Erowid Extracts

DOCUMENTING THE COMPLEX RELATIONSHIP BETWEEN HUMANS AND PSYCHOACTIVES

November 2006 Number 11

EROWID is a member-supported organization working to provide free, reliable and accurate information about psychoactive plants, chemicals, practices, and technologies.

The information on the site is a compilation of the experiences, words, and efforts of thousands of individuals including educators, researchers, doctors and other health professionals, therapists, chemists, parents, lawyers, and others who choose to use psychoactives. Erowid acts as a publisher of new information and as a library archiving documents published elsewhere. The collection spans the spectrum from solid peer-reviewed research to creative writing and fiction.

IN THIS ISSUE ...

BRIDGING communication and information divides is one of Erowid's primary goals. We usually try to focus on the narrow chasms, like those between physicians and cannabis users, professionals and enthusiasts, researchers and students, parents and children. And, while we endeavor to stay out of the divisive world of politics, the controversies involved in our field necessitate that we interact with many who demand or expect partisan affiliation. People confront us with polarized views and questions: "What right-minded person could be in favor of jailing millions to support a failed second prohibition?" "What moral organization would want to teach people about the use of harmful illegal drugs?"

When we were invited to speak at this year's national gathering of clinical toxicologists (see "Erowid Presents", page 22), we were warned that we should expect someone to accuse us of promoting illegal drug use. We chose to focus our presentation on the topic of "The Fence", the phantasmal political divide that keeps some professionals—like the toxicologists in the audience—from working with Erowid. In the end, the divide between the medical toxicologists and ourselves was much smaller than we had anticipated. Many bridges already exist: the desire to help others, a geeky love of data and accuracy, reliance on digital communications, and an interest in how and why people use psychoactives.

Bridges across difficult divides can be built from solid scientific research. The gap between those who believe that consuming psilocybin-containing mushrooms is wrong and those who believe that these mushrooms can help to facilitate mystical experience may seem to be too large to span. And yet the widely reported psilocybin study published in July (see "Psilocybin, Science, and Sacrament", page 4) is an instance of researchers attempting to connect the mystical and the scientific through psychoactive drugs. Although some may take issue with the findings, research like this becomes part of a wider societal discourse about psychoactives and provides factual anchors for debating complex issues.

Likewise, images can be a potent and accessible means to present data to people on either side of the fence. Over the years, we've put considerable energy into documenting, with camera and scanner, the culture surrounding psychoactives, as well as the plants and chemicals themselves (see "Photo Geekery", page 14). Early in Erowid's history, our photographs began showing up in unexpected places—from professional presentations to television news. These images pass more easily through partisan fences because they are often seen as having less inherent political baggage than text has. Yet they carry an aesthetic payload along with the factual information; and, when credited, they send the message that Erowid is a source of useful data.

"Truth springs from argument amongst friends."

— David Hume

In this issue of *Erowid Extracts*, we try to highlight the work that our crew, members, and others in this field are doing to create a shared dataset—an information space that those on any side of imagined or real divides can contribute to and access.

Fire & Earth

Recent News & Updates

DEA Moves to Expand Schedule I

by Earth Erowid

Requests for Information

On August 4, 2006, the DEA published a *Federal Register* entry requesting information about the commercial, academic, and research uses for 53 named tryptamines, as well as a more general request for information about similar chemicals. On October 20, they published a parallel entry asking about a list of 165 phenethylamines.

The *Federal Register* entries indicate that these chemicals are not already scheduled. The information requests make direct reference to existing Schedule I substances and state that "some of these substances can be treated as controlled substance analogues if intended for human consumption". Although they do not directly identify their purpose, these requests seem to represent information gathering in preparation for adding some or all of these substances to Schedule I.

The Controlled Substances Act (CSA) gives the DEA the authority, as delegated by the Attorney General, to schedule a new drug after the Secretary of Health and Human Services (HHS) implements an eight-factor "scientific and medical evaluation" and recommends scheduling. The law requires the DEA and HHS to make an individualized determination for each substance, including such things as "actual or relative potential for abuse", "history and current pattern of abuse", "scope, duration, and significance of abuse", and "risk…to the public health". There has only been one instance where the DEA emergency scheduled a drug which then failed to be permanently added to Schedule I. In 2004, HHS rejected the inclusion of TFMPP in Schedule I after the FDA found there was little evidence of actual abuse.

TIHKAL & PIHKAL

The DEA's information requests, essentially, ask whether there are any commercial, academic, or research uses for any of the chemicals listed in the Shulgins' *TIHKAL* and *PIHKAL*.

Of the 53 tryptamines the DEA lists, 47 are described in *TIHKAL*, four are simple acetyl variants of *TIHKAL* chemicals, and the remaining two are allyl variants. Of the eleven *TIHKAL* chemicals that are not listed, seven are already scheduled, one is tryptamine itself, another is the widely-sold hormone melatonin, and the final two are harmine and harmaline.

Further evidence that the tryptamine list is simply copied from *TIHKAL* is that it includes what Alexander Shulgin calls 4-HO-DMT and the DEA calls "N,N-dimethyl-4-hydroxytryptamine", more commonly known as psilocin. This chemical has been explicitly listed in Schedule I since 1970, when the CSA was first passed. It seems that the DEA editors did not realize that this chemical is the already-scheduled psilocin.

The DEA's phenethylamine list includes 165 chemicals. Although we did not examine the chemicals in this list exhaustively, it appears that all or nearly all are included among the 179 phenethylamines described in *PIHKAL* (14 of which are already scheduled).

Positional Isomer Redefinition

Normally, to add new substances to Schedule I, the DEA must follow the statutory process described above. However, in May of this year, the DEA published a proposed redefinition of the technical term "positional isomer". If this new definition becomes the approved legal definition, it would add dozens of previously unlisted chemicals to Schedule I without having to go through the normal process.

The "hallucinogenic substances" subsection of Schedule I states that "optical, position, and geometric isomers" of listed chemicals are automatically considered to be Schedule I. The existing CSA provides no definition or explanation of "position isomer", but it has generally been assumed that it includes only ring-substitutional changes, such as moving a group or chain from the 4-position to the 5-position on the ring. Most chemists we spoke with assumed that, under the new definition, MIPT would qualify as a positional isomer of DET, for example. But we did not get a consensus on this issue, and other molecular comparisons would be even less clear.

The new definition would represent a change in the DEA's understanding of the term "positional isomer", since up to now they have treated *PIHKAL* and *TIHKAL* chemicals as controlled substance analogues and not as Schedule I isomers. The DEA states that the tryptamines and phenethylamines they list in their information request "are not subject to direct control in Schedule I". This strongly suggest that experts, even those who write and edit the DEA's technical *Federal Register* entries, would not consider those chemicals "positional isomers" of a Schedule I substance without a change in definition.

Because some labs must get DEA approval for each individual Schedule I substance they work with, this rule would significantly increase the burden on chemists who work with materials structurally similar to a scheduled chemical. Instead of just needing to track the list of controlled substances, they would need to determine if any of the intermediate or final chemicals they plan to work with would meet this definition and would then presumably need to apply for a license for each "positional isomer" they might encounter in their work. ●

Erowid.org/extracts/n11/dea.shtml

Proposed Definition of "Positional Isomer"

…positional isomers of Schedule I hallucinogens are any and all substances which:

(1) Are not already controlled in a different Schedule I category, or are listed in another Schedule, or are specifically exempted from control by law; and

(2) Have the same molecular formula and core structure as a Schedule I hallucinogen; and

(3) Have the same functional group(s) and/or substituent(s) as those found in the respective Schedule I hallucinogen, attached at any position(s) on the core structure, but in such manner that no new chemical functionalities are created and no existing chemical functionalities are destroyed relative to the respective Schedule I hallucinogen; except that

(4) Rearrangements of alkyl moieties within or between functional group(s) or substituent(s), or divisions or combinations of alkyl moieties, that do not create new chemical functionalities or destroy existing chemical functionalities, would be within the definition of positional isomer (and therefore be controlled).

Letters & Feedback

I just wanted to give y'all a big thanks for all of the work behind the web site. I work in the local emergency department providing mental health services and assessments, and have been a long time fan of Erowid. Recently we had a patient who reportedly took 2C-E in combination with LSD, a trip that lasted at least 24 hours. Initially hospital staff thought he was psychotic, since "no trip could last that long" and they thought 2C-E was something that the patient made up.

I was able to take that moment to not only educate the department, but also to have the patient properly diagnosed and released as opposed to hospitalized, due in part to your web site. Additionally, when my supervisor discovered how the case was handled she chose to check out Erowid and recommended that all of the crisis teams utilize your site for information for future cases.

While we aren't the biggest town, as a town that is home to several colleges we see our share of hallucinogen (and other substance) use. Hopefully the information you provide will continue to help educate our team to insure the best possible treatment for our patients. Thank you again for all of your hard work.

— EDMUND ROBINSON, M.ED., QMHP
Oregon, USA

I did a REALLY stupid move a month back (I'm writing you a "trip report" to follow in a few weeks) regarding WAY too much salvia, not knowing what I was getting into. Since then I have researched your site, it is the best on the internet for educational information. You people are invaluable! Words alone don't do it. I would give more as a donation but at the moment am financially strapped and between jobs, but feel it very important that I do so. Keep up the excellent work!

— J.B.
Donation Message

Thanks for filling an important niche with your website—it is a valuable repository of knowledge and I look forward to seeing it grow and prosper!

— C.J.
Donation Message

I use Erowid for accurate information about psychoactive plants and compounds. Erowid has credibility in critical subcultures that desperately need such information.

— ERIC E. STERLING
The Criminal Justice Policy Foundation

Thank you, thank you, thank you for all that you guys do! I have used your site year after year and am truly grateful for this invaluable resource.

— K.K.
Donation Message

I've been frequenting the site a LOT in the past five months or so and have found that it has helped me commensurately. Erowid has helped me develop as an individual, understand certain aspects of society and make responsible and informed decisions about psychoactives that drug education programs just don't allow for. I just wanted to say thanks.

— R.D.
Erowid Email

90% of my psychedelic education comes from Erowid. Keep up the important work!

— G.W.
Donation Message

Your website is extraordinary. Not only has it helped convince me of the value of accurate and unbiased information with regard to mind altering substances, it has inspired me to become a student of chemistry! It is my pleasure to contribute what I can on my limited budget. Keep up "the good fight", and keep me informed!

— B.W.
Donation Message

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extracts@erowid.org

Please include your name, title, and city/state/country of origin to be published with your letter. Letters may be edited for length and clarity.

