of nationwide zero-tolerance cannabis prohibition, the official state policy of cannabis abuse mental disorder prevention and control. The grey metal tins thus represent these facts of exception. They are tangible material proof that human marijuana consumption has health benefits that have been recognized and allowed for at the US federal level. Nevertheless, the man who has been in charge of cultivating this cannabis for thirty-plus years, Mahmood El Sohly, stresses the point that the marijuana that he is growing is *not* being used as a legitimate, bona fide medicine but rather as merely an “investigational new drug” with unknown medical benefit. As far as the United States government is concerned, these benefits have remained officially unknown and nonexistent for thirty years. Why are the metal tins so valuable then?

#### A Partly Annotated Bibliography:

The approach that I have outlined draws from the work of many scholars and writers in the three fields of health/medical geography, medicine, and public health. In the following bibliography, I have partially annotated mainly the first section. Each quote is taken from the source cited below it. Some passages are bolded for added emphasis. Sometimes my comments appear after the quote in parentheses. I do include some here in the way of biotic Substance use scholarship—notably *Cannabis sativa* L.—in each field.

**Health/Medical Geography:** political ecologies of health, disease, and structural/violence; critical ‘agency-orientated’ geographies of the body, ethnomedical geography

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Abel EL 1980. *Marihuana, the first twelve thousand years*. New York: Plenum Press.

“In the camps, city and house became indistinguishable, and the possibility of differentiating between our biological body and our political body--between what is incommunicable and mute and what is communicable and sayable--was taken from us forever. And we are not only, in Foucault's words, animals whose life as living beings is at issue in their politics, but also--inversely--citizens whose very politics is at issue in their natural body.” (p.188)

“The fact is that the National Socialist Reich marks the point at which the integration of medicine and politics, which is one of the essential characteristics of modern biopolitics, began to assume its final form. This implies that the sovereign decision on bare life comes to be displaced from strictly political motivations and areas to a more ambiguous terrain in which the **physician and the sovereign seem to exchange roles.**” (p. 143)

Agamben G. 1998. *Homo Sacer: Sovereign Power and Bare Life*. Stanford, CA: Meridian.

Bey H and Zub A. (eds.) 2004. *Orgies of the Hemp Eaters: Cuisine, Slang, Literature & Ritual of Cannabis Culture*. Brooklyn: Autonomedia.

- Bonnie RJ and Whitebread CH. 1974. *The Marihuana Conviction: A History of Marihuana Prohibition in the United States*. Charlottesville: University of Virginia Press.
- Borrero Navia JM. 2002. "La Prohibición Es El Crimen." ("Prohibition is a Crime.") *Imaginación abolicionista. Ensayos de ecología política (Abolitionist Imagination. Essays on Political Ecology)*. Number 4, HIVOS, Cali: CELA UNEP (United Nations Environmental Programme).

"Gandy (2003) notes that he gave the body too little attention in *Concrete and Clay*, continuing the tradition in geography to imagine nature to be 'outside' the body. Yet, if bodies are truly 'composites' and urban natures—water, air, food—crucial to their capacity to life, this is an odd elision. It points also to **the vast gulf that remains between the new urban environmental geography and medical geography**, despite common knowledge of the historical links between public health, the state, and urban form." (p.647, biotic Substances, along with a vast plethora of other natural objects, are certainly part of urban places)

- Braun B. 2005. "Environmental issues: writing a more-than-human urban geography." *Progress in Human Geography* 29, 5: 635-650.
- Barrett F. 2003. *Foreign Primary Sources for Medical Geography and Geographic Medicine*. Toronto: Geographical Monographs.
- 1986. "Medical Geography: Concept and Definition." In Michael Pacione, ed., *Medical Geography: Progress and Prospect*. London: Croom Helm Ltd, pp. 1-34.
- Darling E. 2006. "Nature's carnival: The ecology of pleasure at Coney Island." In eds. Heynen N, Kaika M and Swyngedouw E. *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. New York: Routledge.
- Davidson J, Bondi L, and Smith M. (eds). 2005. *Emotional Geographies*. Burlington: Ashgate Publishing Company.
- Davies G, Day R, Williamson S. 2004. "The geography of health knowledge/s." *Health & Place* 10: 293-297.
- Dear M. 1984. "Health Services Planning: Searching for Solutions in Well-defined Places." *London Papers in Regional Science* (London: Pion), 13, 7-21.

