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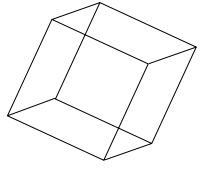

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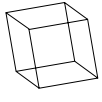

A note from the director

Mind Matters

Richard Glen Boire

What state of mind *must* a man have when death calls his name? This may sound "philosophical," but a recent decision by the Eighth Circuit addressed this precise issue, concluding that a condemned man may be forcibly injected with mind-altering drugs in an effort to chemically induce a particular state of mind prior to his execution.

In 1986, the US Supreme Court held that the Eighth Amendment bars executing an "insane" person. (*Ford v. Wainwright*, (1986) 477 U.S. 399.) At the time, the decision seemed reasonable and raised few eyebrows.

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In February, however, the Eighth Circuit (*en banc*) ruled that the government may chemically induce "sanity" for the purpose of executing an "insane" person. (*Singleton v. Norris*, No. 00-1492, 2003 U.S. App. LEXIS 2198.)

Assuming that the man is set to die by lethal injection, this means that the government can inject him twice. First, with a psychoactive drug that will make him think a certain way; and second, with a lethal drug that will end his life. Ironically, both injections will be preceded by the standard antibacterial alcohol swabbing common to everything from a blood test to a flu shot.

Nothing is more private, more intimate, more properly within the sphere of each individual's sovereignty than the interior environment of his or her own mind.

The Eighth Circuit's decision in *Singleton* is but the tip of a fast-forming iceberg; one that our culture is now colliding with. In a world awash with psychoactive drugs (both legal and illegal), and with many more such drugs yet to be discovered or created, it is imperative that we quickly change our course. If we don't act immediately, we will find some of our most-cherished freedoms waterlogged, rusted, and barnacled.

The absurdities entailed in the *Singleton* decision should be a wake-up call to our justice system.

Drugs will increasingly provide new options for modulating the chemistry of the brain, and thereby changing how we think. Just as recent changes in technology are requiring a rewrite of longstanding laws concerning everything from copyright to privacy, advancements in our understanding and ability to monitor and manipulate the brain now require a more sophisticated examination of what we mean by freedom of thought, and what protections we give it.

Sixty years ago, the Supreme Court observed that "[f]reedom to think is absolute of its own nature; the most tyrannical government is powerless to control the inward workings of the mind." (*Jones v. Opelinka*, (1942) 316 U.S. 584, 618.) The *Singleton* decision shows how much things have changed. Along with new treatments for everything from social anxiety to Alzheimer's Disease, the 1990s "Decade of the Brain" produced new mind-changing drugs that have now found their way into the medical bag of the State's Executioner.

Yet, our justice system has been caught flatfooted. Operating on antiquated models of the brain, inherited Enlightenment-era notions of "freedom of thought," and infantilizing anti-drug mantras such as "Just Say No," our thinking about drugs and society is dangerously immature.

Just as drugs change the way we think, it is time for us to change the way we think about drugs. As a basic starting point, we should recognize that at the heart of freedom is the right to think for ourselves, and thinking for ourselves necessarily includes the right to self-determine our own brain states. Freedom of thought requires cognitive liberty.

Singleton, and cases like it (for example *U.S. v. Sell*, which is currently before the US Supreme Court, and involves a dentist seeking to resist the government's forcible administration of mind-changing drugs)[1], should be a wake-up call to legal scholars, ethicists, and the public at large. Sophisticated and sustainable policies with respect to psychoactive drugs will not come from the politicians, nor from the police. But the courts can, and ought to, do better.

It is time to develop a jurisprudence of the mind; one that takes account of the latest understandings of the brain, the advancing powers of psychopharmacology, and which situates these within our country's tradition of embracing

individual freedom, self-determination, and limited government. Cognitive liberty is the human right most in need of immediate elaboration and defense. Nothing is more private, more intimate, more properly within the sphere of each individual's sovereignty than the interior environment of his or her own mind and intellect. The right of a person to liberty, autonomy and privacy over his or her own intellect is situated at the core of what it means to be a free person. Yet as the law currently stands there is no explicit recognition of, let alone elaboration upon, a basic right to mental sovereignty.

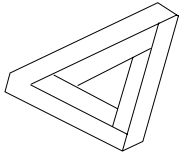
The "war on drugs" has taken a new turn. No longer is it just an issue of the government telling you which drugs are off-limits, it's now also about which drugs the government can *force* a person to take.

Welcome to the age of chemical coercion and cognitive censorship.

Note

1. In 2002, the Center for Cognitive Liberty & Ethics filed a friend-of-the-court brief in support of Dr. Sell, arguing that the forced medication would violate his First Amendment right to freedom of thought. The court is expected to rule on the case in June 2003. Further information on the *Sell v. US* case is online at: http://www.cognitiveliberty.org/dll/sell_index.htm

CONCEPTS



On Cognitive Liberty, (Part IV)

John Stuart Mill and the Liberty of Inebriation

Richard Glen Boire

As an important nineteenth or twentieth century work on political and social theory, John Stuart Mill's essay *On Liberty* ([1859] 1975)[1] is considered to be second only to the *Communist Manifesto.* Written in the midst of the growing political power of Christian temperance groups pushing for alcohol prohibition and speaking directly to the issue of the rights of individuals and the limits of authoritarian control, *On Liberty* is a seminal antiprohibition text, which assumes ever greater importance and relevance when considered in the context of today's $19 billion "war on drugs." Drafted in the tumult of the first societal debates over alcohol prohibition, Mill's essay examines "the nature and limits of the power which can be legitimately exercised by society over the individual" (3) and is one of the earliest political statements against drug prohibition as well as a vindication of cognitive liberty.

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On Liberty was published in 1859 but was penned in 1855, only four years after the state of Maine enacted the first law in the United States prohibiting the sale of alcohol, an action that kicked off a wave of prohibition laws in the country. By 1855, thirteen states had passed alcohol prohibition laws, and the American Temperance Society had long since shifted from a call for "temperance" to a demand for wholesale prohibition. In England, where Mill wrote, the United Kingdom Alliance of Legislative Suppression of the Sale of Intoxicating Liquors sprang up in 1853, and it used the Maine law as a model in pushing for alcohol prohibition in England. Thus, it is not surprising that Mill's consideration of the rights of individuals vis-à-vis society and the government, forged in the midst of such heated social controversy, would confront directly the important question of cognitive liberty.

"Over himself, over his own body and mind, the individual is sovereign."

"The object of this Essay," wrote Mill, "is to assert one very simple principle...that the sole end for which mankind are warranted, individually or collectively, in interfering with the liberty of action of any of their number, is self-protection...that is to prevent harm to others" (10–11). Government interference, wrote Mill, is appropriate only when a person engages in conduct that threatens the interests of others. What happens *inside* a person's body or mind is that person's private business, not the business of society and certainly not the business of the government. He expressed this point unambiguously: "Over himself, over his own body and mind, the individual is sovereign" (11).

So long as a person's decision and subsequent conduct did not threaten others with harm, Mill considered the person's action to lie within a protected "region of human liberty" (13). Encompassed within this domain of liberty is:

> the inward domain of consciousness; demanding liberty of thought and feeling, absolute freedom of opinion and sentiment on all subjects, practical or speculative, scientific, moral, or theological...liberty of tastes and pursuits; of framing the plan of our life to suit our own character; of doing as we like, subject to such consequences as may follow: without impediment from our fellow-creatures, so long as what we do does not harm them, even though they should think our conduct foolish, perverse, or wrong. (13)

For Mill, a society that refuses to recognize and respect this sphere of liberty is not a free society, and laws that invade this province are unjustifiable; freedom demands this protected domain. "The only freedom which deserves the name," writes Mill, "is that of pursuing our own good in our own way, so long as we do not attempt to deprive others of theirs, or impede their efforts to obtain it" (14).

Mill was quick to emphasize that these principles apply only to adults. Children, while they are still under the care of an adult, "must be protected against their own actions as well as against external injury" (12), and it is therefore appropriate for society or the government to act paternalistically toward them. Mill also acknowledges and repeatedly underscores that when a person's behavior *does* directly affect other people, it is, by its very nature, social conduct and thus becomes an appropriate object for social and government control. The roots of alcohol prohibition grew out of Protestant Christianity. In 1832, James Teare, founder of the Preston General Temperance Society in England, was

speaking for many temperance advocates of the time when he took the floor at a temperance meeting in Manchester and declared all intoxicating liquor anathema to religious people: "the sooner it is put out of this world, the better".[2] Not surprisingly, therefore, woven throughout *On Liberty* are subtle and not so subtle jabs at both the timidity ("essentially a doctrine of passive obedience," (48)) and the coerciveness of Christianity. Religion, says Mill, is an "engine of moral repression" (14), seeking "control over every department of human conduct" (14). In some of his harshest words, Mill admonishes:

> Christian morality (so called) has all the characters of a reaction; it is, in great part, a protest against Paganism. Its ideal is negative rather than positive; passive rather than active; Innocence rather than Nobleness; Abstinence from Evil, rather than energetic Pursuit of Good: in its precepts (as has been well said) "thou shalt not" predominates unduly over "thou shalt." In its horror of sensuality, it made an idol of asceticism, which has been gradually compromised away into one of legality. (47–48)

Mill's most fundamental objection to the Christianity of the mid–nineteenth century was to its complete capitulation to authority, coupled with its all-encompassing dogmatism and a singular way of conceiving of the world; these latter traits, Mill believed, often led Christians to suppress eccentricity, individuality, original thought, and simple pleasures.

On Liberty champions responsible alcohol inebriation as a private pleasure, which the government has no authority to interfere with as long as the drinker is not harming another person. Provided that a person's conduct does not

affect the interests of other people, writes Mill, that person should have "perfect freedom, legal and social, to do the action and stand the consequences" (70).

Mill rejects challenges that assert that a person's actions inherently have some effect on society or that an act that harms the individual also harms society. Mill responds to these challenges on two levels. First, he acknowledges that if a person's "self-regarding" conduct disables him from performing some public duty or produces identifiable harm to another person, then that conduct properly cannot be considered "self-regarding," and society may control or punish the person. Using alcohol intoxication as an example, Mill explains: "No person ought to be punished simply for being drunk; but a soldier or a policeman should be punished for being drunk on duty. Whenever, in short, there is a definite damage, or a definite risk of damage, either to an individual or to the public, the case is taken out of the province of liberty, and placed in that of morality or law" (76). To the extent that the "harm" to others from drinking alcohol is amorphous or that the drinker violates no specific duty, Mill views the ancillary "harm" from the drinker's action as an "inconvenience...which society can afford to bear, for the sake of the greater good of human freedom" (76).

"there is hardly any part of the legitimate form of action of a human being which would not admit of being represented, and fairly too, as increasing the facilities for some form or other of delinquency."

In essence, Mill views the temperance challenge as embodying a Puritanical perspective that considers innumerable self-regarding actions to be morally wrong and thus

inherently injurious to the society. He rejects this position as religious moralizing cloaked in claims for social policy. As anexample, he quotes the secretary of the United Kingdom Alliance for the Legislative Suppression of the Sale of Intoxicating Liquors, who wrote:

> If anything invades my social rights, certainly the traffic in strong drink does. It destroys my primary right of security, by constantly creating and stimulating social disorder. It invades my right of equality, by deriving a profit from the creation of a misery I am taxed to support. It impedes my right to free moral and intellectual development, by surrounding my path with dangers, and by weakening and demoralizing society, from which I have a right to claim mutual aid and intercourse. (83)

Mill calls the secretary's definition of *social rights* a "monstrous principle" (83) that, if accepted, would vitiate the meaning of liberty entirely: "there is no violation of liberty which it would not justify; it acknowledges no right to any freedom whatever....The doctrine ascribes to all mankind a vested interest in each other's moral, intellectual, and even physical perfection, to be defined by each claimant according to his own standard" (84).