Erowid Extracts

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Psilocybin, Science, and Sacrament

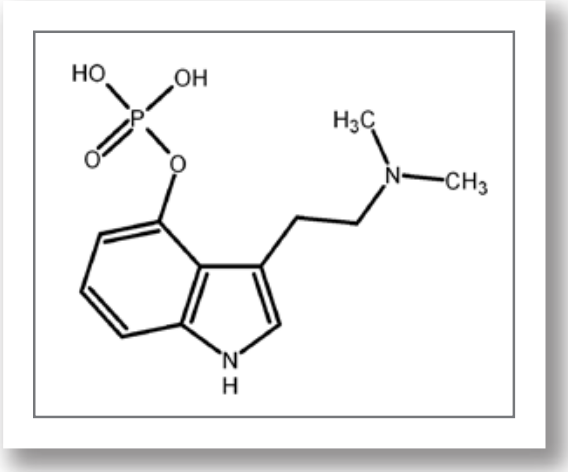
by Lux

A Look at the Research of and Response to the Johns Hopkins Study on Psilocybin and Mysticism

I. Introduction

In July of this year, Johns Hopkins University announced the results of a new study published in the journal *Psychopharmacology*.[1] In an experiment described as "landmark" and "groundbreaking", thirty-six participants were administered either psilocybin, the active ingredient in hallucinogenic *Psilocybe* mushrooms, or methylphenidate (Ritalin), an active comparison substance, in a carefully structured environment. Thirty of those participants were administered both substances in a triple-blinded, counterbalanced procedure. According to the report, "67% of the volunteers rated the experience with psilocybin to be either the single most meaningful experience of his or her life or among the top five most meaningful experiences of his or her life."[1]

While many Erowid members are undoubtedly familiar with this study, and are not surprised to hear that psychedelics can occasion mystical experiences, I wanted to take a deeper look at the historical context for the research, important methodological and theoretical issues, and the reception of the story in the media. In addressing these topics I had the opportunity to speak with Bob Jesse, co-designer of the study, co-author of the *Psychopharmacology* article, and chairman of the Council on Spiritual Practices (CSP).



Psilocybin Molecule (image by Erowid)

II. Back in the Day

Psychologist Abraham Maslow dedicated his career to the study of "peak-experiences" (similar to "mystical experiences" or "primary religious experiences"). Maslow describes these as being characterized by qualities such as transcendence, unity, awe, wonder, compassion, and love.[2] These experiences, he believed, are commonly available, and may have inspired many religious traditions. In an essay written in 1964, Maslow observed:

> In the last few years it has become quite clear that certain drugs called "psychedelic," especially LSD and psilocybin, give us some possibility of control in this realm of peak-experiences. It looks as if these drugs often produce peak-experiences in the right people under the right circumstances, so that perhaps we needn't wait for them to occur by good fortune. Perhaps we can actually produce a private personal peak-experience under observation and whenever we wish under religious or non-religious circumstances.[2]

Maslow may have been thinking of the 1962 Good Friday Experiment[3], in which Walter Pahnke administered capsules containing 30 mg of psilocybin to ten theology students and the active placebo nicotinic acid to ten additional students as a control. Subjects spent the duration of the experiment in a basement room of Boston University's Marsh Chapel while listening to a live broadcast of the Good Friday service being conducted in the main sanctuary upstairs. Pahnke undertook the study in order to "investigate in a systematic and scientific way the similarities and differences between experiences described by mystics

and those facilitated by psychedelic drugs."[3] He created a questionnaire designed to objectively measure mystical experience based on nine categories, including a sense of unity, a sense of sacredness, and deeply felt positive mood. Subjects were interviewed after the session and again after six months. Most were also interviewed 24 to 27 years later in a follow-up study conducted by Rick Doblin.[4]

The majority of subjects who received psilocybin scored highly on most or all of the nine categories of the mystical experience measure, while the control group scored much lower on average. Pahnke concluded that psilocybin might reliably induce mystical experience. He observed, "The results of our experiment would indicate that psilocybin (and LSD and mescaline, by analogy) are important tools for the study of the mystical state of consciousness."[3]

Pahnke's study has been described by one expert as "perhaps the most famous study in the psychology of religion."[5] Despite methodological weaknesses pointed out by Doblin and others, Pahnke's experiment is noteworthy because he examined a potential "trigger" of mystical experience, thereby paving the way for future research. As Pahnke and Maslow noted, if psychoactive compounds can trigger religious experience, it may be possible to conduct experimental investigations of these experiences. Experiments into the psychology of religion are relatively rare, with most research traditionally being descriptive rather than experimental.

III. Hiatus

Despite the widespread interest in and the promise of Pahnke's findings, little direct follow-up research has been conducted. The landscape of psychedelic research changed dramatically in the ten years after the Good Friday Experiment. A spate of new drug control laws in the mid-1960s, crowned by the U.S. Federal Controlled Substances Act of 1970, added daunting regulatory hurdles. New regulations designed to protect research participants, such as the Research Act of 1974, made it harder to experiment on human subjects.

Public backlash against the use of psychedelics during the 1960s also curbed the enthusiasm of both researchers and funders. Hallucinogens were caricatured by the mainstream media as dangerous counterculture drugs. One of the last formal clinical studies to administer hallucinogens and look for beneficial results involved Dr. Bill Richards at Spring Grove in Baltimore, who years later joined CSP as a Senior Fellow and co-authored the Hopkins study. Approved research investigating the positive aspects of scheduled psychedelics otherwise ground to a halt.

A renewal in the field began slowly in the United States in the 1990s, most notably with Rick Strassman's study of injected DMT.[6] As Alexander and Ann Shulgin noted in 1997, "DMT is the only psychedelic tryptamine that has recently been taken through the Kafkaesque processes for approval for human studies (via the FDA, the DEA, and the other Health agencies of the Government) and is one of the few Schedule I drugs that is being looked at clinically in this country today."[7] However, Strassman's research design touched only tangentially on the study of psychoactives and religious experience, limiting itself to "a re-examination of the human psychobiology of […] N,N-dimethyltryptamine (DMT)". Strassman intentionally avoided mention of his mystical interests for political reasons.[6] Important research was also conducted outside of the United States during that time period, including research on the religious use of ayahuasca in South America, and a series of studies on hallucinogens by Franz Vollenweider in Switzerland.

IV. An Experiment is Born

Enter the Council on Spiritual Practices in 1994. CSP's mission is "to identify and develop approaches to primary religious experience that can be used safely and effectively, and to help individuals and spiritual communities bring the insights, grace, and joy that arise from direct perception of the divine into their daily lives."[8] Bob Jesse, then president of CSP, coordinated the development of CSP's research interests, including organizing several scientific meetings from 1996 through 2000 that led to and supported the Hopkins/CSP psilocybin study. "I was fortunate to have been introduced to Roland Griffiths, whose leadership as a research psychopharmacologist and curiosity as a serious meditator made him a godsend of a principle investigator", Jesse said.[9] CSP staff, including Jesse and Richards, were

Walter Pahnke (circa 1963)
Photo courtesy Bill Richards

significantly involved in the project. Fire and Earth of Erowid, who worked for CSP in the late 1990s, also assisted in early design and coordination efforts.

CSP's goal was to develop an experiment sensitive to the full range of psilocybin's reported effects, including spiritual effects. Psilocybin was selected as the research compound early on. As Jesse explains, "There are just some really good pharmacological reasons. It's a naturally occurring substance, used by humans for centuries. Modern medicine has confirmed its track record of being non-addictive and physically non-toxic, though not without behavioral, psychological, and spiritual risks. And its duration of action fit the needs of our study."

Pahnke's study has been described by one expert as "perhaps the most famous study in the psychology of religion."

With a draft of the research protocol in hand and a team assembled, they began seeking regulatory approval from Johns Hopkins as well as the FDA and DEA. Their first step was to submit the proposal to the FDA for review. Jesse said that process went relatively smoothly: "I had heard stories of other protocols hitting hitches and stalling, but that was not our experience at all. We benefited, I'm sure, from the FDA having

reviewed Strassman's protocols before us, and from Roland's long experience working with the FDA."

The experiment required approval from the DEA to work with a Schedule I substance. Because Griffiths's lab was already licensed to work with Schedule I substances, this approval was granted without complications.

Participants were recruited in Baltimore through flyers announcing a "study of states of consciousness brought about by a naturally occurring psychoactive substance used sacramentally in some cultures."[1] Respondents were screened for psychological and medical health, as well as ongoing participation in a spiritual community such as a church or meditation group. Jesse explained that people with a demonstrated interest in spiritual matters might be better prepared to make sense of mystical experiences. Also, those with an active spiritual life and who participate in a spiritual community "may be in a better position to assimilate their experiences and to turn them to abiding good in their lives."

V. Lift-Off

With the necessary permissions in place, the team began the experimental protocol. Great care was taken to ensure subject comfort and safety. Session monitors/guides were mental health professionals selected on the basis of their experience, reassuring demeanor, and training. Volunteer subjects met the primary guide, Bill Richards, several times prior to their first drug session to establish a comfortable rapport. During the eight hours of preparatory sessions, the guide discussed the range of effects of psilocybin (covering possible alternative states of consciousness including sensory-aesthetic, psychodynamic, psychotic, symbolic-archetypal, and mystical), and inquired about the volunteer's life history. During these sessions the monitors avoided mention of the measurement questionnaires and their categories.

The final preparatory session was held in the same room used for the experimental sessions in order to allow volunteers to become familiar with the room and "test drive" the couch with headphones and eyeshades. This preparatory session also covered practical matters, such as how blood pressure monitoring would occur and how to deal with possible nausea or trips to the restroom.

The study was triple-blind, in that neither researchers, nor monitors, nor volunteers knew if the volunteers were receiving psilocybin or a control. Further, neither monitors nor volunteers knew which control drug would be used. They had been given a list of possible control drugs, including an inactive placebo, low-dose psilocybin, dextromethorphan, codeine, and eight other drugs, in order to make it difficult to know whether the session was a control session even after psychoactive effects began.

The psilocybin dose was set at 30 mg per 70 kg body weight, considered by researchers a "high safe dose" able to induce a strong experience.[1] Methylphenidate (40 mg per 70 kg) was selected as the comparison substance (an "active placebo"), as its somewhat similar physical and mood-altering effects could realistically be mistaken for psilocybin by drug-naïve participants. The journal article describes the experimental sessions as follows:

> The 8-h drug sessions were conducted in an aesthetic living-room-like environment designed specifically for the study. Two monitors were present with a single participant throughout the session. For most of the time during the session, the participant was encouraged to lie down on the couch, use an eye mask to block external visual distraction, and use headphones through which a classical music program was played. [...] The participants were encouraged to focus their attention on their inner experiences throughout the session. If a participant reported significant fear or anxiety, the monitors provided reassurance verbally or physically (e.g., with a supportive touch to the hand or shoulder).[1]

Blood pressure and pulse were taken unobtrusively, and seven hours after the session began, subjects were administered five carefully-selected questionnaires. Two of these measures were based on those that Pahnke and Strassman developed for their work with psilocybin and DMT, respectively. One questionnaire, the Hood Mysticism Scale, was originally developed to evaluate mystical experiences and had not previously been used in psychoactive drug research.

Two months after the first session, a series of follow-up questionnaires were administered to gather data about long-term effects. A second session was then conducted in which subjects who had previously received the methylphenidate now received psilocybin, and vice versa.[10] An additional follow-up assessment was conducted two months later using the same set of questionnaires.

One novel element of the study design was that each subject designated three adults

Volunteer Ratings Completed 2 Months After Sessions

Description	Methylphenidate	Psilocybin
Positive attitudes about life and/or self	22.8	55.0
Negative attitudes about life and/or self	0.3	0.5
Positive mood changes	16.0	39.2
Negative mood changes	0.6	1.5
Altruistic/positive social effects	17.3	46.6
Antisocial/negative social effects	0.3	0.7
Positive behavior changes	29.2	60.0
Negative behavior changes	1.7	0.0
How personally meaningful was the experience?	3.42	6.54
How spiritually significant was the experience?	2.63	4.79
Did the experience change your sense of well-being or life satisfaction?	0.79	2.04

Data are mean ratings. Data on attitude, mood, social, and behavior changes are expressed as percentage of maximum possible score, and data for the last 3 questions are raw scores.

Ask Erowid

What is the equivalent of 30 mg pure psilocybin in dry weight of *Psilocybe cubensis* mushrooms?