"...a reformed post-medical geography of health and well-being must consider the role of new health-based social movements in shaping the experiences of places..." (p. 107, the medical cannabis movement fits well into this)

"Different bodies are fashioned into deviant ones through the implacement of abjection. Embodied interventions in places, extending the personal habitus while fending off the social control aspects of government and private bureaucratic (including medical) discourses expressed in localities, can bring appreciation of common concerns and a deeper sense of community and personal well-being." (p. 109; an example of an 'embodied intervention' in a place that extends ones 'personal habitus' while fending off external controls is the consumption of a biotic Substance.)

- Dorn M and Laws G. 1994. "Social Theory, Body Politics, and Medical Geography: Extending Kearns Invitation." *Professional Geographer*, 46(1) 107-9.

"Suggestions for a more participatory and emancipatory approaches bring personal and political challenges for the researcher, who can no longer be viewed as a detached "research instrument"

but must be seen as a co-constructor of stories about a world open to different interpretations according to vantage point.” (p. 245)

“Qualitative methods also have been influential in decentering the authority and dominance of biomedical knowledge through bringing **subject-centered perspectives to medicalized events** and health care provision.” (p.247)

Dyck I. 1999. “Using Qualitative Methods in Medical Geography: Deconstructive Moments in a Subdiscipline?” *Professional Geographer*, 51(2) 243-253.

“As she wryly comments of her own illness experience, ‘my subjective descriptions of my bodily experience need the confirmation of medical descriptions to be accepted as accurate and truthful.’” (p.122, quoting Wendell)

Dyck I. 1999. “Body Troubles: Women, the Workplace and Negotiations of a Disabled Identity.” In Butler R and Parr H (eds.) *Mind and Body Spaces: geographies of illness, impairment and disability*. New York: Routledge.

“We can understand this as a ‘soft’ claim: science is objective and the domain of experts, but for scientific solutions to be effective social context needs to be considered. **As Sullivan, talking about the relationship between doctors and their patients, says: ‘Facts known only by physicians need to be supplemented by values known only by patients.’** (Sullivan 2003, p. 1595). From this follows a model of public participation which values the public for their ability to make social assessments of science.” (p.341)

Dyer S. 2004. “Rationalising public participation in health service: the case of research ethics committees.” *Health & Place* 10: 339-348.

Feingold DA. 2000. “The Hell of Good Intentions: Some Preliminary Thoughts on Opium in the Political Ecology of the Trade in Girls and Women.” In Evans et. al. (eds) *Where China Meets Southeast Asia: Social & Cultural Change in the Border Regions*. Institute of Southeast Asian Studies. Bangkok: White Lotus.

Gesler WM. 1992. “Therapeutic Landscapes: Medical Issues in Light of the New Cultural Geography.” *Social Science and Medicine* 34: 735-746.

-----1993. “Therapeutic Landscapes: Theory and a Case study of Epidaurus, Greece.” *Environment and Planning D: Society and Space* 11: 171-189.

Good C. 2000. “Cultural and Medical Geography: Evolution, Convergence, and Innovation.” In *Cultural Encounters with the Environment*, eds. A. Murphy and D. Johnson, Lanham, MD: Rowman & Littlefield, pp. 219-238.

-----1980. “Ethno-medical Systems in Africa and the LDCs: Key Issues in Medical Geography.” In *Conceptual and Methodological Issues in Medical Geography*, ed. Melinda S. Meade. Studies in Geography No. 5, Chapel Hill, NC: University of North Carolina at Chapel Hill, pp.93-116.

Grossman L. 1977. “Man-Environment Relationships in Anthropology and Geography” *Annals of the Association of American Geographers*. 67:1 126-144.

Harding D. 2000 “Wrecking the joint: U.S. role in burning marijuana crops on St. Vincent.” *Geographical*. 72:9: 56-60.

Harper, J. 2004. “Breathless in Houston: a political ecology of health approach to understanding environmental health concerns.” *Medical Anthropology*. Oct-Dec;23(4):295-326.

“...any program which either deliberately or inadvertently changes pre-existing relationships between man [sic] and any aspect of his environment (geographic, biological, social or **psycho cultural**)—must be viewed as the forging, as it were, of a new ‘ecological contract’ between man and his surroundings, a contract which usually has hidden costs.” (p.479) Does not a ‘psycho cultural’ relationship with the environment describe the human relationship with lakes, inlets, and even biotic Substances?)