Although Mill is perfectly capable of presenting his argument in theoretical terms, he turns his attention to what he calls "gross usurpations upon the liberty of private life actually practiced" (82) and without equivocation responds to efforts under way at that time to prohibit the drinking of alcohol:

> Under the name of preventing intemperance, the people of one English colony, and of nearly half the United States, have been interdicted by law-from making any use whatever of fermented drinks, except for medical purposes: for prohibition of their sale is in fact, as it is intended to be, prohibition of their use. And though the impracticability of executing the law has caused its repeal in several of the States which had adopted it...an attempt has notwithstanding been commenced, and is prosecuted with considerable zeal by many of the professed philanthropists, to agitate for a similar law in this country. (82–83)

Mill acknowledges that selling alcohol is a social act because it inherently involves a buyer and a seller, but, as he notes, the underlying aim of the laws that prohibit sales of alcohol is to squelch the *use* of alcohol. "The infringement complained of is not on the liberty of the seller," notes Mill, "but on that of the buyer and consumer; since the state might just as well forbid him to drink wine as purposely make it impossible for him to obtain it" (83). Mill remarks that when a "trade law" has the effect of prohibiting a commodity, it is really a prohibition law in disguise.

Similarly, Mill is skeptical of so-called sin taxes, which artificially inflate the price of a product in order to discourage its use. Such a tax, he explains, "is a prohibition, to those whose means do not come up to the augmented price; and to those who do, it is a penalty laid on them for gratifying a particular taste" (93). A person's "choice of pleasures," writes Mill, ought to be each person's "own concern, and must rest with his own judgment" (93). Ultimately, however, Mill would permit a special tax on products such as alcohol, but only to the extent that the tax increased revenue for the government. A "sin tax" would be inappropriate if set so high that it actually dissuaded a sufficient number of buyers so as to result in a *decrease* in total tax revenues from sales of the product.

With respect to items that can be abused, such as "poisons," Mill notes that "there is hardly any part of the legitimate form of action of a human being which would not

admit of being represented, and fairly too, as increasing the facilities for some form or other of delinquency" (89). Thus, if a person desires to purchase a poison, it is inappropriate for the government to enjoin the purchase merely because the person *might* abuse the poison or use it to commit a crime. Instead, the laws should stop after requiring that drugs and poisons be labeled with cautionary statements. Mill does not believe that doctors should be the gatekeepers to drugs, noting that "to require in all cases the certificate of a medical practitioner would make it sometimes impossible, always expensive, to obtain the article for legitimate uses" (90). At most, any adults who wish to purchase such an item may be required to register their name, address, and an explanation of why they are purchasing a particular item.

...a government grossly exceeds its legitimate power when it interferes with matters of the mind and the interior condition of its citizenry.

Although Mill firmly believes it would be an illegitimate use of power for the government to prohibit inebriation based on a inchoate concern that an inebriated person *might* cause harm to others, he concedes that if an inebriated person does harm another person, then the government rightfully may prohibit that person from becoming inebriated in the future. "Drunkenness," Mill explains, "in ordinary cases, is not a fit subject for legislative interference; but I should deem it perfectly legitimate that a person, who had once been convicted of any act of violence to others under the influence of drink, should be placed under a special legal restriction, personal to himself; that if he were afterwards found drunk, he should be liable to a penalty...The making himself drunk, in a person whom drunkenness excites to do harm to others, is a crime against others" (90).

On Liberty even considers whether the government properly may regulate pubs where alcohol is served. In this regard, Mill concludes that because such places are necessarily social and because public harms associated with drunkenness are more likely to occur in or near such establishments (at least relative to other public places), the government may regulate them, setting closing times and restricting operating licenses to "persons of known or vouched-for respectability" (94). Any other restrictions, however, including setting a limit on how many pubs may exist in any given area, would be overreaching. Such a limit "for the express purpose of rendering them more difficult of access, and diminishing the occasions of temptation, not only exposes all to an inconvenience...but is suited only to a state of society in which the labouring classes are avowedly treated as children or savages" (94).

On Liberty stands as a classic document in defense of individual freedom, as relevant and persuasive today as it was in 1859. All elected officials, jurists, and public-policy makers should read *On Liberty,* along with the Bill of Rights. Whereas modern-day politicians, entranced by the "war on drugs," rapaciously violate "the inward domain of consciousness" (13) by imposing ever more drug prohibitions and placing hundreds of thousands of citizens behind bars for drug offenses, *On Liberty* powerfully avows that a government grossly exceeds its legitimate power when it interferes with matters of the mind and the interior condition of its citizenry.

Notes

1. Mill, John Stuart. [1859]1975. *On Liberty.* Edited by David Spitz. Toronto: W. W. Norton.

2. Inglis, Brian. 1975. *The Forbidden Game: A Social History of Drugs.* New York: Charles Scribner's Sons, p.137.

Written Comments to the President's Council on Bioethics on the Topic of Mind Enhancing Technologies and Drugs

Wrye Sententia

Advances in bioscience and technology are raising a number of ethical issues concerning manipulation of the human body & brain. The President's Council on Bioethics was created by executive order (no. 13237) in November, 2001, for the purpose of advising the President on bioethical issues that may emerge as a consequence of progress in biomedical science and technology. The Council is charged with keeping the President and the nation apprised of new developments, and providing a forum for discussion and evaluation of these profound issues. Beginning in the year 2002, 17 leading scientists, doctors, ethicists, social scientists, lawyers, and theologians named by President George Bush to serve on this Council, began

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a series of discussions in Washington, D.C. that continues today (visit: http://www.bioethics.gov/).

The rapidly expanding purview of neuroscience and a growing array of technologies capable of affecting or monitoring cognition carry implications for cognitive liberty that demand analysis. In October, 2002, CCLE co-director Wrye Sententia presented comments to the President's Council on Bioethics in Washington D.C. She raised cognitive liberty issues related to drugs and technologies of brain enhancement, a topic then under scrutiny by the Council. The written comments she provided the Council follow. –Ed.

About the CCLE & Cognitive Liberty

The Center for Cognitive Liberty & Ethics (CCLE), is a nonprofit education, law, and policy center working in the public interest to foster cognitive liberty. The CCLE defines cognitive liberty as the right of each individual to think independently and autonomously, to use the full spectrum of his or her mind, and to engage in multiple modes of thought. The CCLE works to protect the full potential of the human intellect.

The CCLE and Neuroethics

The CCLE's comments before this Council center on those pharmacological and technological interventions that directly affect the mind, and consequently implicate cognitive liberty. The CCLE is concerned with the ethics of treating or manipulating the mind, or as some are now calling it, "neuroethics." Our focus is on those uses of drugs or other technologies and their attendant social policies that encroach upon individual rights to cognitive liberty and its logical corollary, cognitive autonomy–two faces of the same coin.

Cognitive liberty is an essential human right. The United Nations Universal Declaration of Human Rights and the US Constitution's Bill of Rights both support a basic human right to cognitive liberty, or freedom of thought.[1] Yet "freedom" is the sort of preeminent democratic value that is often the subject of political hair-splicing and posturing. The complexity of our social fabric, (with its diversity of interests, identities, and cultures), conspires to make any assignation of transcendent value difficult, particularly when, as is the case with bio- or neuroethics, the issues span such elementary, yet increasingly malleable values as individual and collective quality of life. The CCLE recognizes, as does this Council, that the complexity of many of the issues involving brain enhancement are not easily resolvable. However, we hope that by interjecting the principle of cognitive liberty into the discussion, the Council will find useful distinctions in drafting its recommendations.

The State cannot, consistent with the First Amendment of the Constitution, forcibly manipulate the *mental states* of individuals.

To the CCLE and our supporters, the question of mind enhancement is fundamentally a question of cognitive self-determination interwoven with an ethics of reciprocal autonomy. While etymologically, autonomy means "establishing one's own laws," reciprocal autonomy is interactive. Reciprocal autonomy is not a question of arbitrary legislation, created for oneself, but rather of laws that permit, whenever possible, successful interaction with others based on respect and tolerance for each other's core values and freedoms. As Dr. J.F. Malherbe, Professor of Social Work at the Université du Québec at Montréal, and author of *The Contribution of Ethics in Defining Guiding Principles for a Public Drug Policy*, has written, "Every unjustified restriction, which adds to the already heavy burden of civilized individuals, can only increase their sense of being the object of some form of totalitarianism, rather than the subject of their own destiny."[2]

Decisions about as intimate a freedom as cognitive liberty should be allocated to the individual rather than the government. The CCLE works from the premise that the role of the state, criminal law, science and ethics, should be guided by principles that maximize opportunities for each individual to self-actualize. Public policy decisions should be framed by principles of legal liberalism, rather than moralism, or paternalism. This is not to say that morals or safety precautions have no place in determining appropriate uses of drugs or other technologies, but that the role of the State should not be to determine what is or isn't moral, what are or are not acceptable, personal, risks. In our opinion, public policy for psychotropic drugs and/or brain technologies should stem from our democratic government's responsibility for preserving individual autonomy and choice to the maximum extent possible.

While neuroethical issues are complex and often deeply philosophical, the CCLE maintains that a solid starting point for practical discussion and analysis begins with two fundamental recognitions that may seem axiomatic:

1. As long as their behavior doesn't endanger others, individuals should not be compelled against their will to use technologies that directly interact with the brain, or be forced to take certain psychoactive drugs.
2. As long as they do not subsequently engage in behavior that harms others, individuals should not be prohibited from, or criminalized for, using new mind-enhancing drugs and technologies.

Simply put, the right and freedom to control one's own consciousness and electrochemical thought processes, is the necessary substrate for virtually every other freedom.

I would now like to elaborate on the two principles mentioned above:

1. As long as their behavior doesn't endanger others, individuals should not be compelled against their will to use technologies that interact with the brain, or be forced to take certain drugs.

The development of psychopharmaceuticals and electronic technologies in use now, or, on the cusp of interfacing directly with brain function, raises numerous cognitive liberty concerns.

The individual, not corporate or government interests should have sole jurisdiction over the control and/or modulation of his or her brain states and mental processes.[3]

Pre-emptive control of thoughts by the government via drugs or technologies should be strictly prohibited.

While the development of psychopharmaceuticals can be applauded for their potential to aid millions of suffering Americans who *voluntarily* take them, the application of such drugs, in mandatory government contexts raises the chillingly dark prospect of the government *forcibly* administering these new drugs to chemically alter the way that certain people think. Likewise, while electronic technologies that interface with the brain have positive applications, issues of mental privacy and coercion come into play when corporate or government policies mandate use.

One pressing concern of the CCLE is that of government-mandated drugging using psychotropic drugs.[4] At least two instances in the recent news suggest that this may be something that the US government considers to be within the purview of its power. The first concerns a proposal discussed by the FBI as a potential measure to administer mind-altering drugs to terrorist detainees (not those convicted of terrorism, merely suspect detainees) in order to elicit information. Fortunately, torture–which includes the forced use of mind-altering drugs–is banned by international conven-

tions to which the US is a party, and therefore is not yet an option within the US (although there was some talk of deporting the suspects to countries where mind-drugging torture would be allowed, an action which also violates US signatory agreements).[5]

The second instance concerns a recent federal court case currently being considered by the US Supreme Court.[6] In this case, the US government is seeking to forcibly inject a St. Louis dentist, Dr. Charles Sell with a mind-altering drug against his will for the purpose of making him "competent" to stand trial on fraud charges. The CCLE is an *amicus curiae* party to this case in support of Dr. Sell. While the government may control the behavior of those in custody of the State, the Sell case concerns an explicitly declared non-dangerous pre-trial detainee and a government effort to chemically alter his thinking process. In the context of the ever-increasing ability to pharmacologically intervene in the minds of Americans, the Dr. Sell case presents the Supreme Court with the timely and extremely important opportunity to articulate some unequivocal rules that respect freedom of thought and cognitive liberty.