Psilocybin is converted after ingestion into psilocin, the chemical active in the brain. Most *Psilocybe* mushrooms contain a mix of psilocybin, psilocin, and baeocystin. While published data about the psilocybin/psilocin content of mushroom species is somewhat sparse, estimates are that normally potency *Psilocybe cubensis* (the most common psychoactive mushroom available in the United States) contain around 0.5–1.0% total psilocybin + psilocin, by dry weight.

The Griffiths study administered oral psilocybin at 30 mg per 70 kg body weight. This is 0.43 mg/kg or 0.20 mg/lb. For someone weighing 70 kg (154 lbs), this is the approximate equivalent of 4–6 dry grams of *Psilocybe cubensis* mushrooms.

Potency in wild species can vary by up to 1000%, but in commonly available dried mushrooms this variation is likely closer to ±50%. Very strong *P. cubensis* may contain 30 mg psilocybin in 2.5 dry grams and weak mushrooms may only contain 30 mg in 8 grams. ●

1. Trout K. *Some Simple Tryptamines*. Mydriatic Productions. 2002. pg 73–74.
2. Gartz J. "Extraction and analysis of indole derivatives from fungal biomass." *Journal of Basic Microbiology*. 1994;34:17–22.

who would be in close contact with them in the months following the experiment. During the two-month follow-up, these "community observers" were administered questionnaires by telephone that were designed to track observable, lasting changes in the subjects. Community observers were used to corroborate self-reports by the participants and to keep an eye on their mental well-being.

VI. Results

Psilocybin appeared to be effective in generating mystical experiences as measured by the study instruments. Griffiths *et al*. reported that "22 of the total group of 36 volunteers had a 'complete' mystical experience after psilocybin […] while only 4 of 36 did so after methylphenidate". In the two-month follow-up, large numbers of respondents ascribed great significance to the experimental sessions: "Thirty-three percent of the volunteers rated the psilocybin experience as being the single most spiritually significant experience of his or her life, with an additional 38% rating it to be among the top five most spiritually significant experiences." This contrasts starkly with the experience of the control condition. "After methylphenidate, in contrast, 8% of volunteers rated the experience to be among the top five (but not the single most) spiritually significant experiences", and none rated it as the single-most significant experience.[1]

About 30% of subjects reported "strong" or "extreme" feelings of fear during the experiment. Two of the subjects likened their experience to "being in a war", and three indicated "they would never wish to repeat an experience like that again." Experiences of fear were most often confined to limited portions of the experimental session.

Psilocybin appeared to be effective in generating mystical experiences as measured by the study instruments.

While similar in design to the Good Friday experiment, the Hopkins study amplified Pahnke's findings in several important aspects. In the former, the double-blind was broken as soon as the effects of the psilocybin became apparent. Because it quickly became clear which subjects had received psilocybin, they may have been treated differently by other subjects and monitors, potentially influencing the results of the experiment.

In contrast, the Griffiths study was much more rigorous about preserving the integrity of the triple-blind: methylphenidate so well mimicked the experimental condition that even expert monitors mistakenly believed subjects had been given psilocybin during 23% of the control sessions. This design minimized risks that monitors would introduce bias through their own actions.

VII. Expectancy Questions

A common issue with research into spiritual experience is that expectation and preparation may hinder measurement validity. This is similar to the well-known "set and setting" aspect of psychedelic drugs, where factors such as the background of the subject and the context of the experience can strongly influence the experience and its interpretation. Simply put, subjects expecting a mystical experience may be more likely to have one.

One critic of the study, Dr. Rosamond Rhodes of Mount Sinai School of Medicine, has argued that the expectancy effects damaged the validity of the results. Dr. Rhodes contended, "After each administration of the drug, they gave people the same set of questionnaires. As you ask people these questions each time, you are also directing them to focus that way […] You are encouraging people to close their eyes, to concentrate, and you are not just doing this to regular people but to people who are religiously inclined. They are suggesting that this is what you are going to get from the drug, so they find a great deal of that sort of response, particularly to the drug psilocybin."[11]

Jesse responded to Rhodes's criticism by pointing out that the study was designed specifically to control for expectations. As Dr. Charles Schuster noted in his commentary, "These participants were well-prepared for the psilocybin experience by an experienced monitor, who expressly stated that psilocybin might produce increased personal awareness and insight. However, it is clear that the effects of psilocybin were more than expectancy effects because the active drug control condition (40 mg of methylphenidate) did not produce similar effects on ratings of significance or on measures of spirituality, positive attitude, or behavior."[12]

It is nonetheless important to note that the design of the experiment limits the degree to which its results can be generalized. Participants were selected partially for

their involvement in spiritual practices and prepared for a range of effects that included mystical experiences. Moreover, some of the outcome measures clearly targeted mystical experience. As the researchers wrote, "it seems plausible that the religious or spiritual interest of the participants may have increased the likelihood that the psilocybin experience would be interpreted as having substantial spiritual significance and personal meaning."[1] As Jesse observed, it remains to be seen how strong the spiritual effects would be in other populations, such as volunteers without a demonstrated spiritual inclination.

Despite these qualifications, the study did provide strong evidence that, within its parameters, psilocybin was effective in catalyzing highly meaningful mystical experiences.

VIII. The Story Breaks

The results of the experiment were announced on July 11, 2006. Johns Hopkins issued a press release and, in an unusual move, their website hosted the complete *Psychopharmacology* article and accompanying commentaries by four distinguished experts, including Dr. Herbert Kleber, former Deputy Director of the White House Office of National Drug Control Policy. The university also released a series of questions and answers about the study by Dr. Griffiths.

The Associated Press wire was widely circulated, but many news sources wrote their own more detailed articles, including *ABC News*, *The Wall Street Journal*, *The Economist*, *The Japan Times*, *New Scientist*, and *Forbes*, among others. The news was featured as a top story on CNN.com for more than a day, and as a link on their science page for several additional days.

Despite minor errors, most of the [media] coverage was quite accurate, balanced, and surprisingly positive.

The accuracy of media reports varied widely. Minor inaccuracies were common even in carefully-written pieces. For example, several articles failed to distinguish between informal self-reports by subjects and the results of standardized measurements. The AP report claimed that, "Twenty-two of the 36 volunteers reported having a 'complete' mystical experience, compared to four of those getting methylphenidate."[14] This implies that those subjects merely said something like, "I had a mystical experience", when in fact, they "met criteria for a 'full mystical experience' as measured by established psychological scales",[15] and may never have used the term "mystical experience" themselves.

Some news outlets emphasized the anxiety and fear aspects, giving the impression that volunteers experienced only extreme fear during the session. For example, *The Wall Street Journal* reported that "in 30% of the cases, the drug provoked harrowing experiences dominated by fear and paranoia",[16] omitting the fact that Griffiths *et al*. reported that "no volunteer rated the experience as having decreased their sense of well being or life satisfaction."[1] *The Baltimore Sun* began their article with, "The hallucinogen in the 'magic mushrooms' of the 1960s can produce terror, paranoia and schizophrenia, but it can also spark a religious and mystical experience that leaves the user feeling kinder and happier".[17]

The Japan Times article was particularly amusing, and offered this description of the study's findings: "New research shows that for some of those who revel at music festivals like the Fuji Rock Festival in Japan, the most spiritually significant thing they will have ever done was taking a psilocybin trip while soaking up the sounds."[18]

Many reporters remarked with varying degrees of seriousness that this study corroborates what the 1960s counterculture knew all along: that spiritual insight may be gained through the reflective use of psychoactive substances. But this was often reported with a wink by including humorous references to Timothy Leary, hippies, and tie-dyes. Take, for example, the *ABC News* article titled "Tripping Out": "This may come as no surprise to the flower children of the 1960s, but in one of the few controlled human studies of a known illegal hallucinogen, the active ingredient in 'sacred mushrooms' created what researchers are describing as deep mystical experiences that left many of the study participants with a long lasting sense of well-being."[11] The article's title and tone suggest that the very idea of finding spiritual insight through the use of psychedelics is silly.

Psilocybe cubensis **(photo by Ben)**

Yet many of the articles also conveyed a sense of fascination. Despite minor errors, most of the coverage was quite accurate, balanced, and surprisingly positive. Credit for this goes in part to the research team for inviting critical feedback on the study design from outside experts before the research began.

IX. The Science of Spirit

Experimental research in the psychology of religion has received increased interest in recent years.[19] The Griffiths study has broad implications for future research as it offers a robust experimental model that may promote further studies not only on the neurochemistry of hallucinogens, but on the mystical experience itself.

Indeed, the use of the term "mystical experience" is provocative and controversial. Very little is known about how psilocybin produces its effects, yet the Hopkins researchers concluded that, "When administered under supportive conditions, psilocybin occasioned experiences similar to spontaneously occurring mystical experiences."[1] Similar in terms of the effects the researchers measured, perhaps; but many mystical traditions insist that

they deal with phenomena that cannot be described. This is reminiscent of the famous opening lines of the *Tao Te Ching*, "The Way that can be spoken is not the eternal Way." Is it possible to study or measure such experiences?

"Any dialog around that question would be strongly contingent on what it is that those quantitative measures purport to measure", Jesse answers. "Mystics tell us that the core experience can't be pinned down in words. But can't we report what we find nearby? It's like the sun–if you try to stare at the sun itself you probably won't glean much to say except, 'bright!'. But you can make more detailed observations about the halo around the sun, and turning around, you can see its effects on the world around you." In a similar sense, he argues, we can measure the effects of a religious experience without having to fully characterize the experience itself. "Notice," he says, "that we did not even try."

According to subjects' scores on the Hood Mysticism Scale—a questionnaire originally developed for the study of non-drug-related religious experiences—the experiences of study participants were indistinguishable from more conventional forms of mystical experiences. However, measurement may not be the final word on mystical experience. How do we distinguish between a "powerful" experience and a "mystical" experience? Sigmund Freud argued in *The Future of an Illusion* and *Civilization and its Discontents* that what people describe as a mystical experience is in fact a recollection of an infantile state

Perhaps questions raised by altered states of consciousness have greater social relevance than most would expect.

of unity with the mother. Freud argues that when people report a mystical experience, they are in fact experiencing a neurotic episode.

I put the question to Jesse directly: Do you think that the subjects of this study experienced an actual primary religious experience? "Wisdom has it," he replied, "that it's the consequences of a reported religious experience that gives the best evidence of its authenticity. 'By their fruits shall ye know them.' This research gave us data, some from self-reports and some from community observers, suggesting that some volunteers became kinder after their psilocybin experience. Would psilocybin always occasion primary religious experience? Of course not. Can it sometimes? This study gives us good reason to say 'yes', and good reason to look further into what factors account for varying consequences."

X. Implications

However we interpret the findings, the response to this research may be a useful barometer to measure modern society's relationship to psychedelics. It is striking that the story received such widespread coverage not just among specialists, but within society at large. Perhaps questions raised by altered states of consciousness have greater social relevance than most would expect.

This research has provided a solid mooring for discussion in the face of entrenched skepticism toward the notion that psychedelics may be profound tools of self-discovery. The conversation around psychoactives is easily distorted on both sides. Over-zealous advocates may minimize risks, while over-zealous critics may exaggerate them. The study is significant for contributing concrete data to the conversation, although it may ultimately prove impossible for opposing sides to agree on one interpretation.

In a similar vein, Jesse noted: "The study may help people to better understand different psychoactives by their differing properties and differing risks, breaking down overly-broad categories. I also hope it calls more attention to primary religious experience, whether occasioned by psychoactives or through other means."