- Hughes CC and Hunter JM. 1970. “Disease and ‘development’ in Africa. *Social Science and Medicine* 3, 443-93.
- Herer J. 2000. *The Emperor Wears No Clothes: The Authoritative Historical Record of Cannabis and the Conspiracy Against Marijuana*. Eleventh Edition. Van Nuys: H.E.M.P.
- Hunter JM. 1973. “Geophagy in Africa and in the United States: A Culture-Nutrition Hypothesis.” *Geographical Review*, April: 170-195.
- 1974. “The Challenge of Medical Geography.” In JM Hunter (ed.) *The Geography of Health and Disease: Papers of the First Carolina Geographical Symposium*. Ch. 1. University of North Carolina at Chapel Hill, Department of Geography. Studies in Geography No. 6.
- 2003. “Inherited burden of disease: agricultural dams and the persistence of bloody urine (Schistosomiasis hematobium) in the Upper East Region of Ghana, 1959-1997.” *Social Science and Medicine* 56: 219-234.
- Hunter JM and Brunn SD. 1974. “The Geography of Psychosocial Stress.” In JM Hunter (ed.) *The Geography of Health and Disease: Papers of the First Carolina Geographical Symposium*. Ch. 6. University of North Carolina at Chapel Hill, Department of Geography. Studies in Geography No. 6.
- International Cannagraphic Magazine*. 2004. Vols 1, issue 1 and 2. UK: IC Magazine, Ltd.
- Jansen ACM. 1991. *Cannabis in Amsterdam: A Geography of Hashish and Marijuana*. Muiderberg: dick coutinho.
- Jones K and Moon G. 1992. *Health, Disease, and Society: A Critical Medical Geography*. New York: Routledge.
- Kalipeni, E. and Oppong, J. 1998. “The refugee crisis in Africa and implications for health and disease: a political ecology approach.” *Social Science and Medicine*. Jun;46(12):1637-53.
- Kearns R. 1993. “Place and Health: Towards a Reformed Medical Geography.” *Professional Geographer*, 45(2) 139-147.
- 1995. “Medical geography: making space for difference.” *Progress in Human Geography*. 19:2 251-259.
- Kearns R and Moon G. 2002. “From medical to health geography: novelty, place and theory after a decade of change.” *Progress in Human Geography* 26,5 605-25.
- Knight CG. 1971. “The ecology of African sleeping sickness.” *Annals of the Association of American Geographers*. 61, 23-44.
- Kurtzke JF. 2005. “Epidemiology and Etiology of Multiple Sclerosis.” *Phys Med Rehabil Clin N Am* 16: 327-49.
- Lupien, JC. 1995. Unraveling An American Dilemma: The Demonization Of

Marihuana. Masters Thesis. Faculty of the Division of Humanities: Pepperdine University.

“Understanding landscapes as a representation of our culture is a part of the human experience. Although often unaware consciously of the way our buildings and streets shape our attitudes and opinions, the things seen and “unseen” have a profound effect on our perspective of the world around us. We think of public space as normalized and “legal”, yet the storefront medicinal cannabis clubs challenge our ideas of what is visible or invisible. These spaces, hidden in plain view, represent our political and social conflicts over power and permission in urban landscapes.”

Madonna J. 2006. “Hidden in Plain View: Cannabis Clubs, Visibility, and Power in the Urban Landscapes of the Bay Area and Amsterdam.” Haas Scholars Program, University of California, Berkeley.

Martin, E. 1998. “Fluid Bodies, Managed Nature,” In Bruce Braun and Noel Castree (eds.), *Remaking Reality: Nature at the millennium*. pp. 64 - 87. London: Routledge.

Mathewson, K. 2004. “Drugs, Moral Geographies, and Indigenous Peoples: Some initial mappings and central issues,” In Steinberg, M, Hobbs J, and Mathewson K (eds.), *Dangerous Harvest: Drug plants and the transformation of indigenous landscapes*. pp.11-23. New York: Oxford University Press.

------(forthcoming) “Drug Geographies.” For *Placing Latin America*. Eds Jackiewicz and Bosco.

Mathewson K and Steinberg M. 2003. “Drug Production, Commerce, and Terrorism.” In Cutter et. al. (eds) *The Geographical Dimensions of Terrorism*. New York: Routledge.

Mayer JD. 1981. “Geographical Clues about Multiple Sclerosis.” *Annals of the Association of American Geographers*. 71:1 28-39.