The State cannot, consistent with the First Amendment of the Constitution, forcibly manipulate the *mental states* of individuals. Pre-emptive control of thoughts by the government via drugs or technologies should be strictly prohibited. The US Joint Non-Lethal Weapons Directorate (JNLWD) is reportedly pursuing the development of neurochemical weapons aimed at combatting unruly mental states that may precede disruptive behaviors. In an October 2000 report prepared for the JNLWD by the Institute for Emerging Defense Technologies (a subunit of the Applied Research

We should police dangerous conduct, not different thoughts.

Laboratory at Pennsylvania State University), research was undertaken to examine the viability of using psychopharmaceutical agents, or "calmatives" as "non-lethal techniques" of military and civil intervention; listing, among other possible applications, crowd control.[7] Different environments, the report explains, require tailored means of drug administration: "In many cases the choice of administration route, whether application to drinking water, topical administration to the skin, an aerosol spray inhalation route, or a drug-filled rubber bullet, among others, will depend on the environment."[8] Examples of environments include "a group of hungry refugees that are excited over the distribution of food and unwilling to wait patiently," "a prison setting," an "agitated population," and "hostage situations."[9]

As with emergent drugs, a number of electronic technologies that interact with the brain could promise benefit or peril. Some applications of neurotechnologies, while still in their infancy, are already being used to monitor thought processes for control measures. While something like transcranial magnetic stimulation, (technology which uses noninvasive magnets placed around the brain to alter electronic impulses, and thereby enhance mood) may be valuable as a form of depression therapy, the prospect of its perfected, or future application to alter "improper" or dissident thinking is daunting.[10] The Human Brain Project, an internationally orchestrated research project sponsored by the National Institute of Mental Health, is seeking to, among other things provide a blueprint of so-called "normal" brain activity.[11] From brain scanning to brain implants, these kinds of technologies draw attention to questions of mental privacy and should alert us to the real need for protections of mental autonomy.

Scientists are now using Functional Magnetic Resonance Imaging (fMRI), a brain imaging technique, to detect differences in brain blood flow activity between intentionally deceptive and truthful statements.[12] Similarly, what is being

called "Brain Fingerprinting," (a method currently debated in terms of its efficacy) uses electroencephalographic (EEG) recordings of a subject's brain waves in relation to his or her memory of events, as an improved polygraph which claims to distinguish person's "guilty" thoughts. Proponents of "Brain Fingerprinting" have been working on corporate and government applications, including airport brain-scan security checks.[13]

These examples all underscore the need to set bright line rules that protect individuals from being compelled, or unwittingly subjected to mind-changing drugs or technologies. Compelled use of (legal or illegal) psychotropic drugs or technologies should be considered abusive, and can be strictly discouraged by drafting policies that respect the integrity of an individual's fundamental right to cognitive liberty.

2. As long as they do not subsequently engage in behavior that harms others, individuals should not be prohibited from, or criminalized for, using new mind-enhancing drugs and technologies.

For millennia, humans have used various plants and psychoactive substances to occasion states of mind conducive to personal and interpersonal healing, spiritual or religious states, philosophical exploration, or creativity boosting.[14] Some researchers and scholars have concluded that the occasioning of alternative states of consciousness is nothing less than a fundamental human drive, akin to the sexual drive or the drive to sustain life.[15] William James (1842-1910), one of America's preeminent philosophical thinkers on the nature of consciousness, experimented with psychoactive drugs in his pursuit of knowledge, and gave philosophical credence to, the role of alternative states of consciousness in evolving conceptions of the self and society.[16]

This touches on a thorny issue raised by Dr. Krauthammer in the Council's inaugural meeting on the topic of "Enhancement." Dr. Krauthammer pointed out the difficulty in distinguishing "enhancement" aided by new legal psychopharmaceuticals from the decades-long debates over "illicit" substances in the war on drugs.[17] Distinguishing "recreational" use from mind-enhancement purposes appears as fraught as attempts to distinguish therapeutic uses from enhancement—one person's mental recreation is another's consciousness tool for self-improvement. Under a liberal democracy, we must recognize that what goes on inside a person's head is entitled to privacy and autonomy. We should police dangerous conduct, not different thoughts. We must also not confuse a possibility of personal risk with social harm. Indeed, the CCLE would assert that making people criminals simply for using a particular psychoactive drug violates the fundamental right to cognitive liberty, oversteps the government's legitimate powers, and, further, has been ineffective in eradicating illicit drug use, while eroding citizen's confidence in government information about drugs.[18]

Despite the lessons that should have been learned after the failure of alcohol prohibition, the US government is currently leading an international war on drugs, budgeting in 2002 roughly 19 billion dollars to police the criminal laws aimed at prohibiting the use of illegal drugs. Inasmuch as this is a real and present instance of government policy with respect to mind-altering drugs, the CCLE believes it presents a glaring example of a failed policy—one that this Council should guard against repeating, or using as precedent, for crafting future policies with respect to mind enhancement.

CCLE Recommendations

The CCLE suggests that a declarative statement of the individual's right to self-determination over his or her mental states incorporated in the language of national policy direc-

tives would deter abuses of power while still respecting individual choice.

Discrimination on the basis of what psychotropic drugs or technologies one does, or does not use should be strictly prohibited. The wording of existing discrimination policies could be adapted to incorporate a cognitive liberty clause, protecting against surreptitious technological or pharmaceutical interventions.

Additionally, "drug testing" as an employment screening policy for the purposes of assessing one's mental state, rather than one's performance, should be curtailed.

Again, the CCLE maintains that a solid starting point for practical discussion and analysis begins with these two fundamental recognitions:

1. As long as their behavior doesn't endanger others, individuals should not be compelled against their will to use technologies that directly interact with the brain, or be forced to take certain drugs.
2. As long as they do not subsequently engage in behavior that harms others, individuals should not be prohibited from, or criminalized for, using new mind-enhancing drugs and technologies.

The CCLE respectfully urges that any regulatory recommendations arrived at by the Council take these two principles as bright-line rules.

Notes

1. UN Universal Declaration of Human Rights, Article 18: "Everyone has the right to freedom of thought…"; *Abood v. Detroit Board of Education*, 431 US 209 (1977) ["[A]t the heart of the First Amendment, is the notion that an individual should be free to believe as he will, and that in a free society one's beliefs should be shaped by his mind and his conscience rather than coerced by the State..."]; *Palko v. Connecticut*, 302 U.S. 319, 326-327 (1937) ["…freedom of thought…one may say…is the matrix, the indispensable condition of nearly every other form of freedom. With rare aberrations a pervasive recognition of that truth can be traced in our history, political and legal."]

2. Ch. 3, *Canadian Senate's Special Committee on Illegal Drugs*, "Final Report: Cannabis: Our Position For a Canadian Public Policy" (September 2002). Report summary available online at: http://www. cognitiveliberty.org/pdf/Canadian_MJ_Rpt.pdf

3. The sale of Prozac™ and similar antidepressant drugs is currently one of the most profitable segments of the pharmaceutical drug industry. According to IMS Health, a fifty-year-old company specializing in pharmaceutical market intelligence and analyses, "antidepressants, the #3-ranked therapy class worldwide, experienced 18 percent sales growth in 2000, to $13.4 billion or 4.2 percent of all audited global pharmaceutical sales." (IMS Health, *Antidepressants*, online at:http://www.imshealth.com/public/structure/navcontent/1,3272,1034-1034-0,00.html.) Sales of "antipsychotic" drugs are currently the eighth largest therapy class of drugs with worldwide sales of $6 billion in the year 2000, a 22 percent increase in sales over the previous year. (See IMS Health, *Antipsychotics*, a summary of which is available online at: http://www.imshealth.com/public/structure/navcontent/1,3272,1035-1035-0,00.html.) A report published by the Lewin Group in January 2000, found that in 1998, antidepressants and antipsychotics accounted for 9 percent of Medicaid prescriptions. The same report found that within the Medicaid program alone, "Antidepressant prescriptions totaled 19 million in 1998…[and] [a]ntipsychotic prescriptions totaled 11 million in 1998."(Lewin Group, Access and Utilization of New Antidepressant and Antipsychotic Medications (Jan. 2000), prepared under contract for the Office of Health Policy, Office of the Assistant Secretary for Planning and Evaluation, and The National Institute for Mental Health, Department of Health and Human Services. Available online at: http://aspe.hhs.gov/health/reports/Psychmedaccess/; According to Datamonitor, "Antidepressants have become a key focus for pharmaceutical manufacturers due to the huge growth in the market instigated by the launch of Prozac™ in the 1980s. Due to their expansion into new

markets away from depression, the therapy class is now valued at $14bn and is set to continue expanding despite the upcoming patent loss of numerous key products." Datamonitor, Market Dynamics 2001: Antidepressants, Report - DMHC1725 (Dec. 21, 2001). Datamonitor forecasts that the demand for antidepressants will continue to grow and estimates the market value to reach $18.3 billion by 2008. (Ibid).

4. The former Soviet Union had no First Amendment equivalent. It was not uncommon for prison psychiatrists to forcibly drug political dissidents after labeling them "mentally ill." *See,* Sidney Bloch & Peter Reddaway, *Psychiatric Terror: How Soviet Psychiatry Is Used to Suppress Dissent* (1977); Clarity, "A Freed Dissident Says Soviet Doctors Sought to Break His Political Beliefs," *New York Times* (Feb 4, 1976) A1, 8.

5. Walter Pincus, "Silence of 4 Terror Probe Suspects Poses Dilemma;"*Washington Post*, Sunday, October 21, 2001; For CCLE commentary and resources, see: "Drugging or Torture of 9-11 Suspects Breaks Constitution, Law, and Treaties"http://www.cognitiveliberty.org/news/narcointerrogation1.htm

6. *United States v. Sell* 282 F.3d560 (2002), US Supreme Court, No. 02-5664. Oral arguments in the case began Mar. 3rd, 2003. *amicus curiae* brief online at: http://www.cognitiveliberty.org/dll/sell_index.htm

7. Calmatives, are defined in this report as "compounds known to depress or inhibit the function of the central nervous system" with an emphasis on those drugs that "can be tailored to be highly selective and specific for know receptor (protein) targets in the nervous system with unique profiles of biological effects on consciousness, motor activity and psychiatric impact." Dr. Joan M. Lakoski, Dr. W. Bosseau Murray, Dr. John M. Kenny, "The Advantages and Limitations of Calmatives for Use as a Non-Lethal Technique," University of Pennsylvania, (October 3, 2000) p. 2, 3. Online at: http://www.sunshine-project.org

8. Ibid.

9. Ibid., p. 10.

10. "Magnets That Move Moods," *Newsweek* (June 24, 2002), p.57.

11. Human Brain Project, online at: http://www.nimh.nih.gov/neuroinformatics/index.cfm. For an informative article on the Human Brain Project, see Jennifer Kahn's "Let's Make Your Head Interactive," *Wired* (9.08 August 2001) 106-115. Online at: http://www.wired.com/wired/archive/9.08/brain.html.