While the long-term consequences of this study have yet to be seen, one can speculate that where well-respected researchers lead, others will more easily follow. The rigorous language of science can encourage people to listen to and consider issues they might otherwise dismiss. Now that recent investigations have begun to legitimize the study of sacramental psychedelic use, the door stands open to further research in the same vein. Indeed, it is already underway. ●

Erowid.org/extracts/n11/psilocybin.shtml

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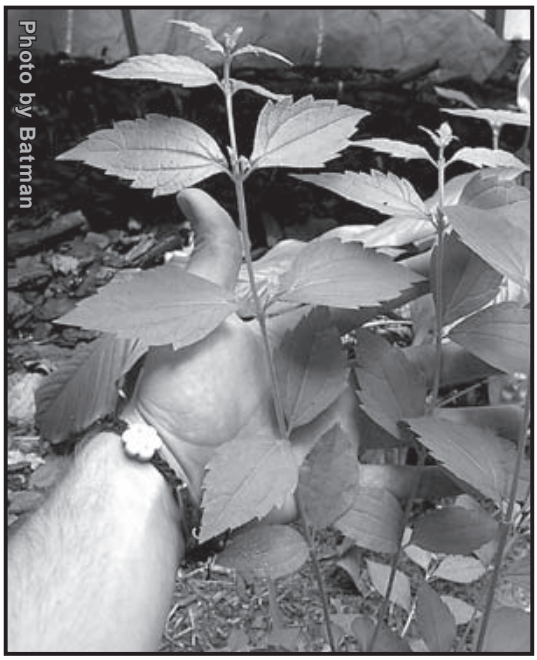
Linearization of the Dream State

An Experience with *Calea zacatechichi*

This is a report of my three-day experimentation with Calea zacatechichi*, which I found quite rewarding. I came across this plant browsing online, which got me interested in its reported effects. I usually recall my dreams quite well but they are most often very strange, which stops me from really going into much detail; so the fact that* Calea zacatechichi *reportedly helps produce vivid realistic dreams caught my attention. I ordered 28 grams of calea, which I thought would be a reasonable quantity to begin with, and it was.*



Calea zacatechichi, also known as "Aztec dream herb" and "bitter herb", is a medium-sized lanky shrub native to the highlands of central Mexico.

It is known for potentiating dreams when taken before sleep. Its leaves and stems are either brewed into a tea (despite its extremely bitter taste), or the dried leaves can be smoked.

Day I:

Around 12:00 am I made a cup of *Calea zacatechichi* tea, simmering 3.4 grams of material for about 15 minutes. The tea was a dark copper-tainted brown and smelled really good. Having been warned of the bitterness by several reports, I added heaps of sugar and a few spoonfuls of honey to the tea. This did not drown out the bitterness to the extent I had hoped for, and the tea was the worst tasting drink I had ever tasted, but I considered this the price I had to pay for this new experience and drank the tea while watching a movie.

By the end of the cup I felt a light buzz, but it was mostly just a sort of semi-conscious relaxation.

When the movie was finished (T+1h 45m) I went out onto the balcony to smoke a joint, which I had previously rolled, containing 0.5 grams calea. This confirmed the sensation I had been feeling up to now and I felt quite light-headed and very relaxed. It also gave me a strong urge to sleep so I complied.

Lying down in my bed in an utterly dark and silent room was very interesting. Faint little dots of light danced around my eyes, arranging themselves into swirling patterns. As I relaxed it felt as if I was an integral part of my bed, which was really pleasant. I definitely dreamed that night but I do not remember much of it. The images were still quite hazy.

Upon awakening the next day I felt very relaxed, as if I'd had a great night's sleep, which wasn't especially the case. I attributed the poorness of my dream experience to the fact that I may not have used enough *Calea zacatechichi* or that I hadn't been using it long enough, so I decided to repeat the experiment the following evening.

Day II:

Towards 12:00 am I made a cup of calea tea, by the same method, using close to 4 grams this time. Again I drank it while watching a movie and I felt a slightly stronger buzz this time. I also added a little milk to the tea and it seemed quite a bit less bitter that the previous night, but then again maybe it was because I knew exactly what to expect this time.

By the end of the movie (T+2h) I went out on the balcony and had a calea joint (0.7 grams) which got me lightly stoned in a calea kind of way. The effects are very hard to describe and I believe they are greatly due to the setting (nighttime, calm and being alone) but the experience is quite pleasant if I get into it. Personally I do not find that the smoke tastes too bad, it's definitely way better than the tea.

Again I lay down in bed and, when I closed my eyes, I sensed swirling patterns of the dotted dim lights all around me. If I concentrated on them it was as if they were being fed into a sort of vortex that led to my mouth.

by Agkdov

That night I had a very vivid and slightly disturbing dream. Contrary to my usual dreams, it was remarkably linear. Its contents were slightly less weird than my average dream but the detail was amazing. At one point in my dream I was skiing; I can clearly remember the mountain landscape in every detail. During a jump, I could feel the wind rushing by and the adrenaline surge throughout my body. It was quite a fantastic experience, the way every one of my senses, as well as my mind, felt similar to the waking state. This also applied to uncomfortable situations in the dream though, which made it slightly more disturbing than my average dream. I awoke feeling refreshed, but my mind was in a sort of a daze, taking a while to come to grips with the content. This time I was more than satisfied with the effect and I greatly looked forward to the coming night's "dream tripping".

Day III:

I was now quite aware of the potential of this plant and so I wondered what it would be like to increase the dose significantly. So I prepared a tea like the night before, around 11:00 pm, and drank it while listening to music in my dimly lit room. This was really pleasant as I could enjoy the music much more with a sort of great mental clarity. I then rolled two calea joints (0.5 grams each) for later on and proceded to make a second cup of tea (T+1h), this time with only 3 grams of material.

Once more I drank this while watching a movie. I then headed out to the balcony and smoked both joints (T+2h50m), with a few minutes break in between. By the end of the second joint I was more than relaxed, quite drowsy and light-headed, and my coordination and stability were slightly affected (although nowhere close to what weed can do to me, which is why I do not believe this to be a serious alternative to weed). Again, there were patterns as I lay down to sleep and in a semi-sleeping state I could picture myself being a plant. It felt interesting even though it was a vague sensation.

I don't know why, but the result was another linear dream. This time I had great difficulty recalling much of it. It could be that raising the dosage was the cause for this, but there are so many other factors that play a role in dreams that this is not a conclusive experiment in my eyes. I will pursue more experimentation with *Calea zacatechichi* in the future.

Overall, this plant's effects seem interesting and unique. The only downside is the taste of the tea, which took a good bit of determination to get past. But there were no notable side effects or hangover. I would classify it as relaxing, mildly halucinogenic, and with a noticeable effect on dreaming. ●

Erowid.org/exp/exp.php?ID=55558

How Do You Know That?

by an anonymous visitor

I'm a native of Germany, where I am a university student. My interest in drugs is born of academic curiosity, triggered by a documentary about Dr. Timothy Leary.

I used to reside in a small village where several students lived in a small student dormitory. We were ten students and two families living in small apartments, housed in a converted barn. One of our neighbors was a police officer who had just finished at the police academy and was now walking a beat. She comes from a town near my own hometown, and is one year younger than me. We occasionally discussed our common interests in current events and mountain biking and every now and then she'd tell me about something that had happened at work.

One day she told me that they (two police cars with a total of four cops) had been called out to an apartment where a guy had gone totally berserk and trashed everything; not a single stick of furniture was left intact. The alarm call had come from a neighbor who thought that maybe some teenagers or a burglar had broken in. When the cops entered the thoroughly trashed house, they found a completely naked man standing in the middle of the bedroom, with blood on his hands and upper body. The police went into the room with their guns drawn and my friend asked him, "Sir, are you okay?" He replied, "I'm scared and I think I need an ambulance", and then slumped down on a pile of rubble. Still conscious and non-threatening, he started to tell them what he had taken. My friend summarized it as, "A whole pharmacy of shit I have never even heard of". To this I replied, "Like what? Coke and magic mushrooms?", whereupon my friend said, "That, and a shitload of different antidepressants and something called 2C-I. None of my partners knew what that was, and the hospital didn't quite know either."

"2C-I is a phenethylamine classified as a research chemical, kind of hard to get ahold of", I blurted out without thinking. At the time I was trying to study Portuguese as a break from my anthropology studies, so there is no way in hell that I had a really good reason to know about something the German police in the most drug experimenting and drug liberal town in Germany hadn't heard of.

In an instant, her eyes went from sheer amazement to a hard cop stare of Clint Eastwood proportions. "How - do - you - know - that?" she asked slowly. I thought and came up with a quick white lie: "I did an essay on drugs for an anthropology class, did my research on the Internet. There is a really good academic site called Erowid.org that has all kinds of information about nearly every drug imaginable."

"Oh, I see, care to show me?"

I did show her. And now, whenever my friend needs a neutral academic source on drug-related questions, she always uses Erowid. And that's the story of how at least one German cop uses Erowid for reference material. ●

How You Can Help Erowid

by the Erowid Crew

Erowid enjoys its reputation as a trusted source of information in large part because of its contributors. But contribution can mean many things and there are numerous ways to help Erowid succeed. Through direct and indirect financial donations, spreading the word, and adding to the site's content, there are many ways to support your favorite digital psychoactive library.

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Erowid.org/general/erowid_graphics/erowid_flyers.shtml

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Think Erowid banner ads are a good idea? Have up-to-date web skills and a good sense of design? Check out our Graphics & Banners page and consider designing a new one. We need banners targeting psychoactive users, psychedelic websites, and various professionals including doctors, lawyers, educators, and librarians. Our current selection is a bit stale, and their dimensions may not be consistent with today's trends in banner design. Ecstasydata.org is also in need of banners.

Erowid.org/general/erowid_graphics/

Talk, Talk, and More Talk

Tell people about the site. Describe it as a digital library for information about psychoactive plants and chemicals; emphasize why this is a more fitting, modern description than the word "drugs". Also express that Erowid strives to be a true library, not a promoter of any specific ideology. Explain that, as sensible as it may seem, Erowid is a little too controversial for most grants, particularly the government funding for which traditional libraries are typically eligible. Erowid is made possible largely by visitor donations, much like a public radio or television station. Further inform yourself about the philosophy behind Erowid by reading the About Erowid pages and related links to articles about the site.