-----1982. “Relations Between Two Traditions of Medical Geography.” *Progress in Human Geography*, 6:216-230.

“Writing my doctoral dissertation, I became as immersed in my research as most students do. A dissertation takes on an autonomous life, threatening to become the most important and urgent part of a student’s life. I was dissatisfied when I found this happening to me. A growing need to escape the confines of my dissertation, along with an urge to do public service, led me to begin doing volunteer work in the emergency department at a hospital in Ann Arbor, Michigan.” (p.211, way to go, Jonathan! Thank you for being such a good role model.)

-----1989. “Doing Interdisciplinary Research in Social Sciences and Medicine.” *Family Medicine*. 21:3, 211-216.

“Health professionals making a differential diagnosis of a patient who presents a set of signs and symptoms must understand the environments which that person has come into contact.” (p.423)

-----1989. “Clinically Applied Medical Geography: Its Role in Travel Medicine.” *The Professional Geographer* 41:4 421-428.

“...the political ecology approach challenges the nature of disease causation inherent in germ theory of disease and the doctrine of specific etiology. **Cause, to the political ecologist, lies just as much in social structures as it does in microbes.**” (p.583,...or just as much as it does with biotic Substances)

- 1992. “Challenges to Understanding Spatial Patterns of Disease: Philosophical Alternatives to Logical Positivism. *Social Science and Medicine* 35:4 579-587.
- 1996. “The Political Ecology of Disease as a New Focus for Medical Geography.” *Progress in Human Geography*, 20, pp. 441-456.
- 2000. “Geography, ecology, and emerging infectious diseases.” *Social Science and Medicine*. Apr;50(7-8):937-52.

“...disease ecology is inherently concerned with integrating the social and physical aspects of human existence....one of the important dimensions of disease ecology which is neglected by Kearns is that culture actually *creates* disease. Why? Because it underlies human behavior, use and modification of the environment, reactions to the environment, and the dialectical relationship between people and the environment generally.”

- Mayer JD and Meade MS. 1994. “A Reformed Medical Geography Reconsidered.” *Professional Geographer*, 46(1) 103-6.
- McQuie H. 2000. Boomtown & Busts: Unlayering Seattle’s ‘Drugscapes’. Masters Thesis. Department of Geography, University of Washington.
- Meade, MS. 1976. “Land development and human health in west Malaysia. *Annals of the Association of American Geographers* 66:428-39.
- Meade M and Earickson R. 2000. *Medical Geography*. New York: Guilford Press.
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- Nichter M. 2001. “The Political Ecology of Health in India: Indigestion as Sign and Symptom of Defective Modernization.” In eds. Connor LH and Samuel G. *Healing Powers and Modernity: Traditional Medicine, Shamanism, and Science in Asian Societies*. Westport, CT: Bergin & Garvey.
- Opong, J.R. and Kalipeni, E. 2005. “The Geography of Landmines and Implications for Health and Disease in Africa: A Political Ecology Approach.” *Africa Today*. Vol. 52(1).

“...some individuals...sometimes resist a totalising medical ‘naming’ of their states of mind/body. Hence, when we discuss a ‘geography of mental illness and mental health’, we should be doing so critically, with an eye to the **alternative definitions and understandings that individuals and groups have of their own mental states.**” (p. 183)

“...’geographies of the deviant body, something we see as a central focus of a “reformed” medical geography, need to balance the subjective and objective experiences of place by contrasting “insider” and “outsider” views of emplacement’ [quoting Dorn and Laws 1994]. By drawing upon these theoretical influences it is thought that empirical work can take account of the politics of mentally different bodies (not a contradictory term if we understand the mind and body as part of a continuum and not a dualism) as sites which are socially and spatially excluded (a key concern of geographies of mental health), but also sites where imaginations, feelings, emotions and **distress** reside (indicative of aspects of self and identity)...” (p. 184, emphasis added)

- Parr H. 1999. “Bodies and Psychiatric Medicine: Interpreting Different Geographies of Mental Health.” In Butler R and Parr H (eds.) *Mind and Body Spaces: geographies of illness, impairment and disability*. New York: Routledge.

The rise of public health information, fused as it is with an increasingly available medical expert knowledge, enables human subjects to become informed, technical actors in the creation of their body spaces...Here, then, individual body spaces are seen as complex sites of risk assessment which are also worked on by their owners to produce more culturally appropriate material forms, as well as being inscribed with medical and health knowledges that are appropriated and reworked by self-made corporeal experts. (p. 245)

- 2002. "Medical geography: diagnosing the body in medical geography and health geography, 1999-2000." *Progress in Human Geography* 26,2 240-251.
- 2004. "Medical geography: critical medical and health geography?" *Progress in Human Geography*. 28,2, pp. 246-257.