12. See, briefing paper from Society for Neuroscience on Brain Wave Deception Research 2001; http://web.sfn.org/content/Publications/BrainWaves/PastIssues/2002spring/index.html

13. On proponents pushing to use this technique as an anti-terrorist screening device, see: Lawrence Farwell, "Brain Fingerprinting as Counter-Terrorist System." http://www.brainwavescience.com/counter-terrorism; Steve Kirsch, "Identifying Terrorists Using Brain Fingerprinting" http://www.skirsch.com/politics/plane/ultimate.htm. For two critiques of Brain Fingerprinting, see: Wrye Sententia, "Brain Fingerprinting: Databodies to Databrains" *Journal of Cognitive Liberties*, Vol. II, No.3, pp 31-46 (online at: http://www.cognitiveliberty.org/6jcl/6JCL31.htm); US Government's General Accounting Office Report (Oct. 2001), "Federal Agency Views on the Potential Application of 'Brain Fingerprinting'" (online at: http://www.cognitiveliberty.org/issues/mental_ surveillance.htm#Reports).

14. P.T. Furst, *Hallucinogens and Culture* (Novato, CA: Chandler & Sharp, 1976); R.E. Shultes and A. Hofmann, *Plants of the Gods: Origins of Hallucinogenic Use* (New York: McGraw-Hill, 1979).

15. Ronald K. Siegel, *Intoxication: Life in Pursuit of Artificial Paradise* (New York: Dutton, 1989).

16. Dmitri Tymoczko, "William James the Nitrous Oxide Philosopher," *The Atlantic Monthly* (May 1996; Volume 277, No. 5) pp. 93-101. Online at: http://www.theatlantic.com/issues/96may/nitrous/nitrous.htm Additional references and resources available at: http://www.cognitiveliberty.org/proj_williames.html

17. "But fundamentally, I am [*sic*] yet to see how our debate about enhancement and all the issues that we have raised differ from the

debate that people have about whether or not people ought to be able to use stuff that makes them feel better, and whether that should be legal or not." Charles Krauthammer, M.D. in President's Council on Bioethics, Session 5: Enhancement 1: Therapy vs. Enhancement (April 26, 2002); Transcript available online at: http://www.bioethics.gov/april26full.html#five

18. According to the US government's 2001 National Household Survey on Drug Abuse, 15.9 million Americans age 12 and older used an illicit drug in the month immediately prior to the survey interview. This represents an estimated 7.1 percent of the population in 2001, compared to an estimated 6.3 percent the previous year. Additionally, the Survey found that 1.9 million persons used Ecstasy (MDMA) for the first time last year, and that an estimated 8.1 million persons have tried MDMA at least once in their lifetime. In other findings the Household Survey found that: 1.3 million (0.6 percent) of the population aged 12 or older were current users of "hallucinogens," meaning that they had used LSD, PCP, peyote, mescaline, mushrooms, or MDMA (Ecstasy) during the month prior to the interview. Marijuana remains the most commonly used illicit drug. Most drug users were employed. Of the 13.4 million illicit drug users aged 18 or older in 2001, 10.2 million (76.4 percent) were employed either full or part time. An estimated 66.5 million Americans 12 years or older reported current use of a tobacco product in 2001. This number represents 29.5 percent of the population. Almost half of Americans aged 12 or older reported being current drinkers of alcohol in the 2001 survey (48.3 percent). This translates to an estimated 109 million people. (Substance Abuse and Mental Health Services Administration. (2002). *Results from the 2001 National Household Survey on Drug Abuse: Summary of National Findings* (Office of Applied Studies, NHSDA Series H-17, DHHS Publication No. SMA 02-3758). Rockville, MD.) Entire report available online at: http://www.samhsa.gov/oas/nhsda.htm#NHSDAinfo

Canada's Principled Drug Policy

Julie Ruiz-Sierra

As the ever more costly US war on drugs redoubles its paternalistic efforts to protect Americans from themselves, the Canadian government begins to see the merit of a drug policy based on allowing Canadians to decide for themselves. –Ed.

In March of 2001, the Canadian Senate Special Committee on Illegal Drugs was formed and charged with the task of examining the effectiveness of Canadian policies on *Cannabis*. Composed of five senators, the committee was empowered to call for expert witnesses, documentary evidence, and governmental records, and even to look to the policies of other nations in accomplishing its task. After more than a

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year of hearings, the committee reported its extensive findings and recommendations last September in a report entitled *Cannabis: Our Position for a Canadian Policy*.

The report is a model of informed and accountable policy, structured on an abiding respect for individual rights that readers might find refreshing in a government publication. Reluctant to make policy recommendations based solely on public opinion or scientific evidence, both of which it deemed constantly subject to interpretation and verification, the committee took care to ground its work in guiding principles. In sharp contrast to the philosophical underpinnings of drug policy in the United States, the committee made the premise underlying its policy recommendations explicit in the report's introduction:

> [I]n a free and democratic society, which recognizes fundamentally, but not exclusively the rule of law as the course of normative rules in which government must promote autonomy as far as possible and therefore make only sparing use of constraint, public policy on psychoactive substances must be structured around guiding principles respecting the life, health, security and rights and freedoms of individuals, who naturally and legitimately, seek their own well-being and development and can recognize the presence, difference, and equality of others.

Chapter 3 of the report, where the committee clarified their conception of the appropriate roles that the state, criminal law, science, and ethics must play in the development of a public policy on *Cannabis*, is of particular interest. The committee cites ethical considerations as an appropriate starting point for defining desirable outcomes. An ethical public policy on illegal drugs, and on *Cannabis* in particular, "must promote reciprocal autonomy built through constant

exchange of dialogue within the community." Thus, the proper role of law is to promote freedom rather than control. Governance is not a matter of merely expressing rules and limitations on behalf of and for the benefit of citizens, but ought to be a means of facilitating human action and self-governance. Finding the imposition of criminal law to actions that do not concern an interaction between people, nor establish a particular victim, to be poorly justified, the committee concluded that only offenses involving significant direct danger to others should be matters of criminal law. Finally, although the second part of the report places great emphasis on research-based knowledge, the committee acknowledged that scientific inquiry cannot be divorced from context and that while it must continue to inform the political decision-making process, it must not supplant that process.

These considerations set the stage for a rigorous, comprehensive inquiry into the evolving social context of drug use in Canada, that concludes four volumes later with the committee's controversial recommendation that criminal regulation of *Cannabis* be limited only to behavior that causes demonstrable harm to others, namely: Illegal trafficking, selling to minors, and driving while impaired. Ultimately, the report is as remarkable for the process through which its conclusions are reached as it is for the conclusions themselves, and serves as a striking example of what well-reasoned, justice-based drug policy might look like.

Notes

The entire report is available for download at: http://www.ukcia.org/research/CanadianPublicPolicy/default.html

A summary of Chapter 3, "Guiding Principles", is available online via the CCLE Web site at: http://www.cognitiveliberty.org/pdf/Canadian_MJ_Rpt.pdf

The Coming Convergence: Technologies for Improving Human Performance

Wrye Sententia

While psychoactive plants and drugs have inspired and catalyzed visionary experiences for millennia, and while 20th century chemists were able to create promising and useful drugs graced with a number of psychoactive properties, we are now entering a phase of human history where developments in molecular chemistry, biology, cognitive science and informatics will facilitate large-scale advances in coordinated methods of mind enhancement and the manipulation of brain function.

Despite advances in biology, chemistry, and neuroscience, *the mind* remains largely a mystery. Nonetheless, in combination, a number of scientific advances make possible new, increasingly precise neuropharmaceuticals and other brain technologies. Changing an individual's way of

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thinking by changing his or her brain chemistry is the (brain) wave of the future.

What is NBIC convergence?

Nano-Bio-Info-Cogno (NBIC) convergence is about engineering matter for the purpose of improving human performance, and to some degree, engineering cultural change in the process. Proponents of NBIC convergence anticipate the coming unity of key systems of science: 1. Nanoscience and nanotechnology; 2. Biotechnology and biomedicine; 3. Information technology; and, 4. Cognitive science. The combination of these fields inspired by the control of matter at the nanoscale,[1] will permit finer-tuned transformations of thinking.

Information is transmitted in a number of ways and passed along as units of meaning. Languages conduct messages with letters and words; atoms and molecules encode biological systems via DNA and cells, computer systems relay information digitally using bits, and human cognitive systems communicate information with neurons, brains, and people. Even social systems rely on a transfer of encoded meaning via "memes"–units of reproducible social meaning in an evolutionary culture.

The desired result of NBIC convergence is a general understanding of how information is encoded and recoded into each of these systems that will enable rapid advances in improved human performance in both the public and private sectors.

NBIC convergence points to an important new phase in scientific research and development, but more broadly beacons to the pressing need to address social and human well-being in the context of these integrated technologies and engineered systems. Whether or not NBIC convergence represents another incarnation of technological utopianism, or neuro-Taylorism for the 21st century (particularly in proposed military applications like that of the "Aug Cog" super soldier amped up with augmented cognition or pharmaceutical anti-fear drugs) the possibility of many of its proposed technological advances, soberly points to the real need for cogent ethical and legal guidelines to protect individual rights in navigating these mounting waves of change.

How does NBIC convergence relate to cognitive liberty?

Cognitive liberty is neurological liberty, and NBIC convergence concerns brain/mind function in a number of existing and hoped-for applications. Cognitive liberty concerns the ethics and legality of safeguarding one's own thought processes, and by necessity, one's electrochemical brain-mind states. A number of key visionary ideas and projects put forth by the proponents of NBIC convergence point to exciting possibilities for cognitive enhancement, while other proposals suggest the possibility for more external, or surreptitious control of cognitive function.

More and more, new products in physical and mental health (e.g. neural or cognitive prostheses, bioscience, neuropharmaceuticals); in cognitive potential (e.g. bioinformatics, neurology, psychiatry, pharmaceuticals); in proposed parallel life forms (e.g. nanotechnology, biochips, neural and information technologies) will define areas where NBIC convergence touches on issues of mental freedom and personal liberties. A systemic control of matter must not equate with a systemic control of minds.

Who is involved in NBIC Convergence?

The convergence of Nano-Bio-Info-Cogno-technologies is currently cast as the next phase in social evolution by a number of experts and representatives in certain scientific fields. NBIC convergence has now, and increasingly gathers, pro-

fessional endorsement among science, engineering and computing communities, as well as the growing attention of government, private companies, individuals, and policy organizations like the nonprofit ETC Group, the Center for Responsible Nanotechnology, and the Center for Cognitive Liberty & Ethics.

This February, the University of California, at Los Angeles hosted an important conference, "NBIC Convergence 2003," at which representatives from the world's scientific, business, government, academic and nonprofit communities gathered to discuss the possibilities and anticipate consequences of NBIC technology integration. The Center for Cognitive Liberty & Ethics was a supporting organization of this event.

In December 2001, the US government's Interagency Subcommittee on Nanoscale Science, Engineering and Technology (NSET), the National Science Foundation (NSF) and the Department of Commerce (DOC) organized a workshop to focus specialized attention on potential uses and trends in NBIC convergence. The result of these meetings was a published NSF/DOC sponsored report in which panel participants (leading experts from government, academia, and the private sector), provided their professional assessment and strategic conjectures as to the possible implementation of NBIC convergence. The 416-page government report, "*Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology and Cognitive Science*" (hereafter *NBIC Convergence Report*),[2] develops various aspects of a collective vision for human enhancement. The participants who prepared this report together assert the need for more research and development in NBIC convergence, as well as attention to "preserving fundamental values such as privacy, safety and moral responsibility."[3]

Many of the research projects, experiments, and trends addressed in the *NBIC Convergence Report* will likely have an impact on cognitive liberty. Contributor James S. Albus of the National Institute of Standards and Technology, is looking, no less, than for a convergent scientific theory that will "bring about the engineering of mind."[4] As the *Report's* editors from the NSF indicate, a principal goal is mastery of matter and as a consequence, mastery of our as yet uncharted brains:

> "We stand at the threshold of a new renaissance in science and technology, based on a comprehensive understanding of the structure and behavior of matter from the nanoscale up to the most complex system yet discovered, the human brain."[5]

There are 5 major themes in the *NBIC Convergence Report:* Expanding human cognition and communication; Improving human health and physical capabilities; Enhancing group and societal outcomes; National security; Unifying science and education. The first theme, more comprehensively than the others, addresses scientific work aimed at understanding the structure, functions, and potential enhancement of human cognition (for example, with "The Human Cognome Project"). Other sections of the *Report* similarly focus on the study of cognitive processes overlapping with NBIC science to develop individual, commercial, and military applications, including; brain-to-brain and brain-to-machine interfaces, cognitive engineering, as well as both drug and non-drug treatments to enhance human performance.