Erowid.org/general/about/

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Photo Geekery

The Art of Photographing Psychoactives

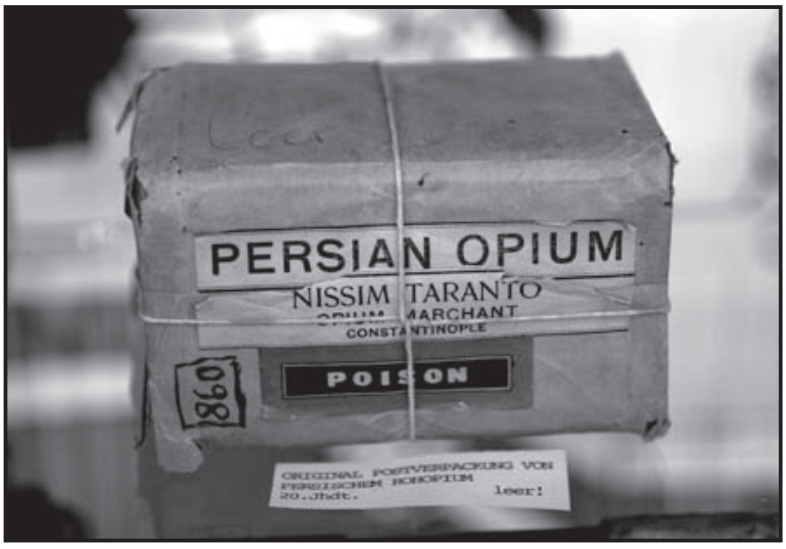
by Fire Erowid

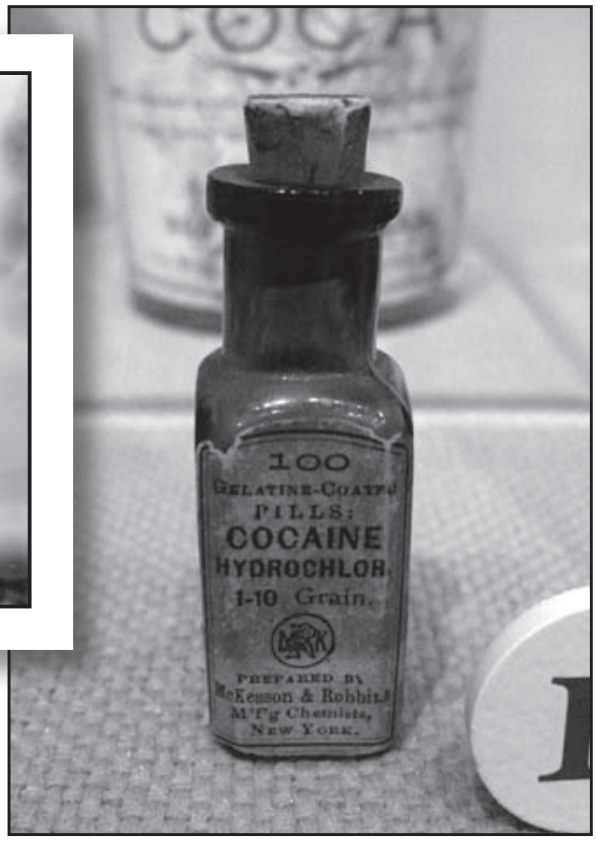
In September 2002, at the Mind States Jamaica conference, we first introduced the concept of "drug geeks"—those individuals who pride themselves on their specialized knowledge of psychoactives. One of the many sub-types of the drug geek is the "photo geek", a person who practices the art of photographing psychoactives. Following is a collection of photos taken by the photo geeks at Erowid.

In 1996, when Earth and I first became interested in mycology, we would take long hikes during the mushroom season to see what fungus were growing in our area. Walking along with David Arora's *Mushrooms Demystified* in tow, we would carefully watch the forest floor, stopping often to leaf through the pages of the guide to try to put a name to the strange-looking fungus we encountered. I began to call mushroom hunting "hiking with a purpose" since it added a new dimension to my experience of walking through the forest. Granted, hiking probably didn't need an additional purpose—the hills of California are a beautiful place. But for me, learning to identify mushrooms added a new educational dimension to these walks.

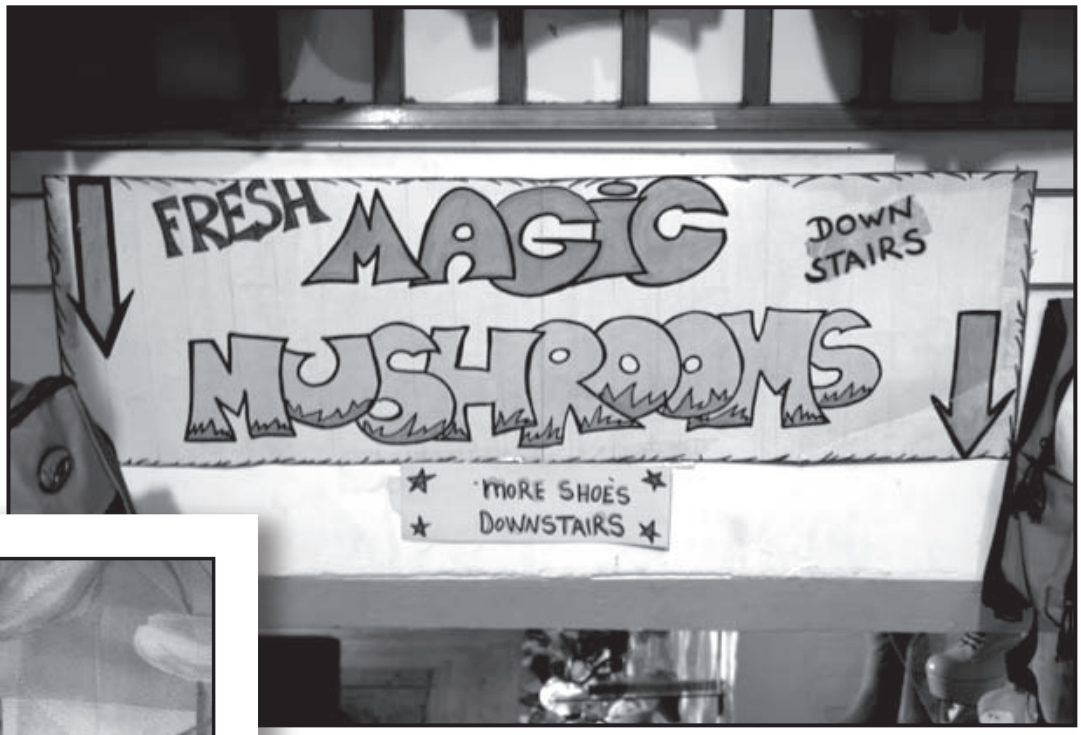
A few years later, as I became more interested in photography, taking photos added a similar new purpose to many situations I found myself in, particularly those related to psychoactive plants and chemicals.

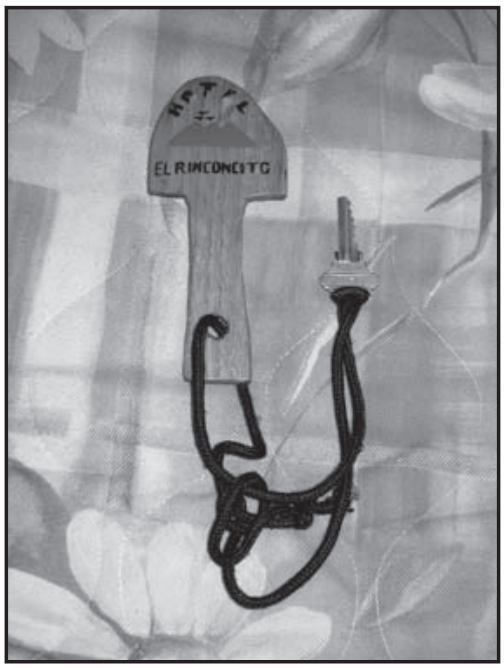
These materials are ever present in our world. It's difficult to find a place where there isn't some type of psychoactive nearby, whether it's wild mushrooms, a bottle of anti-depressants, an herb garden, or a baggie of cannabis. Since much of our work revolves around these substances, photographing them is natural to me, but can definitely attract attention. The act of taking out a camera to photograph psychoactive-related objects can spark interesting discussions with new acquaintances about how common psychoactives are, it can put people at ease about those conversations, and it can even send people scurrying to find things to be photographed.





Museums, with their wealth of historical objects, can be a great place to take photos of items like these early 20th century packages of opium (above) and bottle of cocaine pills (right).





Psychoactive photo opportunities abound when traveling. We now plan our travel destinations and itineraries in large part around such opportunities. Seeking out interesting and unique photos can provide an organizing principle or purpose for how to decide where to go and what to do. Relevant historical sites, botanical gardens, and museums are abundant in many cities and countries.

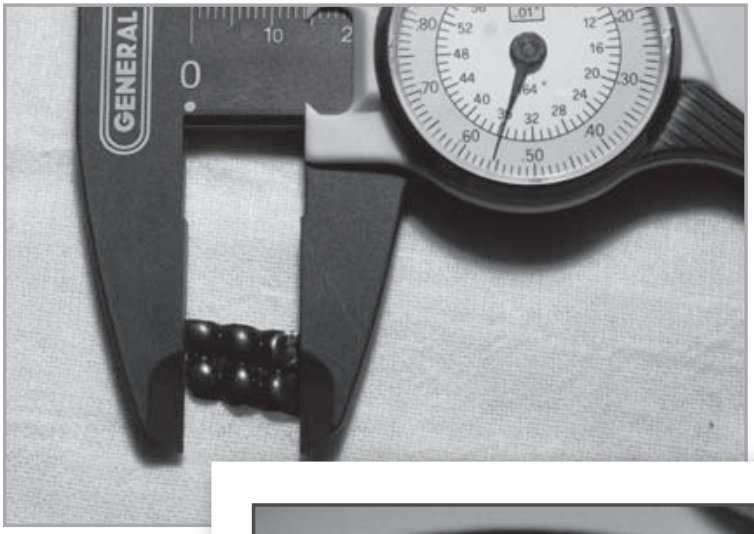
These mushroom-related photos were taken in three different parts of the world; London, England (top); Huautla de Jiménez, Mexico (middle); and Negril, Jamaica (right).

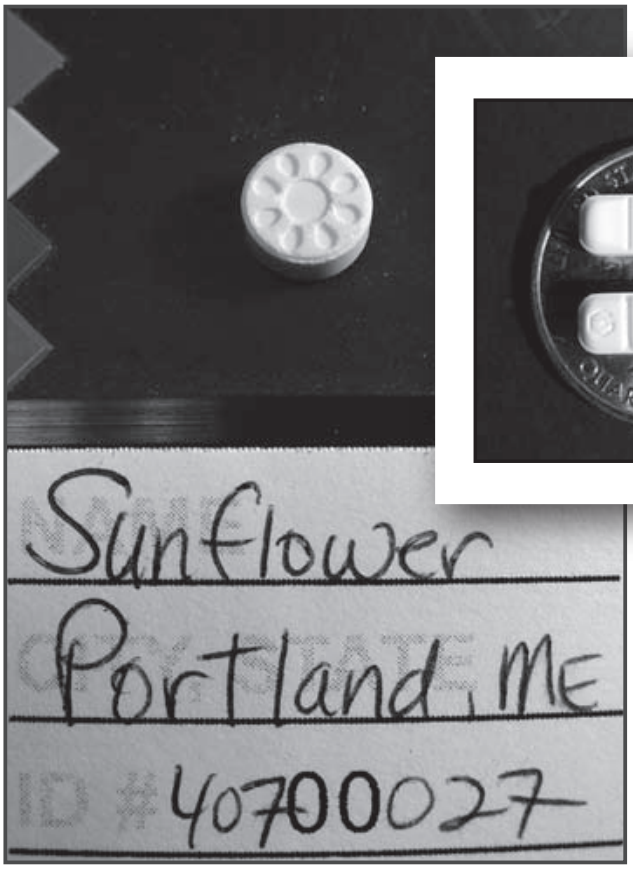
Taking photos provides a reason to focus on the details of an object, and the photos themselves can solidify memories that may otherwise be fleeting. This Trichocereus pachanoi *flower took four months to develop (June–October) and the flower lasted only six days once it opened. It was the first time the ten-year-old cactus had ever bloomed.*

It doesn't take a rare flower to make a good photo. It's easy to forget that there is also beauty and interest in more ordinary objects. Even in everyday situations, psychoactives are often nearby: two pints of beer in a British pub (above), the dying flower of a common morning glory vine (right), a dried bud of cannabis (below), or whole and grated nutmeg (bottom right).