"...by blurring definitions and categories such as 'disability' (for example, to incorporate **substance abuse**, HIV, psychological conditions, arthritis), the resulting complexity means that **conventional understandings of such terms and the embodied experiences in question are open to reinterpretation.**" (p. 9, and therefore redefinition)

- Parr H and Butler R. 1999. "New Geographies of Illness, Impairment and Disability. In Butler R and Parr H (eds.) *Mind and Body Spaces: geographies of illness, impairment and disability*. New York: Routledge.
- Peluso NL and Watts M. *Violent Environments*. Ithaca: Cornell University Press.
- Philo C. 2000. "The Birth of the Clinic: an unknown work of medical geography." *Area* 32.1, 11-19.

"... 'embodied' knowledges...arise through our interactions with the environment—and...seemingly do so in distinctive ways if our bodies are differently 'sexed' or if they are physically or mentally 'sick' or 'disabled'—to shape our senses of ourselves in time, space, period and place" (p.38)

- Philo C. 1996. "Staying in? Invited comments on 'Coming out: exposing social theory in medical geography'". *Health & Place* 2: 35-40.
- Preston B. 2002. *Pot Planet: Adventures in Marijuana Culture*. New York: Grove Press.
- Pollan M. 2002. "Desire / Intoxication: Plant / Marijuana." In Pollan M. *The Botany of Desire: A Plant's Eye View of the World*. New York: Random House.
- Rengert G. 1996 *The Geography of Illegal Drugs*. Boulder: Westview Press.
- Richmond, C., Elliott, S.J., Matthews, R., and Elliott, B. 2005. "The political ecology of health: perceptions of environment, economy, health and well-being among 'Namgis First Nation.'" *Health and Place*. Dec;11(4):349-65.

In the final chapter of his text *Political Ecology: A Critical Introduction* (2004), Paul Robbins elucidates his hybridity thesis which posits that "the ecological characteristics of non-human nature and its objects...impinge upon the political world of human struggles." He expands by noting:

In recent history, powerful modern institutions and individuals ([e.g.] environmental ministries, multinational corporations, corrupt foresters) **have gained undue and disproportionate power by explicitly attempting to divide and police the boundaries between human and non-human nature**, even while allying themselves and building new connections to the non-human world, leading to unintended consequences and pernicious results. In the process, resistance emerges from traditional, alternative, and progressive human/non-human alliances marginalized by such efforts (usually along lines of gender, class, and race) (p. 213, emphasis added).

Robbins later makes the call for research into substantive and as-yet-unexamined areas of political ecology such as “the political ecology of the drug trade” (p. 215).

- Robbins, P. 2004. *Political ecology: a critical introduction*. Malden, MA: Blackwell Pub.
- Rosenberg MW. 1998. “Medical or Health Geography? Populations, Peoples and Places.” *Intl. J. Popul. Geog.* 4, 211-226.
- Rubin V (ed.) 1975. *Cannabis and Culture*. The Hague: Mouton Publishers.
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- Rutheford, P. 1999. “The Entry of Life into History,” In Eric Darier (ed.), *Discourses of the Environment*. pp. 37-62. Malden, MA: Blackwell.
- Shiva M and Shiva V. “The political ecology of the resurgence of malaria in India.” *Third World Resurgence*. (<http://www.twinside.org.sg/title/india-cn.htm>) Date unknown.
- Shiva V. 1997 *Biopiracy: The Plunder of Nature and Knowledge*. Boston: South End Press.
- Solomon D. (ed.) 1966. *The Marijuana Papers*. New York: Bobbs-Merrill.
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- Steinberg MK, Hobbs JJ, and Matheson K. Eds. 2004. *Dangerous Harvest: Drug Plants and the Transformation of Indigenous Landscapes*. New York: Oxford University Press.
- Teather EK. 1999. “Introduction: geographies of personal discovery.” In Teather EK ed. *Embodied Geographies: Spaces, bodies and rites of passage*. New York: Routledge.
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- Weiss G and Haber HF. 1999. *Perspectives on Embodiment: The Intersection of Nature and Culture*. New York: Routledge.
- Wesner, B. 1997. The Legal Geography of Marijuana In Hawai'i: Power, Politics and Pakalolo. Masters Thesis. College of Social Sciences, Department of Geography: University of Hawai'i, Manoa.