Whether or not we can overcome the formidable challenges to understanding the elusive mysteries of *mind*, 21st century mechanist science points to an ever greater and more comprehensive understanding of the brain's electrochemical processes and functional attributes that will bring

both conscious and unconscious mental processes under the purview of human control. Readers interested in this area are strongly encouraged to consult the full *NBIC Convergence Report*.

Notes

1. A nanometer is one billionth of a meter. As currently understood, all matter, living and nonliving, originates at the nanoscale.

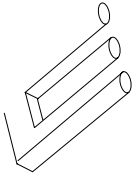
2. M.C. Roco and W.S. Bainbridge, "*Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology and Cognitive Science*," NSF-DOC Report, Washington, D.C., June 2002, 416 pages (also forthcoming, Kluwer Academic Publishers, Boston, 2003). The full report is available at: http://www.nsf.gov/nano

3. From Executive Summary of *NBIC Report*: "It is essential to prepare key organizations and societal activities for the changes made possible by converging technologies. Activities that accelerate convergence to improve human performance must be enhanced, including focused research and development, increased technological synergy from the nanoscale, developing of interfaces among sciences and technologies, and a holistic approach to monitor the resultant societal evolution. The aim is to offer individuals and groups an increased range of attractive choices while preserving fundamental values such as privacy, safety, and moral responsibility," p. 7.

4. James S. Albus, "Engineering of Mind to Enhance Productivity," *NBIC Report*, p. 284. See also: *Engineering of Mind: An Introduction to the Science of Intelligent Systems* (Albus and Meystel 2001) which outlines the research that its authors believe will eventually converge in a scientific theory that can support and bring about the engineering of intelligent systems and of mind.

5. *Op. cit.*, "Overview," M.C. Roco and W.S. Bainbridge, p. 1.

55 Excerpts from US Patent #3,951,134;
Brain Wave Monitoring and Altering
Apparatus
Robert G. Malech



Excerpts from US Patent No. 3,951,134: Apparatus and Method for Remotely Monitoring and Altering Brain Waves[1]

Inventor: Robert G. Malech

Assignee: Dorne & Margolin Inc.

Date Granted: April 20, 1976

Abstract

Apparatus for and method of sensing brain waves at a position remote from a subject whereby electromagnetic signals of different frequencies are simultaneously transmitted to the brain of the subject in which the signals interfere with one another to yield a waveform which is modulated by the subject's brain waves. The interference waveform which is representative of the brain wave activity is retransmitted by the brain to a receiver where it is demodulated and amplified. The demodulated waveform is then displayed for visual viewing and routed to a computer for

further processing and analysis. The demodulated waveform also can be used to produce a compensating signal which is transmitted back to the brain to effect a desired change in electrical activity therein.

Description

BACKGROUND OF THE INVENTION

Medical science has found brain waves to be a useful barometer of organic functions. Measurements of electrical activity in the brain have been instrumental in detecting physical and psychic disorder, measuring stress, determining sleep patterns, and monitoring body metabolism.

The present art for measurement of brain waves employs electroencephalographs including probes with sensors which are attached to the skull of the subject under study at points proximate to the regions of the brain being monitored. Electrical contact between the sensors and apparatus employed to process the detected brain waves is maintained by a plurality of wires extending from the sensors to the apparatus. The necessity for physically attaching the measuring apparatus to the subject imposes several limitations on the measurement process. The subject may experience discomfort, particularly if the measurements are to be made over extended periods of time. His bodily movements are restricted and he is generally confined to the immediate vicinity of the measuring apparatus. Furthermore, measurements cannot be made while the subject is conscious without his awareness. The comprehensiveness of the measurements is also limited since the finite number of probes employed to monitor local regions of brain wave activity do not permit observation of the total brain wave profile in a single test.

SUMMARY OF THE INVENTION

The present invention relates to apparatus and a method for monitoring brain waves wherein all components of the apparatus employed are remote from the test subject. More specifically, high frequency transmitters are operated to radiate electromagnetic energy of different frequencies through antennas which are capable of scanning the entire brain of the test subject or any desired region thereof. The signals of different frequencies penetrate the skull of the subject and impinge upon the brain where they mix to yield an interference wave modulated by radiations from the brain's natural electrical activity. The modulated interference wave is retransmitted by the brain and received by an antenna at a remote station where it is demodulated, and processed to provide a profile of the subject's brain waves. In addition to passively monitoring his brain waves, the subject's neurological processes may be affected by transmitting to his brain, through a transmitter, compensating signals. The latter signals can be derived from the received and processed brain waves.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawing, specifically Fig. 1, a high frequency transmitter produces and supplies two electromagnetic wave signals through suitable coupling means to an antenna. The signals are directed by the antenna to the skull of the subject being examined. The two signals from the antenna, which travel independently, penetrate the skull and impinge upon the tissue of the brain.

Within the tissue of the brain, the signals combine, much in the manner of a conventional mixing process technique,

with each section of the brain having a different modulating action. The resulting waveform of the two signals has its greatest amplitude when the two signals are in phase and thus reinforcing one another. When the signals are exactly 180 degrees out of phase the combination produces a resultant waveform of minimum amplitude. If the amplitudes of the two signals transmitted to the subject are maintained at identical levels, the resultant interference waveform, absent influences of external radiation, may be expected to assume zero intensity when maximum interference occurs, the number of such points being equal to the difference in frequencies of the incident signals. However, interference by radiation from electrical activity within the brain causes the waveform resulting from interference of the two transmitted signals to vary from the expected result, i.e., the interference waveform is modulated by the brain waves. It is believed that this is due to the fact that brain waves produce electric charges each of which has a component of electromagnetic radiation associated with it. The electromagnetic radiation produced by the brain waves in turn reacts with the signals transmitted to the brain from the external source.

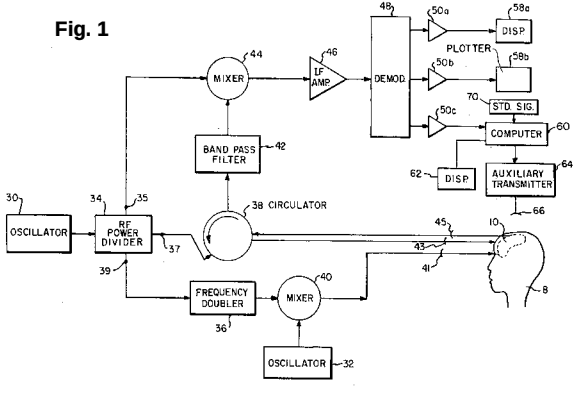
The modulated interference waveform is re-transmitted from the brain, back through the skull. A quantity of energy is re-transmitted sufficient to enable it to be picked up by the antenna. This can be controlled, within limits, by adjusting the absolute and relative intensities of the signals, originally transmitted to the brain. Of course, the level of the transmitted energy should be kept below that which may be harmful to the subject.

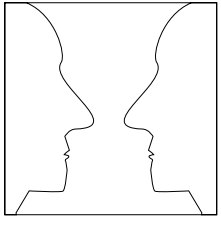
As will be appreciated by those familiar with the art, apparatus and method of the subject invention has numerous uses. Persons in critical positions such as drivers and pilots can be continuously monitored with provision for activation of an emergency device in the event of human failure. Seizures, sleepiness and dreaming can be detected. Bodily functions such as pulse rate, heartbeat regularity and others also can be monitored and occurrences of hallucinations can be detected. The system also permits medical diagnoses of patients, inaccessible to physicians, from remote stations.

Note

1. The full text of US Patent No. 3,951,134 can be read online by accessing the noted Web site and conducting a search for the patent by number:
http://patft.uspto.gov/netahtml/srchnum.htm

Fig. 1





CONTEXT

A bricolage of news related to cognitive liberty

Police Sabotage Video Cameras in Oregon

Internal sources indicate that officers in the Eugene, Ore. police department may have intentionally damaged video cameras on vehicles. SpectraTek, the maker of the $90,000 camera system, says that it received no complaints or warranty requests, though police department officials claim that the equipment was flawed from the start.

Police have admitted that officers may have tampered with the equipment in order to avoid monitoring, and technicians did uncover evidence that wires had been disconnected over three years. Repair records note that there were three incidents where the patrol cars' video antennas went missing. Additionally, e-mails indicate many people involved in the program suspected officers were tampering with the equipment.

Associated Press,
Sept. 30, 2002
http://www.ap.org/

A Question of Will

A neuroscientific twist on the same old debate about free will: Neuroscientists have detected brain signals directing a muscle to move before the subject reports having made a conscious (or „free will‰) decision to move the muscle.

The researchers also found that magnetic fields influence the subject's decision to choose left or right. More puzzling still, the test subjects still felt that they had made the decision to choose left and right freely.

Boston Globe,
Oct. 15, 2002
www.boston.com/globe/

Inventors Forecast Nanotechnologies

What do inventors expect to see in the 21st century? That was the key question in an Oct. 16, 2002 round table discussion with National Inventors Hall of Fame inductees at the US Department of Commerce in Washington DC. The

inductees gathered to commemorate the bicentennial of the United States Patent and Trademark Office.

Ray Kurzweil, one of the inductees, forecast a hybrid human-machine future: „We are already putting neural implants in the brains of people with disabilities and certain diseases. In the future we will be able to do this noninvasively with blood-cell-sized robots. A few decades from now, we will have billions of these nanorobotes in our blood stream, going intoi the capillaries of our brain, where they will interact with our biological neurons. The result will be a full immersion virtual reality involving all of the senses from inside the nervous system, and a direct expansion of human intelligence. When you talk to a human 35 or 40 years from now, you will be interacting with an intimate blending of both biological and nonbiological intelligence.‰

KurzweilAI.net,
Oct. 16, 2002
www.kurzweilai.net

Brain-On-a-Chip Technology for Testing New Drugs

Tensor Biosciences of Irvine, California has developed a method of keeping „mini-brain‰ brain tissue from rats and mice alive for weeks, which will allow scientists to test new drugs for a range of psychiatric diseases including Alzheimer's and schizophrenia.

The glass chips contain thousands of interconnected animal brain cells suspended in a solution of artificial cerebral fluid. An array of 64 electrodes on the chip's surface monitors the overall electrical activity of the brain tissue.

Reuters,
Oct. 16, 2002
www.reuters.com

Chinese Police Monitor Internet Use

Internet users in the Chinese province of Jiangxi must now use identity cards to access the Internet in local cybercafes. These cards, which must be swiped to log on, contain personal information such as the user's name and address, and allow police to monitor which users are online and which sites they are accessing. In addition, the new system allows police to block particular sites or particular users. Over 200,000 of these cards have been issued in Jiangxi. The new system debuted in Spring 2002, and Chinese police claim it will identify criminals operating online and prevent crimes.