Photos can also provide functionality for both academics and professionals. Erowid receives many requests to use images of psychoactives: from teachers and professors for use in class, authors for use in books, the media for use in news stories, and professionals for use in presentations at conferences or industry meetings. We find that for those people who may be hesitant to trust new sources of information about psychoactives, quality images can provide an accessible entry point. They can convey a neutral tone about psychoactives less burdened with suspicion or doubt than other forms of data.

But the best psychoactive images are a mix of information and aesthetics. And the process of documenting artifacts through images is one part photography, one part documentation, and one part meditation. Psychoactive photo geekery requires engaging with the world while also settling in to the slow experience of really seeing the details that make up the informative, mysterious, and beautiful world of psychoactive plants and chemicals.





Not only can photos provide visual interest for lectures and books, but they can present useful and specific data. Images can communicate size, color, shape, and other identifying features of an object more quickly and clearly than written descriptions. Examples include information about available street Ecstasy tablets (far left), the identifying markings of pharmaceutical alprazolam tablets (near left), the size of a one gram pile of mescaline (above), or the measurements of geltab LSD (top).

Web-based Psychoactive Surveys Get a Boost

by Lux

Addictive Behaviors published a study conducted by researchers at the University of Michigan Substance Abuse Center which concluded that web-based surveys are as effective in gathering some kinds of data about substance abuse as mail-based surveys.[1] The authors issued a survey on the "secondary consequences" of substance use to 7,000 undergraduate students, who were randomly-assigned to equal-sized groups (n = 3500). Each group was asked to respond either by mail or by a web-based survey. Statistical analysis of the results revealed "minimal differences between Web and mail survey modes in the reporting of secondary consequences associated with substance use."

In a previous study carried out by several of the same authors, the researchers found that a web-based survey can be an effective tool in gathering data "in an economically and racially diverse urban sample of secondary students".[2] This study found statistically-similar response patterns for over 1,500 secondary school students in responding to substance abuse surveys.

These findings support our belief at Erowid that meaningful data on psychoactive substance use may be gathered through web-based surveys, such as the series of eight LSD surveys Erowid conducted between October 2005 and January 2006. While some self-selection bias is inevitable in any survey, data collected through web-based surveys appears to be as valid as that from traditional paper-based surveys. ●

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Ketamine and Depression

by The Erowid Crew

The findings of a small study examining the antidepressant effect of intravenous ketamine in 18 subjects with treatment-resistant depression surprised the mental health treatment community in early August 2006.

The significance of the study, published in the *Archives of General Psychiatry*, centers on evidence of the unprecedented speed of symptom relief. Alleviation of major depression is typically measured in terms of weeks. In this study, relief of symptoms was experienced within hours.

Subjects were given one injection of ketamine HCl at 0.5 mg per kg of body weight (e.g. 35 mg for a 70 kg/154 lb person) and one injection of inactive placebo on two test days, one week apart. In the ketamine group, symptoms were significantly improved in half the subjects within two hours. By the next day, antidepressant effects were noted by 71 percent of subjects. Nearly one third of the subjects were still experiencing a significant reduction of symptoms seven days later.

Compared to either anesthetic or recreational use of ketamine, the doses used in this study were quite modest. At these low doses, researchers reported that some subjects experienced short-lived "adverse effects" including "perceptual disturbances, confusion, elevation in blood pressure, euphoria, dizziness, and increased libido". These effects are categorized among the "emergent phenomena" that make ketamine problematic as an anesthetic.

It is amusing to note that "euphoria" (a state of happiness or well-being) is considered an "adverse effect" in the treatment of depression. Euphoria is basically the antithesis of the depression being treated. Many Schedule I substances can be considered acute antidepressants in that they cause a mood lift, exactly the effect that is being sought by those who seek them out. Adverse effects that were more common after the inactive placebo than after ketamine included "gastrointestinal distress, increased thirst, headache, metallic taste, and constipation".

The goal of the research was "to determine whether a rapid antidepressant effect" could be achieved with ketamine. Common antidepressants such as bupropion, SSRIs, and venlafaxine may take up to eight weeks to manifest such effects. The director of the National Institute of Mental Health remarked that it would be "terrific" if the quick antidepressant effect of ketamine were borne out in future studies.

The results of the study were covered in articles by major media outlets such as *The Washington Post* and *The Boston Globe*. They were also published, along with a cited excerpt from a ketamine report from the Erowid Experience Vaults, in an article titled "Comfortably Numb" in the October 2006 issue of the scientific journal *Nature*. ●

References

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Breathtaking

With Some Physical Discomfort

I am a 21-year-old female who is very athletic and in excellent health. My previous experience with psychedelics includes psilocybin, LSD, ketamine, MDA, DMT, and 5-MeO-DMT, all of which I am moderately to highly experienced with. Other psychedelics that I have experienced once to a few times are AMT, DPT, 5-MeO-DiPT, and mescaline. Over the past couple of years I have been for the most part avoiding tryptamines as I have grown tired of the body load and long tail-end effects. For the past five years I have been fascinated by the psychedelic phenethylamines, but have been cautious about experimenting with them until more information became available. During this period, I have had the opportunity to try 2C-B on several occasions, but always passed it up as the time did not feel "right" for me. The following account is of my first experience with this compound, which occurred a few days ago.

The 2C-B has been carefully weighed on a scale accurate to 1 mg. My fiancé Karl and I are each planning on taking one capsule with 15 mg of 2C-B. This will be my first experience with this compound and Karl's third.

The setting for the evening is a rented cabin on a body of water far from densely populated areas and far from our home. The scenery is gorgeous, unfortunately the cabin is a little run down, but we both feel very at peace here. Neither of us has eaten for approximately six hours and even though we do not feel hungry our stomachs are for the most part empty. Karl is on no medications and I am on only a low-estrogen birth control pill.

[T+0:00] Feeling a little bit anxious, I wash down my capsule with some water. After swallowing the capsule my anxiety dissipates. There is no turning back now.

[T+0:30] Karl and I are sitting in the cabin listening to some music and I am beginning to feel slightly mentally "weird", but it is so slight it could be a placebo-like effect.

Physically I feel very warm and relaxed with a slight buzzing in my body. Mentally I feel very clear-headed and happy with a small amount of euphoria.

[T+1:00] Karl and I have re-located to a spot outside where we have a nice view of the water. At this point I can tell that there is definitely a phenethylamine in me. Physically I feel very warm and relaxed with a slight buzzing in my body. Mentally I feel very clear-headed and happy with a small amount of euphoria. The sun is beginning to get low in the sky turning clouds shades of pink, red, and orange.

[T+1:30] I am still feeling mentally and physically excellent, but I have become quite restless. I feel mentally sober except for the fact that details are standing out at me. I look down and analyze every single thread of my sweater. I am hearing undertones that I have never noticed in songs that I listen to often.

[T+2:00] My restlessness has only increased, so Karl and I walk out to the pier and gaze down into the water. So far this has been pleasant but I begin to think if things don't pick up soon that I am going to be disappointed. It starts getting windy and cold so we start walking back to our cabin. Mentally or visually there is still no indication that I have ingested anything (except for acute awareness to details), but as we are walking back I look at the cabin and see the roof raise up and fold into squares like a sheet of paper. Unbelievable! With LSD and psilocybin I get visual distortions and patterning on things before I have any large-scale hallucinations. But with 2C-B, I got hardly any visual distortions or patterns to accompany large-scale hallucinations! Throughout the night I went from having hallucinations to feeling sober and vice versa many many times.

[T+2:30] Back in the cabin we put on some slow-tempo electronic music, which sounds amazing. I am surprised, as music usually annoys me on most psychedelics. I also find my favorite seat for the night: on the bed in front of the window looking out at the water and the mountains. What is strange is that when we have the lights on nothing is out of place and I feel sober. But when we turn the lights off I start to have incredible visuals. There are some lights across the water that start flashing and turning different colors. Karl tells me that they are actually white lights and that they are not flashing

(and I trust him, because *his* experience leveled out with the body buzz and the acute awareness to details. He had no visuals of any kind). I see the skyline start wavering and watch the mountains rise up higher and higher until the sky is almost not visible. The mountains then drop down to their original height, allowing me to view the clear night sky. The stars begin to spin and streak across the sky and begin to connect to each other with red lines to form a web of stars. These types of visuals progressed for the next 2.5 hours and did not get any more intense than what I have just described.

I also have access to memories and emotions in my past that I am not comfortable with and I can easily push them out of my mind. This experience is controllable, which is good, because at several times I am hit with certain thoughts or ideas that could have escalated into something terrible, but I could simply choose not to continue with them. Time has slowed down immensely. I can't believe it has only been a few hours as it feels like the whole night has gone by.

[T+4:00] I am beginning to ignore my visuals as I get the urge to talk and think about people and matters in my life. I begin to dissect and analyze things, which end up confusing me. I then start taking components in my life and begin to put them together into one big whole. They start to make a lot more sense to me. The universe feels very small (or maybe it is me that feels so large?) and I feel like I can access anything. One thing about this experience that is beginning to get on my nerves is the lack of description and words I can find for the thoughts I am having. I am making so many connections, but I can't put them into words, a problem I have never encountered with other psychedelics. Maybe the clear-headedness is causing this difficulty? Or maybe psilocybin, LSD, and DMT are superior at helping one verbalize thoughts and connections?

[T+5:00] The prominent visuals have ceased and I begin to realize how distorted the things around me now look. Karl seems disproportionate: one side of his face looks bigger, as does one of his arms. I look in a mirror and my pupils are doing the strangest thing. They constrict and then pulse and get a little bigger and then pulse and get a little bigger until they are dilated and then they constrict and the process starts over. I am now also very aware of how physically uncomfortable I am. My skin feels sticky and clammy. I am getting a headache and some slight nausea. I try to drink some 7-Up and eat some crackers, but I can barely taste or smell anything. I bump my elbow and feel nothing. I can't believe how numb my body and senses have suddenly become! The cartilage in my neck keeps cracking when I move my head, but the way it resonates makes it feel like the cracking is happening inside my head, which is a little disturbing. I also did not produce any phlegm or mucus, but I did have a small problem with my sinuses continually popping and creating a rushing air feeling and sound in my ears. These physical side effects were completely absent until now, and I find I can block them out by talking to Karl and being silly. I get the giggles pretty badly and say some pretty nonsensical things for a half hour or so.

This experience is controllable, which is good, because at several times I am hit with certain thoughts or ideas that could have escalated into something terrible,...

[T+6:00] I am feeling tired and lie down in the bed next to Karl. Holy shit it is the most uncomfortable thing I have ever been on. I have slept on floors that were ten times more comfortable than this bed. It also doesn't help that the sheets are coarse and scratchy and the pillows are hard and lumpy. I still see some patterning, and things still look pretty distorted.

This is when my worst physical side effect began and it was impossible to ignore. I started to get some muscle spasms and tremors, which were annoying as hell and which also contributed to me having some anxiety. When I closed my eyes and tried to ignore them I found I could not keep my legs still. Looking back on this, I am not sure if the cause was physiological or psychological. It is possible that I may have been deficient in magnesium and potassium. But it is also possible that as I became more and more bored and uncomfortable with my surroundings, impatient to get to sleep, and frustrated with the uncomfortable bed, this triggered some moderate anxiety, which caused me to spazz out for a couple hours.