“Cocaine and its main urinary metabolite (benzoylecgonine, BE) were measured by mass spectrometry in water samples collected from the River Po and urban waste water treatment plants of medium-size Italian cities.” (from Abstract; this is ground-breaking work! A member from this group, Roberto Fanelli, also presented the following “Illicit Drugs as Emerging Contaminants: Residues in Surface Waters Allow Monitoring of Community Drug Abuse”; 54<sup>th</sup> American Society for Mass Spectrometry Conference on Mass Spectrometry, 5/31/2006, Seattle, WA. I met with Dr. Fanelli and he showed me data that proved that there was a weekly periodicity to the level of cocaine/cocaine metabolites in surface waters near Milan, with a rise on Fridays and Saturdays and a drop immediately before and after. This was consistent over a period of many weeks of daily sampling. This is fascinating because it demonstrates (in a quantitative, tangible way) that there is in fact regularity and periodicity to population cocaine consumption—and not erratic unpredictability. The group has also sampled along the Thames River. Fanelli and I talked about sampling for cannabinoids. They are currently looking for American research collaborators so they can get grant funding.

Zuccato E et. al. 2005. "Cocaine in surface waters: a new evidence-based tool to monitor community drug abuse." *Environmental Health: A Global Access Science Source* 4: 14 (available at <http://www.ehjournal.net/content/4/1/14>)

**Medicine:** cannabis therapeutics; stress-reduction, mind-body, and pain medicine; substance-related mental disorders; the new subjective medicine

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Abrams D. "Effect of Smoked Cannabis on Painful HIV-Associated Sensory Neuropathy: A Randomized Placebo-Controlled Trial." Manuscript. In review.

Aggarwal S, Carter GT, Steinborn JJ. 2005. Clearing the air: what the latest Supreme Court decision regarding medical marijuana really means. *American Journal Hospice and Palliative Medicine*. Sep-Oct;22(5):327-9.

"Many medical marijuana patients know that Dr. William Brooke O'Shaughnessy (1809-1889) introduced cannabis to modern Western medicine, but know little else of this Irishman's extraordinary life. In addition to his pioneering work on cannabis therapy, O'Shaughnessy invented the modern treatment for cholera, laid the first telegraph system in Asia, and made significant contributions to pharmacology, chemistry, drug clinical trials, science education, and underwater engineering."

Aldrich M. 2006. "The Remarkable W.B. O'Shaughnessy." *O'Shaughnessy's*, Spring 2006. Presented at the 2006 National NORML Conference, San Francisco, April 22, 2006.

Allentuck S and Bowman KM. 1942. "The Psychiatric Aspects of Marihuana Intoxication" *American Journal of Psychiatry* 99: 248-251.

Amtmann D, Weydt P, Johnson KL, Jensen MP, Carter GT. 2004. "Survey of cannabis use in patients with amyotrophic lateral sclerosis." *American Journal of Hospice and Palliative Medicine* 21:2: 95-104.

Askitopoulou et al. 2002. "Surgical cures under sleep induction in the Asclepieion of Epidauros." In *The history of anesthesia : proceedings of the Fifth International Symposium on the History of Anesthesia, Santiago, Spain, 19-23 September 2001*. International Congress Series 1242: 11-17.

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Berman JS, Symonds C, Birch R. 2004. "Efficacy of two cannabis based medicinal extracts for relief of central neuropathic pain from brachial plexus avulsion: results of a randomised controlled trial." *Pain* 112:299-306.

Bibra BEV. 1995. *Plant Intoxicants: A Classic Text on the Use of Mind-Altering Plants*. First published in 1855. Translated by Hedwig Schleiffer. Foreword by Martin Haseneier. Technical Notes by Jonathan Ott. Rochester, VT: Healing Arts Press.

"It would be astonishing to find that the standards currently adopted by conventional medicine are perfect, and that we can incorporate entirely different systems of healing without having to make any changes or modification, especially given the immature state of our current standards. (EBM is just 13 years old.)"