The Register UK,
Nov. 6, 2002
www.theregister.co.uk/content/6/27939.html

US Research on "Nonlethal" Combat Sedatives Challenged

Recently uncovered documents reveal the US program researching possible combat and law enforcement use of sedatives and other drugs that affect the central nervous system (CNS). Drugs under consideration include Valium, Prozac, convulsants, and „drugs of abuse‰ such as opiates and ketamine. Funding for studies of these „nonlethal‰ weapons rose from $14 million in 1997 to $36 million in 2001. Work on the use of these drugs is being conducted at the Institute for Emerging Defense Technologies of Pennsylvania State University with the support and oversight of the Marine Corps.

The research is part of a broader effort to create an arsenal of nonlethal weapons for the military and police. But critics, such as the Austin, Texas-based Sunshine Project, say that turning such drugs into tools to subdue hostile forces or domestic dissidents would violate the International Chemical Weapons Treaty, which the US ratified in 1997. They also contend that research on nonlethal chemical agents sends a message to other countries that it's acceptable to research similar and even more toxic substances.

Science,
Vol. 297, No. 5582,
Aug. 2, 2002, p. 764

Panel Calls for More "Nonlethal" Weaponry

A National Research Council panel chaired by a Sandia National Laboratories administrator has called for more US military research on so-called „nonlethal‰ weapons technologies intended to control combatants or large crowds. This recommendation came after the Russian military caused as many as 118 fatalities in October 2002 by using an opiate-based gas to end a hostage standoff in a Moscow theater.

The panel recommended the research as part of a broad endorsement of the idea that military officers need a wide range of nonlethal weapons on hand

because they are being called on to serve in more situations outside of conventional warfare.

Washington Post,
Nov. 5, 2002
www.washingtonpost.com

GHB Now Approved to Treat Sleep Disorder

In a rare exception to Schedule 1 drug classification, the FDA has approved the drug GHB (gamma hydroxy butyrate) for sufferers of cataplexy. The disorder, which causes a sudden loss of muscle tone that causes collapse, strikes 50,000 people with the sleep disorder narcolepsy. GHB gained federal approval under special restrictions aimed at preventing non-medical uses.

FDA officials said they had worked with the Drug Enforcement Administration and the drug's manufacturer, Orphan Medical Inc. of Minnetonka, Minn., to design strict restrictions on the distribution of GHB. The drug will be sold under the name Xyrem.

„Date-Rape Drug OKd to Treat Sleep Disorder‰
Los Angeles Times, July 18, 2002, www.latimes.com

Nicotine May Enhance Cognitive Abilities

Smoking may be harmful to the human body, but new evidence shows that nicotine may enhance attention and memory. A study published by the journal *Neuron* has identified parts of the brain in which nicotine stimulates cognitive abilities. Using functional magnetic resonance imaging, researchers found that nicotine improves attention in smokers by enhancing function in areas of the brain associated with visual attention, arousal and motor activation (the posterior cortical and subcortical regions.)

By giving 15 smokers either a transdermal nicotine patch or a placebo and asking them to perform a rapid visual information processing task, the researchers were able to assess nicotine's effects on brain function. The findings suggest that nicotine shifts the brain's cognitive resources to areas related to task-associated functions.

Betterhumans News,
Jan 14., 2003
www.betterhumans.com

DARE Program Ineffective, Says GAO

In a January 2003 report, the US General Accounting Office (GAO) expresses concern over the effectiveness of Drug Abuse Resistance Education (DARE) programs at preventing students from using illegal drugs. Since 1983, the DARE program has been operating in 80 percent of all US public elementary school districts, from the fifth through twelfth grades. In the course of six long-term evaluations of DARE's effectiveness, the GAO reported „All of the evaluations suggested that DARE had no statistically significant long-term effect on preventing youth illicit drug use.‰

The exact amount of spending on DARE programs is unlear, but a $2 million grant from the Dept. of Justice and part of a $439 million grant from the Dept. of Education were used to support the program.

Drugwarfacts.org,
Jan. 16, 2003
www.gao.gov/new.items/d03172r.pdf

Google Blocks Controversial Web Sites

Google.com, the world's leading Internet search engine, has removed search listings of over 100 controversial sites in France and Germany. Acording to a new report from Harvard University's Berkman Center, absent from Google's French and German listings are Web sites that are anti-Semitic, pro-Nazi, or related to white supremacy. Also banned is Jesus-is-lord.com, a fundamentalist Christian site that opposes abortion.

Google spokespersons confirmed the delistings. The removal of controversial sites, claims Google, was in respose to government complaints and an effort to avoid legal liability under German law.

CNET News,
Oct. 23, 2002
http://news.com.com/2100-1023-963132.html

Pentagon Planned to Trace Net Usage

The Pentagon considered, then decided against, a plan to make anonymous use of parts of the Internet impossible by tagging data with personal markers. The surveillance plan, known as eDNA, was outlined in an August 2002 workshop, but was scrapped after angry debates about the technology's implications erupted between computer scientists and policymakers at the agency.

A description of eDNA sent to participants said: „We envisage that all network and client resources will maintain traces of user eDNA so that the user can be uniquely identified as having visited a Web site, having started a process or having sent a packet. This way, the resources and those who use them form a virtual „crime scene‰ that contains evidence about the identity of the users, much the same way as a real crime scene contains DNA traces of people.‰

New York Times,
Nov. 22, 2002
www.nytimes.com

Pentagon Initiates Total Information Awareness Program

A new Pentagon effort known as the Total Information Awareness Program will create a „vast electronic dragnet‰ to seek out patterns of terrorist activities. As the director of the effort, Admiral John M. Poindexter, has described the system in Pentagon documents and in speeches, it will provide intelligence analysts and law enforcement officials with instant access to information from e-mail and telephone records to credit card and banking transactions and travel documents, all without a search warrant. The system is one of a number of government projects now underway attempting to unite both commercial and government data for law enforcement purposes.

Historically, military and intelligence agencies have not been permitted to spy on Americans without extraordinary legal authorization. But Admiral Poindexter, the former national security adviser implicated in the Iran-Contra scandal in the Reagan administration, has argued that the government needs broad new powers to process, store and mine billions of minute details of electronic life in the United States.

The new agency would require the amendment of the Privacy Act of 1974 in order to look at the personal data of citizens. The Privacy Act was instituted to limit what government agencies could do with private information.
(Note: As of press time, Congress has failed to approve the TIA Program.)

New York Times,
Nov. 9, 2002
www.nytimes.com
Also see: www.darpa.mil/iao/index.htm

Better Bombing Through Chemistry

US military pilots, responsible for at least 10 deadly „friendly fire‰ accidents in the 2001 Afghanistan war, have regularly been given amphetamines to fly longer hours. Upon completing their mission, the pilots are then administered sedatives. Pilots refer to Dexedrine, the amphetamine they are issued in 10 mg. doses, (double the 5 mg. Gulf war era dosage) as „go pills.‰ The sedatives issued to pilots, Ambien (zolpidem) and Restoril (temazepam), are referred to as „no-go pills.‰

Use of Dexedrine has been implicated in several friendly-fire incidents, most notably in April 2001, when US fighter pilots mistakenly dropped a bomb on a group of Canadian infantrymen, killing four and wounding eight. Several attacks on Afghan civilians may also have stemmed from Dexedrine-fueled pilot error. A report titled „Performance Maintenance During Continuous Flight Operations,‰ produced by the Naval Medical Research Laboratory, revealed the extent of pilots' speed usage; up to 96 percent of those flying combat missions in the 1991 Gulf war.

The Independent,
Aug. 3, 2002
www.independent.co.uk

Implantable Chip Trials on Humans

Despite previous denials that its implantable microchip would be tested on humans, a company is now testing the device on a Florida family. Digital Angel, a subsidiary of Applied Digital Solutions, Inc., is marketing the chip as a high-tech safety device.

The chip is the size of a rice grain and can be injected beneath the skin of a person's arm, transmitting information when scanned by a receiver unit. The technology is designed to replace ID systems such as company ID cards and medical emergency ID bracelets. In the future the chips may also be used like drivers' licenses, passports, and credit cards. The Digital Angel chip may also include GPS tracking technology, which the company says may have applications including „locating lost or missing individuals, locating missing or stolen household pets, monitoring parolees, managing livestock; pinpointing stolen property and preventing the unauthorized use of firearms.‰

Politech News,
Feb. 12, 2003
www.politechbot.com

Online Mushroom Spore Sellers Arrested

Four owners of online mushroom spore business Psylocybe Fanaticus were arrested Feb. 18 in Amanda Park, Washington. The arrests came after years of surveillance and investigation by the Drug Enforcement Agency.

Daniel Mancano, a DEA special agent, claimed the investigation was prompted by calls from parents around the country whose children had received packages from Psylocybe Fanaticus. The packages contained spore syringes and instructions on how to grow hallucinogenic mushrooms, and were sold for $30 each.

Assistant US Attorney Douglas Whalley said it's not illegal to sell mushroom spores alone, but claims that selling them with the purpose of producing hallucinogenic mushrooms is illegal. The adult mushrooms contain psilocybin and psilocin, which are illegal to possess, while the spores contain neither substance.

The Seattle Times,
Feb. 24, 2003
www.seattletimes.com

Ceci N'est Pas Une Pipe (This is Not a Pipe)

On Feb. 24th, federal agents raided more than 100 homes and businesses throughout the nation as part of a new effort by the DEA to crack down on sellers of pipes and bongs often used by marijuana smokers. "Operation Pipe Dreams" resulted in the arrests of over 50 people, including six in Northern California, who now face federal charges of trafficking in illegal drug paraphernalia,

Authorities said businesses could no longer protect themselves by posting signs or Internet warnings indicating that their products are for tobacco use only. Attorney general John Ashcroft stated: "With the advent of the Internet, the illegal drug paraphernalia industry has exploded. Quite simply, the...industry has invaded the homes of families across the country...This illegal billion-dollar industry will no longer be ignored by law enforcement."

If convicted, those arrested face a maximum of three years in prison, a $250,000 fine, or both, for each count in the indictments.

San Francisco Chronicle,
Feb. 25, 2003
www.sfgate.com

Marijuana Science Fair Project Stirs Controversy

San Jose eighth grader Veronica Mouser won her fight to have her medical marijuana project entered in the school science fair, weeks after the principal banned it. Ralston Middle School principal banned the project Jan. 17. She said that Veronica could not do the necessary research, since marijuana is still illegal under federal law, even though California's Prop. 215 sanctions it for medicinal use. Upon reviewing the project after protest from Mouser and her parents, principal Ferguson reversed her position and decided to allow the project to be entered into the district science fair. The school district later approved the project as well, ruling that Mouser had stayed within both the law and science fair guidelines.

Mouser, 13, did not use marijuana herself or administer it to her test subjects. Instead, she studied three medical marijuana patients, who logged the effects of using marijuana for one week to relieve pain and nausea, and the effects of abstaining from marijuana for one week. She determined that the marijuana did help relieve symptoms. Mouser says of her project, "I think I learned that standing up for what you believe in is really hard, but it's really worth it."

San Jose Mercury News,
Jan. 30, 2003
www.bayarea.com/mld/mercurynews

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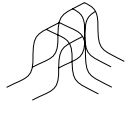


Book Reviews

BREAKING OPEN THE HEAD: *A Psychedelic Journey Into the Heart of Contemporary Shamanism*
By Daniel Pinchbeck
Broadway Books (Random House), 2002. $24.95, 297 pp.