[T+7:00] I am still being bothered with some physical discomfort but I am mostly ignoring it now except for some muscle spasms. At this point, my open-eye visuals consist only of rainbow splotches surrounding things (like water droplets with oil in them). I lie down and close my eyes and decide to try to ride the rest of this out so I can fall asleep. This is my first opportunity to explore the CEVs. They are unlike any I have experienced with any other substance. They are three-dimensional patterns that are grey, black, dull yellow, dull red, dull blue, and dull green (almost like Lego colors and patterns). Some random images also pop into my mind of people I know morphed with insects and other strange creatures.

[T+8:00] I am back to baseline but I am anxious and have some aftereffects that keep me awake for a few hours.

[T+10:00] I finally fall asleep!

I was only able to get 4–5 hours of sleep after the experience, as we had to be out of the cabin by a certain time the next morning. The day after, I was mentally and physically exhausted, but I also had a very strong positive afterglow, which tapered off over several days after the experience.

Afterthoughts

Some day I would like to try 18 mg and then maybe after that work my way up to 20 mg. Next time I will also make sure that I have been getting plenty of potassium and magnesium so I can hopefully avoid having muscle spasms. Because of the restlessness 2C-B caused in me, I would say that it is not necessarily a substance to be taken in nature or solitude. I really found myself longing to be at home around friends and pets and in an environment I am more familiar with. I also believe it could be a fun thing to experience at a club or concert (at a low to medium dose).

2C-B is one of the most unique substances I have ever taken and it definitely had a personality of its own. Even though I didn't really have any deep insights, it was still enjoyable (except for the discomfort at the end). At a medium dose it could be a good introductory psychedelic. However, I would also caution those who really rely on their mind clearing up as a sign of coming down from a substance; because with 2C-B, one's mind can be relatively clear the entire time, which can lead to anxiety near the end from wondering when one is going to finally come down from the trip. ●

Erowid.org/exp/exp.php?ID=55635

Erowid Presents

at the North American Congress of Clinical Toxicology

by Sylvia Thyssen and Earth Erowid

Erowid was invited to present at this year's North American Congress of Clinical Toxicology (NACCT) meeting, held October 4–9 in San Francisco. Organized by the American Academy of Clinical Toxicology and co-sponsored by the American Association of Poison Control Centers, the event brought together physicians, nurses, pharmacists, and scientists from around the world to share knowledge on a variety of issues relevant to clinical toxicology.

What Is Clinical Toxicology?

Toxicology is concerned with the poisonous effects of chemicals and metals on organisms. In 2000, we attended a conference of the California Association of Toxicologists—a gathering heavily oriented towards law enforcement efforts such as drug testing and the investigation of drug-related deaths. Presenters included a DEA field agent and a California narcotics officer; a strident anti-drug message pervaded the entire conference. It wasn't until the recent NACCT conference that we realized there are important practical differences between forensic toxicologists—whose primary work includes drug testing for employment, law enforcement, and investigatory purposes—and clinical or medical toxicologists—the doctors, nurses, and pharmacists who work with health-related toxicology issues.

> "Although a few years ago, I might have definitively stated that Erowid leads solely to increased drug abuse, I do not now believe that to be the case. If it did, we should have seen a sinicuichi outbreak, or something similar. I think that most of the entheogens are not appealing to many, and those who wish to explore consciousness are a small proportion of the population. Ultimately, the public health threat simply isn't there, but the educational function is."
>
> — Edward Boyer, MD, PhD

When dealing with psychoactive drugs, the relationship between forensic toxicologists and human subjects is often adversarial, while the relationship between clinical toxicologists and their subjects is one of caregiver to patient. Clinical toxicologists work to solve medical problems, regardless of whether the toxicological incident involves criminal activity, and their first priority is the health of their patients.

Who Attended the Conference?

Most conference attendees were physicians or pharmacists who had specialized in toxicology and were trained in the diagnosis and treatment of toxicological health issues, including those related to psychoactive drugs. Medical schools cover clinical toxicology briefly, but doctors interested in the field typically do a two-year toxicology fellowship following residency (see "Medical Toxicologists" sidebar). The number of toxicology fellows in the United States is very small, with one physician at the conference half-joking that nearly all of the "tox fellows" in the country were standing within a hundred yards.

How Was Erowid Involved?

Fire, Earth, and Sylvia presented at a pre-meeting symposium titled "Substance Abuse and Addiction: Getting High, Getting Hooked and Getting Help". A crowd of 325 toxicologists gathered for lectures on topics ranging from opiate addiction treatment and prevention, to the roles played and methods used by toxicology labs related to drugs of abuse, immunotherapies for addiction treatment, and high-dose cannabis use in the Netherlands. Erowid presented a talk titled "The Evolution of Erowid: Straddling a Very Tall Fence".

What "Tall Fence"?

Conference organizers asked us to present a brief history of Erowid and give an overview of our work. We chose to focus on the theme of the perceived split between "sides" of drug politics and how we envision our work as an attempt to build bridges between different communities. We had been warned that we might face criticism at this conference for "promoting illegal drug use", so part of our goal was to address and debunk that misconception.

During our presentation, we covered some of the criticisms that have been leveled against us in medical journals, the lack of evidence that our work increases illicit drug use, and the small amount of evidence that suggests it may increase the care with which people use psychoactives.

No Fence at the NACCT 2006

At one point during our presentation we wondered aloud how much time we needed to spend introducing the content of Erowid and asked for a show of hands from those who use the site. We were surprised when more than 90% of the people in the room raised their hands, everyone looked around, and a small laugh rippled through the audience. We were pleased to learn how valuable Erowid is to clinical toxicologists.

During the question and answer period following our talk, a series of people stepped up to the microphones, gave their names and credentials, and complimented us on our work. The expected confrontation did not occur and, in fact, we were blown away by the positive response we received. Both Dr. Edward Boyer and Dr. Paul Wax, who had authored papers critical of Erowid in peer reviewed journals, stepped up to publicly state that they had changed their opinions about Erowid.

Noteworthy Conversations

The day was full of interesting conversations and stories. One woman approached to say she had previously felt uncomfortable about supporting Erowid, but after seeing how many others used the website, and hearing all the positive comments from her peers, she wanted to become a member. Another physician told us that the hospital she worked at had recently

Paracelsus (1493–1541) is considered the father or founder of modern toxicology. He is credited with the widely-repeated quotation "All things are poison and nothing is without poison; only the dose makes something not a poison." (Often summarized as "The dose makes the poison.")

begun filtering web access on their network and Erowid was on the list of sites blocked by the software. When she asked to have it unblocked, she was told Erowid is "a drug site" and that she would have to get written permission from the hospital's Institutional Review Board to bypass the filter. We were saddened, but not surprised, that the hospital had a policy of blocking sites like Erowid regardless of the fact that their own toxicology specialists use these sites in their professional work.

Several people who work at poison control centers around the United States commented on how helpful Erowid has been for them. One of the roles a clinical toxicologist may have at a poison control center is to field calls, emails, and instant messages from other physicians who have questions about toxicology issues, such as drug interactions or overdoses. These toxicologists use all of the tools they have available to them, including proprietary digital databases and the internet. While it is natural that information about psychoactive substances on Erowid could be useful for toxicologists, this is the first we've specifically heard of experts on call using Erowid to answer questions for emergency rooms and poison control centers.

Thanks to all of the volunteers and members who help make Erowid possible. Your efforts and support have helped provide doctors with information they use to improve people's health and lives. ●

Medical Toxicologists

by an Anonymous Tox Fellow

A medical toxicologist is a physician trained in the diagnosis, treatment, and prevention of "poisonings". Medical toxicology encompasses both intentional and unintentional overdoses; recreational mishaps; adverse medication interactions; environmental exposures, such as marine envenomations, snake bites, and plant poisonings; industrial workplace and household chemical exposures; and potential bioterrorist agents. A medical toxicologist may serve as a medical director for a poison control center; consult for other physicians in hospitals or clinics; see patients in his/her own clinic; or serve as a resource for academic medical centers, companies, or other organizations.

To become a medical toxicologist, one must first complete medical school (MD or DO) and residency, then be accepted to and complete a two-year fellowship, and finally pass an intense certification exam. Typically, toxicology fellows specialize first in emergency medicine, pediatrics, or preventive medicine. There are approximately thirty medical toxicology training programs in the United States, each with only one to three positions per two-year program. Fellowships are affiliated with a poison control center and typically an academic medical center. All of these programs cover a mixture of patient care, academics, research, and administrative duties, yet they are unique in what topics and skills they emphasize.

Each day spent as a toxicology fellow is unique. When I'm on call, physicians contact me any time (day or night) to ask questions or to get recommendations about how to care for patients with toxicologic problems. Since I am a fellow in training, other medical toxicologists are available for me to consult with. Some days I see patients who have asked to be evaluated for possible toxin exposure.

A couple of days each week, our division of toxicology meets to discuss interesting cases from the past week, including pathophysiology, biochemistry, toxicokinetics, controversies in treatment, and relevant academic journal articles. I also prepare lectures and academic papers and work as an emergency physician in the emergency department at my hospital.

I chose to become a medical toxicologist because I appreciate the complexity of the interactions of drugs, medications, and chemicals, in combination and alone, with receptors, neurotransmitters, and organ systems of the human body. I enjoy the intellectual challenge of recognizing patient presentations for toxicologic problems, making a diagnosis and treatment plan for patients, and understanding the body of knowledge that comes with being an expert.

A classic case might look something like this: A 17-year-old student takes a lot of pills in an attempt to get high. His friends become worried by his behavior and bring him to an emergency department. His heart rate is high, his pupils are large, he mumbles characteristically when trying to talk, he picks at the air in front of him with his hands, and when asked "what color is this string?" he says purple, even though there is no string. Every medical toxicologist should easily recognize the most likely diagnosis within a few moments of walking into the room: He's suffering anticholinergic syndrome (he probably took too much Benadryl [diphenhydramine] or another similar drug) and the treatment is benzodiazepines or physostigmine. More difficult and interesting cases may involve several drugs or chemicals interfering with the body's systems or an atypical reaction to a drug or combination of drugs.

Toxicology fellows are highly trained in medical issues related to psychoactive use, from an understanding of how the substances cause their effects, to the neurotransmitters involved in the brain, to the effects on other parts of the body, to the adverse reactions associated with the substances, and the art and science of treating individuals in need of our help. Although psychoactive substances are only one part of medical toxicology, we are the experts called in to help treat people who end up in the hospital after using a psychoactive drug. ●

The Distillation

The Distillation includes updates, statistics, and information that we hope will offer insight into the ongoing site additions, traffic, and projects currently underway at Erowid.