- Borgerson K. 2005. "Evidence-based alternative medicine?" *Perspectives in Biology and Medicine*. 48: 4: 502-15.
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- Compton MT. 1998. "The Union of Religion and Health in Ancient Asklepieia." *Journal of Religion and Health* 37:4:301-12.
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"*The Lancet* does not endorse illegal drug use, but we believe that the cloak of secrecy shrouding those who use illicit substances is the most destructive feature by far of the cultural condemnation of recreational drug use. Discussions framed by moralizing or by adherence to social ideas have little utility in a society of which drug use is an inescapable part."

- Debating drug use openly*. 2005. *The Lancet*. 365: 2064.
- Denning P. 2004. *Practicing Harm Reduction Psychotherapy: An Alternative Approach to Addictions*. New York: Guilford Press.
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"I believe that a federal policy that prohibits physicians from alleviating suffering by prescribing marijuana for seriously ill patients is misguided, heavy-handed, and inhumane. Marijuana may have long-term adverse effects and its use may presage serious addictions, but neither long-term side effects nor addiction is a relevant issue in such patients. It is also hypocritical to forbid physicians to prescribe marijuana while permitting them to use morphine and meperidine to relieve extreme dyspnea and pain. With both these drugs the difference between the dose that relieves symptoms and the dose that hastens death is very narrow; by contrast, there is no risk of death from smoking marijuana. To demand evidence of therapeutic efficacy is equally hypocritical. The noxious sensations that patients experience are extremely difficult to quantify in controlled experiments. What really counts for a therapy with this kind of safety margin is whether a seriously ill patient feels relief as a result of the intervention, not whether a controlled trial "proves" its efficacy." (Kassirer was the chief editor of the NEJM when he wrote this. George Lundberg, former chief editor of JAMA, has taken a very similar position publicly. *The Lancet* has made an even stronger endorsement for cannabis therapeutics and for the repeal of prohibition.)

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cannabinoids...Because microglial cells are central in controlling the severity of neuroinflammation and extent of cell damage in both MS patients and mouse models of MS...one might postulate that THC and CBD produce their beneficial effects by reducing the number and activation state of microglial cells migrating towards active lesions, thus tempering disease propagation and ameliorating symptoms associated with local cell damage and impairment.” (p. 1)

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3. **Public Health:** harm reduction, human rights and the right to health, quality of life and health-related quality of life; clinical epidemiology

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“The absence of physical harm from smoking pot has required that all the punitive force be government created. **Punishment for marijuana is thus the great frontier of authoritarianism.** A widespread popular behavior detested by the ruling class has justified war propaganda, police engagement and mass punishment.” (p.141)

“**Marijuana is at the heart of the War on Drugs precisely because the criminalization of 600,000 Americans each year is nearly all about ideology and culture and emphatically not about health.**...Drug use was popularized and romanticized as a portion of the general rebellion against the rules and norms of the pre-1960s explicitly racist, sexist, militarist, puritanic nation. Drugs became a symbolic and substantive act by which much of the population thought and declared itself free from old constraints. Though the counter-culture achieved a great deal of attention, as well as some of its agenda, the larger population despised them for changing the old rules which were comfortable for many persons. As the dominant culture reasserted itself, initially under Nixon but much more vigorously under Reagan, the body politic did a very traditional thing and criminalized the opposition culture. Marijuana growers and users totaling in the millions were made to suffer the majority’s backlash.” (p. 160-1)

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This non-governmental initiative brings together senior policymakers, leading academics and practitioners to assess the latest evidence of drug policy effectiveness in a spirit of objectivity and open debate. It does this through the production and dissemination of a series of policy analysis papers, occasional meetings and seminars, and engagement with policymakers in national governments and international agencies.”

Beckley Foundation Drug Policy Programme Reports 2005-2006

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“One of the striking features of the patient population of Bellevue, the large mental hospital in Kingston, Jamaica, is the infrequency of disturbances associated with alcohol. Of 600 admissions to one typical ward over a two-year period, less than 2% suffered such problems; not a single case of chronic brain syndrome associated with alcoholism was seen and **we encountered neither delirium tremens nor alcoholic hallucinosis**... This picture is unexpected first because in Jamaica, a major sugar producing country, rum is relatively cheap; and second, because it is in marked contrast with what we know of most other Caribbean islands. For example, annual returns indicate some 47% of admissions to mental hospital in Nassau and 53% in Martinique are alcohol-linked.” [Further evidence of cannabis substitution for problematic alcohol consumption.]

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The authors of this piece acknowledge Paul Farmer at the end.