What is it about the psychedelic experience that is so singular, so unique, that every generation must be reminded of the Elysian Fields (and Circles of Hell) which await us through the gratuitous grace of some neurological alchemy? In the 19th century Baudelaire and De Quincey scandalized Europe with their tales of hashish and opium. In the 1950s Aldous Huxley took mescaline and wrote *the* enduring tract of psychedelic literature, *The Doors of Perception*. What followed, over the 1960s and early 1970s, was a bewildering array of trip reports, from the highs of Timothy Leary's *High Priest* to the propagandistic warnings of *Go Ask Alice*. When it comes to the psychedelic experience, it's almost as if word-of-mouth isn't enough: we need written proof. Yet, in the era of DARE and zero tolerance, accurate information about psychedelics is almost as hard to come by as the substances themselves. Despite the heroic efforts of organizations like Erowid to disseminate accurate and up-to-date information about psychedelics, our culture has made a collective decision to treat psychedelics as dangerously destabilizing agents of change, untrustworthy

and inherently damaging. The level of discourse about psychedelic drugs has been reduced to the Drug Czar's "Because I Say So" ads linking drug use with terrorism. In this post-9/11 era, few individuals have the courage required to step forward and speak truth to power. Fewer still can speak about the psychedelic experience eloquently, passionately, and reasonably.

So it was like a breath of fresh air when I opened the pages of Daniel Pinchbeck's stunning "tale of wonder," *Breaking Open the Head: A Psychedelic Journey into the Heart of Contemporary Shamanism*. Co-founder of the lauded *Open City* magazine–which showcases the rising talents of contemporary literature–Pinchbeck begins his narrative in a self-described "spiritual crisis," bored with the materialism of his peers and numbed by the "media smog" which drowns out the sight of anything not commodified. In Pinchbeck's circle of downtown New York intellectuals, the drugs of choice were alcohol, heroin and cocaine–an unholy trinity for a human spirit weary of experience. These offered nothing to him, so he found himself turning to LSD and psilocybin mushrooms, feeling, all the while, as though he'd relapsed into some teenage behavior, dropping acid in Washington Park and watching the world melt away. These first psychedelic experiences opened Pinchbeck to another description of the world, outside the tidy, reductive, Freudian reasoning of his peers, and launched him on the journey that forms the backbone of the book.

Beginning in Gabon–home of the *Bwiti*, the African cult of iboga–Pinchbeck plunges headlong into a series of adventures that take him around the world. In a twelve-hour psychedelic trip, iboga rewinds and replays Pinchbeck's past-to-present, showing him how he came to be the man he was–a heavy drinker and womanizer, incapable of meaningful relationships–and offered him an opportunity to change his ways. Iboga is known for its ability to treat people with

chemical dependencies, such as heroin and alcohol–and although Pinchbeck does drink moderately today, his iboga experience helped him bring his problem drinking to an end.

From Gabon to Mexico, retracing the steps of R. Gordon Wasson, the New York banker who "rediscovered" the psilocybin mushroom, Pinchbeck meets up with the son of Maria Sabina, the sorceress who initiated Wasson into the mushroom mysteries. Mushrooms may represent humanity's oldest connection to the psychedelic experience, and Pinchbeck uses his Mexican experience as a starting point for an intellectual argument on the cultural necessity of that experience. The foundation of Pinchbeck's argument is built upon his reading of anthropologist Mircea Eliade, the first modern to study shamanism (Eliade rashly defined shamanic intoxication as a degenerate form of the tradition), and philosopher Walter Benjamin, who emphasized "the importance of intoxication for perception." Mourning the loss of the Dionysian rituals of ecstasy, Benjamin predicted that mankind might someday "experience its own destruction as an aesthetic pleasure of the first order." The repressed ecstatic, Pinchbeck reminds us, inevitably returns as the chaotic catastrophic.

Pinchbeck never lingers anywhere too long; *Breaking Open the Head* is a psychedelic Cook's Tour, each stop a little further from the consensus reality comfort of rationalist materialism. He lights next at that annual carnival in the deserts of northern Nevada, Burning Man. Here Pinchbeck encounters a modern psychedelic culture "more decadent than Warhol's Factory, more glamorous than Berlin in the 1920s, more ludicrous than the most lavish Busby Berkeley musical…more implausible than any mirage." But it's not all fun and games at Burning Man. Although the event explores the possibilities of a post-consumer culture driven by creative, ecstatic values, "Burning Man also has a sorrowing streak. As they dance, the revelers also grieve…for

everything spiritless and vacant–the hideous Medusa mask of our culture–that needs to be torn off and fed to the flames…The greatest party in the world is also a wake for this world."

It's this paired feeling of joy and loss that follows Pinchbeck into his final journey, to the Ecuadorian Amazon, where he meets up with Don Caesario, a Secoya Indian and shaman. Pinchbeck has come to drink *yage*, the "vine of souls," and experience the cleansing and the visions which have made this brew, ayahuasca, the *de facto* cure-all through South America. Though he drinks the brew, and has his visions, Pinchbeck really can't take his mind off the geologists from Occidental Petroleum, just a few miles away, busily exploring for oil. The Secoya culture might soon be swept aside, as roads and pipelines and civilization come pouring in. The meaninglessness of modernity–which Pinchbeck is running away from on every page of *Breaking Open the Head*–would supplant the rich internal life which the Secoya maintain through their use of ayahuasca. Oil or no, the tradition teeters on the verge of extinction: Don Caesario's son, converted to Christianity, will not follow in his father's footsteps to become a shaman; the line, thousands of years long, may soon end. Yet, in the twilight of his tradition, Don Caesario treats Pinchbeck to one of the most profound moments related in the book, a suite of *icaros*, or ayahuasca songs:

> Don Caesario drank another cup of the bitter brew, prepared for him by his assistant Tintin. Then he sang alone. His song seemed to be the wildest and most private ode, a psalm of solitude, unveiling the secret knowledge of his soul. He barely whispered. He breathed into the stars. Then the melody returned, his voice rose up. To my augmented ears, he seemed to be weaving a subtle discourse on reality, describing the victory of form over emptiness. As he sang, he seduced a spirit-creature that started to grow, spinning cotton candy filaments around itself. Then Tintin started to sing as well. But he seemed to challenge the shaman's metaphysical viewpoint, arguing that emptiness ultimately triumphs over form. Don Caesario sadly concurred, and the cotton candy creation was released to fall back into the void…I had no more doubts that the Secoya engaged in extra-dimensional exploration, using ayahuasca as their psychic telescope and transport.

Pinchbeck returns to the US, and dabbles in a few other more exotic compounds–notably DMT and DPT (which, after a harrowing experience with extra-dimensional entities invading his apartment, he describes as "not for human consumption"). Traveling into the machine-elf world of DMT (nearly a carbon-copy of the experience first described by Terence McKenna), he hears a voice telling him, "*This is it. Now you know.*" This is the final crack that breaks open Daniel Pinchbeck's head, sending the stuttering edifice of modernity crashing down. How, he wonders, could an entire universe, apparently as real and solid as our own, exist just beyond our perceptions? Something isn't adding up, or rather, something isn't being accounted for. If such a metaphysical fundamental has been overlooked, Pinchbeck asks, what does that say about the prejudices of a culture that rules these visions irrelevant, immaterial, and unimportant?

And now we see the complete arc. Pinchbeck performs his function as cultural everyman perfectly. Within the confines of intellectual New York culture, he is archetypal, possessed with the same hopes and fears as his peers, and

yet has found a way to a richer internal life, a mythology which includes the ineffable, the impossible, and the unfathomable. Why would anyone want to break open their head? Why, in the end, does Pinchbeck see his journey not as recreation, but as necessity? The horror of the situation, of "egocentric materialism and spiritual nihilism," and the imminent danger of "the transformation of the earth into a non-human wasteland" forces Pinchbeck to assert:

> Unlikely as it seems, we have to become our own shamans, wizards and seers. As spiritual warriors, we must take responsibility for the plight of our species. To break the spell of our culture's death trap deceptions and hypnotic distractions, we need the courage to confront what lies behind the open doors of our own minds.

A psychedelic experience which "breaks open the head" is a way through the smog of lies, deception and distraction which separate us from an authentic experience of the world, an experience which, it must be admitted, would be as horrifying as it would be exhilarating. To deny the existence of these visions, positive and negative, is equivalent to driving a car down a highway, eyes closed, with a foot jammed on the accelerator petal. Eventually you'll wreck. That is, unless you listen to Daniel Pinchbeck's advice, open your eyes, and see the world as it really is: Infinite.

Review by Mark D. Pesce

Mark Pesce is a virtual reality developer and author of *The Playful World: How Technology Transforms Our Imagination.*

THE ROAD OF EXCESS:
A History of Writers on Drugs
By Marcus Boon
Harvard University Press, 2002.
$29.95, 339 pp.

Nowadays, writing about the effect of drugs on the body steers an author into hotly contested cultural terrain. But what of the effect of drugs on the written word, or on culture itself? *The Road of Excess* bravely, if imperfectly, veers into this new territory. Marcus Boon's work serves as both a historical survey of drugs and their thought products, and a sort of introduction to what drugs "mean" to modern culture. Boon establishes "drug literature" as a viable, if underdeveloped, field of study.

As well as a comprehensive survey of substance-tinged literature, Boon's book is an exploration of the ways in which drugs altered the word in the modern West. Its title, taken from a William Blake quote, "the road of excess leads to the palace of wisdom," marks the point in time when mind and body were split, in Boon's view, and drugs replaced religious belief as the way to change one's mental state and reunite mind with matter.

In addition to stimulating shifts in mental states, Boon argues, drugs function as allegories of mental states, just as they were in pre-modern literature. Slyly, Boon points out that the potions and magical balms of writers like Milton served as a material representation of an altered state, just as the noir novel scene of a needle sliding into a vein signifies a character's change of state to us. In current culture and law, however, the cognitive shift that drugs cause is equated with a moral shift as well. The moral effects of drugs are dependent on set and setting: degeneracy and crime, if you're a DEA agent, enlightenment and wisdom, if you're an

entheogen enthusiast. Boon documents this phenomenon, in a wide arc reaching from *Confessions of an English Opium Eater* to *Listening to Prozac*.

Ambitiously, he goes so far as to posit both the act of creating literature and the act of drug-taking as defining qualities of modernity. As he defines them, the modern concept of drug use and the idea of literature evolved simultaneously during the nineteenth century. And after all, both drug use and the writing of literature are two of the principal bridges leading beyond daily experience. According to Boon, modern consciousness is characterized by a feeling of being trapped, of emptiness, and cravings for an outside; and he claims that: "for all purposes, they constitute what we call modernity…" A rather gloomy view, but certainly one that explains our fascination with drugs, whether used for self-destruction or enlightenment.

Nonetheless, he's careful in his disclaimers and attempts to avoid "contamination" by losing perspective on such a controversial subject. His main goal, he insists, is to open the way for a clear-headed discussion of modern drug use, not to position himself for or against drugs. On the problem of abuse and prohibition, Boon calls for a reframing of the issue:

> I believe, as Burroughs and others did, that the most promising solution to the "drug problem" is neither negating nor affirming drugs, but learning to discriminate between different drugs through unbiased studies of how human beings interact with them, and, at a deeper level, opening up new realms of excess so that drugs no longer carry the whole weight of our legitimate desire to be high.

In the midst of a genre of literature that alternately demonizes and lionizes drug users and their writings, Boon traces a perilous course: analyzing a literature of distortion without participating in that distortion. Though clearly no enemy of cognitive alteration, Boon isn't afraid to take on the downsides of drug use: addiction, poor narrative structure, descents into the unimaginative, and the cycle of philosophical revelation and crushing disappointment drug users can experience; as one ether-snorting professor exclaimed, "Good heavens! Is this all?" Boon reminds us that generations of writers have found that the unwise use of substances, of whatever kind, can block precisely the pathways to transcendence they were supposed to throw open. Drugs reveal an incredible range of cognition, but they are easily mistaken for transcendence itself.