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“Between 1974 and 2002, there were more than **286,000 person-years of incarceration** under RDLs [Rockefeller Drug Laws]. With a median age of 35 years and LE [life expectancy] of 68 years, this translates to a YLL [years of life lost] equivalent to 8,667 deaths in a population with this age and racial/ethnic composition.” (p.434)

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“The Framework recognizes that instances or **patterns of substance use occur along a spectrum from beneficial use to non-problematic use to problematic use** (including potentially harmful use and substance use disorders). Substance use disorders represent the extreme and most damaging end of the spectrum. Some people choose to abstain from using psychoactive substances while some people choose to use only certain substances. It is important to emphasize that abstinence is a healthy lifestyle option. Nevertheless, many people choose to use substances and some do not develop serious problems because of this use.” (p. 8)

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of Health Services. Available at the Mental Health and Addictions website:  
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“We know from historical experience that when human beings have defensible rights—when their agency as individuals is protected and enhanced—they are less likely to be abused and oppressed. On these grounds, we count the diffusion of human rights instruments as progress **even if there remains an unconscionable gap between the instruments and the actual practices of states charged to comply with them.**” (p. 273. Farmer is quoting Ignatieff and acknowledges that human rights and their abuses will not always come from the state that is obligated to respect, protect and fulfill human rights; therefore others must speak out and give voice and comfort to the oppressed.)

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“After a detailed scrutiny of the evidence, the Council does not advise the reclassification of cannabis products to Class B; it recommends they remain within Class C.” (Professor Sir Michael Rawlins, Chairman)

“The evidence for the existence of a dose-response relationship (an association between frequency of cannabis use and the development of psychosis) is, on the presently available evidence, weak.” (4.10.3)

“In the last year, over three million people appear to have used cannabis but very few will ever develop this distressing and disabling condition. And many people who develop schizophrenia

have never consumed cannabis. Based on the available data the use of cannabis makes (at worst) only a small contribution to an individual's risk for developing schizophrenia." (6.4)

"For individuals, the current evidence suggests, at worst, that using cannabis increases the lifetime risk of developing schizophrenia by 1%." (4.10.2)

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"The Post Incarceration Syndrome (PICS) is a mixed mental disorders with four clusters of symptoms:

- (1) Institutionalized Personality Traits resulting from a chronic state of learned helplessness,
  - (2) Post Traumatic Stress Disorder (PTSD) from both pre-incarceration trauma and institutional abuse,
  - (3) Antisocial Personality Traits (ASPT) developed as a coping response to institutional abuse, and
  - (4) a Social-Sensory Deprivation Syndrome caused by prolonged exposure to solitary confinement.
- PICS often coexists with substance use disorders and a variety of affective and personality disorders.

The Post Incarceration Syndrome (PICS) is a set of symptoms that are present in many currently incarcerated and recently released prisoners that are caused by being subjected to prolonged incarceration in environments of punishment with few opportunities for education, job training, or rehabilitation. The symptoms are most severe in prisoners subjected to prolonged solitary confinement and severe institutional abuse."

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"Under a little known provision of the Higher Education Act (HEA), nearly 200,000 would-be college students have been declared ineligible to receive federal financial aid...since the drug conviction question was added to the financial aid form during the 2000-2001 school year, 189,065 people have had their applications rejected because of their answers to it."

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"Article II.9(d) states that "law enforcement including domestic riot control purposes" are among those purposes **not prohibited**. This fully protects the use of chemicals such as tear gas for domestic riot control. But what is "law enforcement"? Nowhere in the Convention is it defined. Whose law? What law? Enforcement where? By whom?...with no definition of "law enforcement" or of the chemicals that are permitted for it, there is dangerously ample room for divergent interpretations of the Convention." [This presumably permits the use of chemical weapons for 'drug law enforcement.']

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"Legal Non-medical Use of Cannabis: There is now confined to the Indian-Pakistani sub-continent where consumption of ganja and bhang (milder forms of cannabis than the resin and resin preparations) is still permitted in large areas for purposes of pleasure, and in some places for use in connexion with religious rites. The non medical use of cannabis has long been traditional, and there is generally no stigma attached to such use. It is, however, the policy of the governments of India and Pakistan to prohibit this use of cannabis as soon as circumstances allow. [Following the US-led effort for passage of the 1961 Single Convention on Narcotic Drugs, Indian and Pakistan were given 25 years to eliminate or officially prohibit all extant "non-medical use" of cannabis—a practice that had continued uninterrupted for over 2000 years.]

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Violence is defined as "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation."

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