With measure and detail, Boon is also not afraid to spike his tour with doses of theoretical delight. As he enthuses about psychedelics, the link between drugs and writing is based on the desire to create:

> …all mental states are extraordinary, not just the novel ones. The important thing to understand here is creativity, its source and its power. Literature and the psychedelic experience are both fundamentally acts of poeisis–poeisis not as representation but as creation itself.

Boon makes a compelling case for the tremendous extent to which drugs have infiltrated modern culture. His research makes forays into other genres, too: philosophy, biology, and most notably, popular music, as part of his hope to break down the boundaries between literature and other cultural pursuits. Really, for example, what would rock be without drugs? By stepping outside literature for a moment, Boon asks us to imagine, say, the Velvet Underground without their heroin; clearly, rock and drugs are so entangled

that they may be inseparable. The reader, then, is led to consider that drugs may be nearly as entangled with modern writing in many forms. Boon wants to view consciousness through "an open field of interdependent cultural activity, which would include both drugs and literature, one in which science, biography, literary analysis and ethnography are used as necessary." Yet even as he devotes himself to a history of literature, Boon paradoxically suggests the end of literature itself; he wonders if writing hasn't perhaps already been pushed off its pedestal as the premier cultural product, to be replaced by music with all its drug-fueled energy and relevance.

At times a rapid-fire narration of names, titles and synopses, *Excess* feels in spots like a professor's narration of a slide show. "I have written this history," he says, "without relying on a particular conceptual framework beyond which a set of names of substances around which stories, texts, practices have clustered, and that of chronology, which I have used for convenience." The research that forms the book is extensive, but thin in spots; Boon occasionally relies on secondary sources to quote various writers, rather than exhuming their original words–a practice that tends to magnify error, transmitting mistakes virally to the next writer who relies on him rather than returning to the original work.

The Road of Excess also shares similarities to Dale Pendell's *Pharmako/Poeia*; both texts are inhabited by the same voices, the same substances. Boon's is the far more encyclopedic and linear work–he is, after all, a professor delineating the length and breadth of the literary phenomenon of drugs, not providing a how-to guide for the alchemically inclined. While Pendell's work whispers conspiratorially into the reader's ear, serving as a guide to the drugs themselves, Boon methodically investigates their thought-products and cultural influences. Both are employing the same authorities and the same sources–but while Pendell tells you

how, Boon dissects the what and the why of substance use. Perhaps, he muses, both writing and drug use are ways we reach for the transcendental.

A good postmodernist, Boon agrees with Foucault's presentation of drugs as "technologies of the self," and applies Heidegger's definition of technologies to drugs, as they "posit ends and procure and utilize the means to them." Still, he isn't content to lump all mind-altering substances into a single category, just as he refuses to limit his analysis to a single literary form. With this framework in place, *Excess* examines by turns narcotics, anesthetics, *Cannabis*, stimulants and psychedelics for their particular effects on culture. Boon claims to avoid any type of unified theory about drugs and text as a whole. Rather, he examines the effects of each and its resulting literary topos: Gnostic self-negation and confession for opiates, bodies striving to match machines with stimulants, the opening of the imaginal realms for psychedelics. It is, however, problematic to present a particular substance as representative of an entire style, a difficulty which the book's structure exacerbates. Boon does succeed, however, in imparting a sense of *why* generations of modern writers have desired to alter their thoughts and their writing with foreign substances: the search for the unknown, what lies outside of everyday experience. As he quotes Rimbaud, the writer seeks to alchemically transform himself by experiencing:

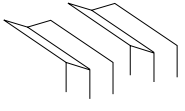
> "a long, immense and systematic disruption of all the senses…he exhausts in himself all poisons, so as to keep nothing but their quintessences…he becomes among all men the great sick one, the great criminal, the great cursed one–and the supreme Sage!–For he arrives at the unknown!"

Perhaps unintentionally, this point also makes comprehensible the failure of modern efforts to censor and eradicate drugs from culture: since the urge to experience the unknown cannot be eliminated, the use of drugs as a vehicle for experiencing the unknown cannot be completely suppressed.

Beyond culture as a whole, however, is the reader herself and her reaction to the text. The greatest utility and enjoyment in Boon's book is as a jumping-off point for further study; hunting down and absorbing the contents of Boon's index will occupy me for months to come. I knew a few of the big names in drug literature, such as De Quincey and Burroughs, and had run across Michaux; but I'm still rather new to the whole subject of altered culture–as such, I can now go forth to the cocktail parties well-armed with knowledge of the genre. Reading *Excess*, you're handed tantalizing names and ideas for a moment, and then the next slide slips under Boon's microscope. A number of brief entries particularly excited my imagination: The philosopher/scientist René Daumal and his inhalant-soaked self-experimentation; 70s rock critic Lester Bangs' theory on drugs replacing sex and gender with their own qualities; Henri Michaux naming hashish the "spy behind words," among others. If the measure of a substance's potency is in its effect on cognition long after ingestion, *Road of Excess* is strong medicine indeed.

Review by Heidi Lypps

Heidi Lypps is the Communications Director for the Center for Cognitive Liberty & Ethics.



Conferences & Events

2003 MARCH 15-19
Consciousness, Quantum Physics and the Brain
Tucson Convention Center and Leo Rich Theater

info: http://www.consciousness.arizona.edu/quantum-mind2/

Could quantum information be the key to understanding consciousness? Could consciousness enable future quantum information technology?

The nature of consciousness and its place in the universe remain mysterious. Classical models view consciousness as computation among the brain's neurons but fail to address its enigmatic features. At the same time quantum processes (superposition of states, nonlocality, entanglement) also remain mysterious, yet are being harnessed in revolutionary information technologies (quantum computation, quantum cryptography and quantum teleportation). A relation between consciousness and quantum effects has been pondered for nearly a century, and in the past decades quantum processes in the brain have been invoked as explanations for consciousness and its enigmatic features. Following the first „Quantum Mind‰ conference held in Flagstaff at Northern Arizona University in 1999, „Quantum Mind II‰ will update current status and future directions, and provide dialog with skeptical criticism of the emerging paradigm.

2003 APRIL 2-6
„Chance Encounters With Consciousness‰
Spring Meeting of the Society for the Anthropology of Consciousness
Marjorie Barrick Museum, University of Nevada Las Vegas campus

info: Tim Lavalli, timlavalli@ameritech.net
http://sunny.moorpark.cc.ca.us/~jbaker/sac/

The Society for the Anthropology of Consciousness (SAC) is an interdisciplinary academic organization dedicated to the study of consciousness phenomena in cultures around the world. A section of the American Anthropological Association (AAA), SAC members utilize cross-cultural, experimental, experiential, and theoretical approaches to study consciousness. SAC publishes a journal, *Anthropology of Consciousness*, holds an annual Spring Meeting, and sponsors sessions at other meetings, such as those of the American Anthropological Association (AAA). SAC hopes to further scholarly exchanges between anthropologists and persons in other disciplines within consciousness studies.

2003 MAY 23-25
Mind States IV: Continuing Perspectives on Consciousness
International House, Berkeley, CA

info: www.mindstates.org

The Spring of 2003 celebrates the 60th anniversary of the discovery of the psychoactive effects of LSD, and the conference will have a panel of experts discussing the past, present, and future of this world-changing molecule. We will also be showcasing „Hofmann's Potion‰ a recent documentary film by Connie Littlefield that explores the early days of LSD research. Other panels will be held on the topic of „visionary art‰ and on the topic of „control culture‰ Individual presenters will focus on ayahuasca shamanism, mimetics, „the contents of consciousness‰ the folk art of blotter acid, the neurology of aesthetics, future mind technology, virtual reality, cyberpunk literature, an „Ask the Shulgins‰ Q&A session, a theatrical depiction of „Confessions of A Dope Dealer‰ excerpts from „True Hallucinations‰ (an opera based on the life and times of

Terence McKenna), and more. There will be live and D‡ed music, two art galleries, a new chill space, and a myriad of vendors, as well as a real-time „E-Bay‰ (That's Entheogen Bay) auction. Dr. Susan Blackmore, author of *The Meme Machine*, will be both a speaker and MC for the conference.
The CCLE is offering 4 Mental Diversity Fund Scholarships to attend this event. For more information, see: http://www.cognitiveliberty.org/mdsf/mdsf_app_info.htm
A ticket to all three days of the conference is $225.00 through May 15, and $250.00 from May 16 until the event.

2003 JUNE 1-10
TRANSVISION 2003 USA CONFERENCE
„The Adaptable Human Body: Transhumanism and Bioethics in the 21st Century‰
Yale University, New Haven, Connecticut

info: www.transhumanism.org/tv/2003usa/

What will the body be like in 50 years, and how will changes to our bodies change our lived experience? How will we adapt the body to our needs and to the environments in which we live? Will we have conquered sickness, aging and death for all or only for the lucky few? Will people be migrating to silicon platforms, pursuing enhanced biological existence, or both or neither? This conference, the first Transvision conference to be sponsored by the World Transhumanist Association in North America, seeks to explore the future of the body from the transhumanist perspective. TV03 USA is co-sponsored by the Yale Interdisciplinary Bioethics Program's Working Group on Artificial Intelligence, Nanotechnology and Transhumanism. Transhumanism is a new approach to bioethics which argues that technology can be used to overcome the limitations of the human body, and that individuals should be allowed to enhance their bodies. This conference will begin the discussion between the transhumanist movement and communities with which transhumanists have rarely been in dialogue: professional bioethicists, anti-technology activists, and critical social theorists of science and technology.

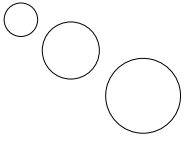
2003 JULY 20-29
Ayahuasca Healing Retreat: Experiential Seminar in the Amazon Forest of Manaus, Brazil

info: http://www.ayahuasca-healing.net/

As part of this retreat and seminar, there will be lectures by top experts in the field of visionary and healing plant teachers, such as ayahuasca and *Salvia divinorum*. There will be workshops in Remote Viewing and Lucid Dreaming, plus four ceremonies with ayahuasca and two with *Salvia divinorum* (ska pastora), group sharing, transpersonal exercises and excursions.

Presenters:
Richard Glen Boire, Control & Freedom Theorist
Stuart Hameroff, M.D., Neuroscientist
Pablo Amaringo, Shaman and artist
Zoe7, Consciousness researcher and author
Silvia Polivoy, Psychologist

CONTRIBUTE



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THE CENTER FOR COGNITIVE LIBERTY & ETHICS is a nonprofit 501 (c)(3) public education, law & policy center working in the public interest to protect fundamental civil liberties. We seek to establish, promote, and protect cognitive liberty–a basic human right to multiple modes of thought, alternative states of consciousness, and the right to control one's own cognitive processes.

We believe that the principles embodied in the US Constitution, the Bill of Rights, and the UN Universal Declaration of Human Rights, all support cognitive liberty.

Membership dues (which begin at $US 40 per year) allow the Center for Cognitive Liberty & Ethics to introduce and elucidate the concept of cognitive liberty, in an effort to redefine and revitalize the public debate over human autonomy and freedom. See our Web site (www.cognitiveliberty.org) for a comprehensive statement of our mission and goals.

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See membership form on next page.

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Members of the Center for Cognitive Liberty & Ethics are among the world's most informed and conscientious advocates for cognitive liberty–the fundamental right to multiple modes of thought, alternative states of consciousness, and individual mental autonomy.
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The *Journal* briefs members on the latest threats to cognitive liberty, and provides a scholarly forum for examining the politics, policy, and prospects of reintegrating full-spectrum thinking into a modern society.
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