Summary

General Content Pages	12,460
Archived Site Pages	3,786
Experience Reports	11,441
References	6,336
Ask Erowid	548
The Erowid Review	155
Content Images	4,561
Visionary Art	1,790
Total	41,077

Erowid Files on Server	524,779
Erowid Disk Footprint	19.3 GB

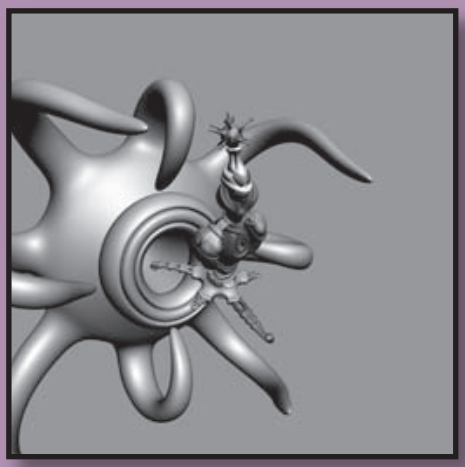
Current Members	1,313
Daily Visitors	51,404

General Content

General Content Pages	12,460

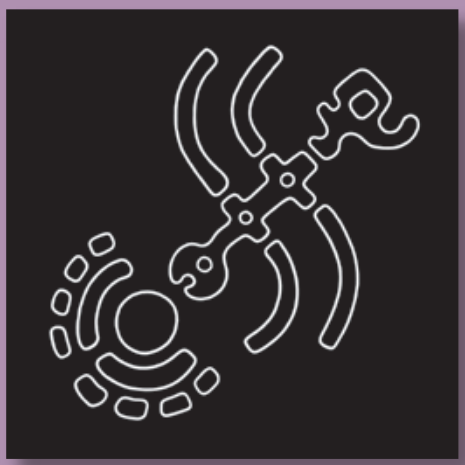
Number of substance vaults	296
Most popular substance vaults (with change)	
MDMA(↔); Mushrooms(↑); Cannabis(↔); LSD(↓); Cocaine(↔); Salvia divinorum(↔); Methamphetamine(↓); DMT(↑); Morning Glory(↔); DXM(↔); Opiates(↔); Ketamine(↔); Heroin(↔); Mescaline(↔); 2C-B(↑); Peyote(↔); Nitrous Oxide(↔); Oxycodone(↓); Ayahuasca(↑); Amanitas(↑); Datura(↑); Amphetamine(↓); 5-MeO-DMT(↑); Hydrocodone (↔); GHB(↓).	
Most accessed documents	
Drug Testing Basics; Mushroom Effects; LSD Effects; Cannabis Effects; MDMA Effects; Cocaine Effects; Salvia Effects; Caffeine Content of Beverages; Mushroom Basics; LSD Basics.	

Visionary Art



Gorgonol **(Digital)**
by Serge Tretiakov — elphenden.com

Blind Love **(Collage)**
by Dodie



(Acrylic on Canvas)
by actual contact — actualcontact.com

Published art pieces	1,784	New pieces in last 6 mo.	91
Number of artists	504	New artists in last 6 mo.	24
Viewed per day	5,856	Curated by Christopher Barnaby	

Christ On Mass **(Oil and Acrylic on Board)**
by Simon Kelly

War and Peace **(Acrylic on Canvas)**
by Dadara — dadara.com

Experience Reports

Published reports	11,441
Published in last 6 mo.	1,097
Fully triaged reports	15,675
Partially triaged reports	2,102
Un-triaged reports	14,030
Viewed each day	69,502
Submitted each day	23
Substances included	388
Active triagers	32

Desert Talks

In August, Erowid participated in the Burning Man festival held in Black Rock Desert, Nevada. As in past years, the Erowid dome was a popular site for lively discussion related to psychoactives and the states of mind they engender.

It was also home to a small lecture series called Speakers Corner organized by Mark Pesce. Speakers included Erik Davis, Fire & Earth Erowid, George Greer & Requa Tolbert, Jon Hanna, Gregory P., Dale & Laura Pendell, Mark Pesce, Sylvia Thyssen, and several others.

Glass Molecules

In July 2006, we began offering hand-blown glass molecules as Erowid membership gifts at the $125 level and higher. We have been working with visionary artist Ed Steckley to design and create these unique pieces of art. Available molecules include MDMA, DMT, psilocin, and serotonin and we hope to add additional chemicals in the future.

The molecules range in size from approximately 3 to 5.75 inches. Atom are made from different color glass to indicate what element they represent. If you are a chemistry geek, check these out; or consider one as a Solstmas gift for a chem geek near you.

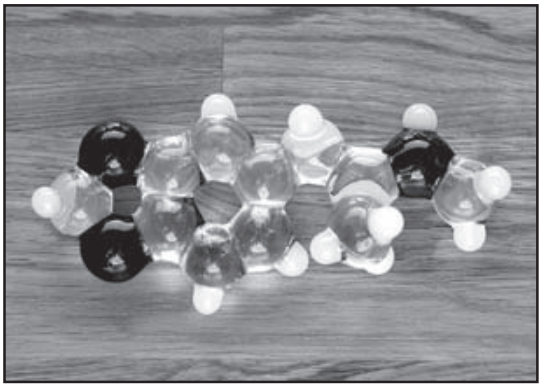
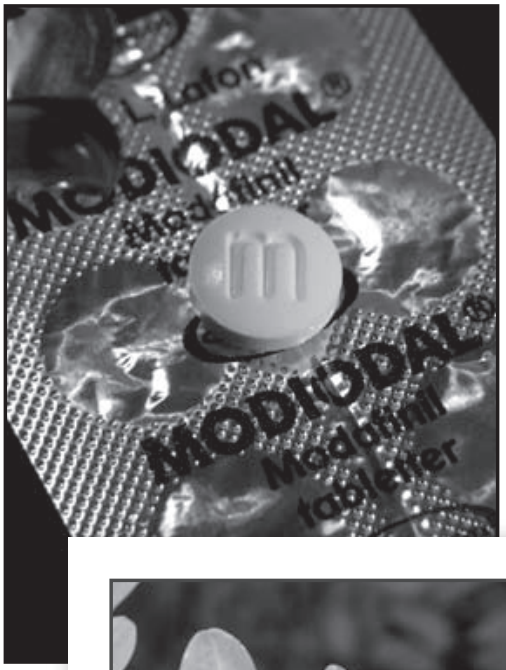


Image Vaults

Published images	6,345	New in last 6 mo.	147
Image vaults	252	Submitted each day	7
Viewed per day	60,604	Awaiting processing	6,010

Modafinil tablet, Photo by HG23



Erythroxylon novogranatense, Photo by Erowid

Cannabis in bowl, Photo by Erowid

The Erowid Review

Eighteen months ago, we unveiled The Erowid Review, a section of the site dedicated to reviewing books on Erowid-related topics. After building a foundation of monthly reviews, Scott O. Moore, the founding editor, passed on leadership to author Erik Davis. Erik is committed to continuing the Review's coverage of new volumes through the collection of existing reviews and the solicitation of new ones. Erik also looks forward to working on the Psychoactive Canon: an annotated (and necessarily opinionated) list of the defining and most recommended books in the field. Contact review@erowid.org if you are interested in being a reviewer.

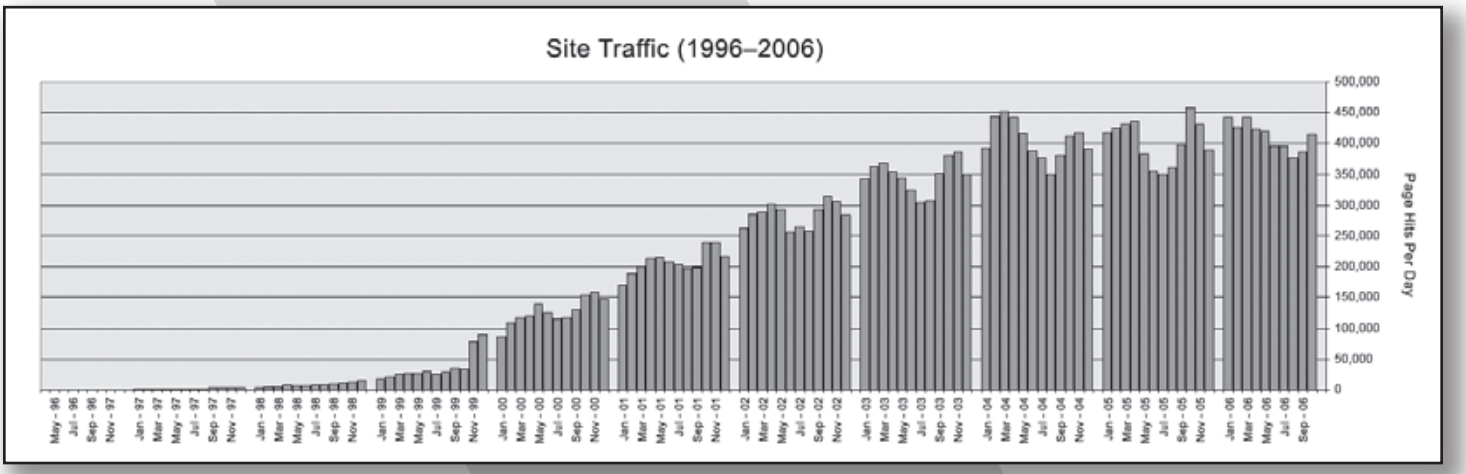
A recent highlight has been a review of *Pharmako/Gnosis*, Dale Pendell's latest opus.

> *"This, the final and long-awaited work of Pendell's trilogy, focuses on the intersection between the pharmakon and knowledge, what Pendell calls 'poison knowledge'. To do the task justice, Pendell must take on the literature of pharmacology and neuroscience, of ethnobotany and anthropology, of mythology and even political economics–not to mention the vaults of Erowid, that damned mob of scribbling trippers. It took chutzpah and quite a bit of struggle to even attempt this work. To take on a poetry of poisons, you'd have to be lucky and crafty, a fool to try and some kind of Odysseus to succeed." — Faustroll*

Erowid.org/library/review/review.php?p=205

The Erowid Review

Published reviews	155
Published in last 6 mo.	12
Viewed each day	973



New Crew Member

In mid-September 2006, we had the pleasure to hire a new part-time person into the Erowid crew. Lux has been passionately interested in states of consciousness for many years, and has an academic background in psychology, religious studies, philosophy, and literary theory. Lux's talents in writing, research, editing, and careful communication are well suited to Erowid's editorial approach and we are excited to have him working with us.

Lux writes: "I strongly believe in Erowid's mission of providing accurate data to the public. It is my conviction that in the long run, humanity's interests are best served by making decisions based on careful reflection and accurate understanding."

Having another person on board also presents a classic small-organization conundrum. While it strains Erowid's limited resources in the short term, the redistribution of tasks and responsibilities will hopefully permit us to better handle the flood of data, projects, and communications we encounter.

Membership

Current Members	1,313
Recently Expired Members (0-6 mo.)	394
Older Expired Members (6+ mo.)	2,196
Members in U.S.	958 (73%)
Members in other countries	353 (27%)
Countries with members	34
Top membership countries	
USA (958); UK (69); Canada (72); Australia (47); Germany (23); Sweden (14); Switzerland (14); Norway (13); Netherlands (13); France (12); Finland (9); Spain (9); Italy (7); New Zealand (6); Ireland (4); Israel (4); South Africa (4); Denmark (4); Mexico (4)	

EcstasyData Summary

DAILY	Daily Visitors	3,626	Daily Page Hits	27,692
	Tablets Tested	22	Daily File Hits	442,919

BY YEAR	Tablets Tested		Testing Results (1999–2006)		
	2006	22	Total Tablets Tested		1,489
	2005	133	MDMA Only	(38%)	572
	2004	151	MDMA + something	(17%)	253
	2003	148	No MDMA	(45%)	666
	2002	301	– Nothing		95
	2001	332	– Unidentified		72

Erowid Traffic Statistics

DAILY	Visitors	51,404	File Hits	3,258,708
	Transfer	22.48 GB	Page Hits	416,093

BY MONTH		Avg Daily File Hits	Avg Daily Page Hits	Avg Daily Visitors
	Oct 2006	3,258,708	416,093	51,404
	Sep 2006	3,046,383	386,206	46,287
	Aug 2006	2,987,922	377,052	44,743
	Jul 2006	2,802,719	396,570	44,420
	Jun 2006	2,648,094	395,843	45,652
	May 2006	2,913,195	419,935	49,329

BY YEAR				
	2006	2,972,918	410,204	48,443
	2005	2,544,202	402,567	41,412
	2004	1,799,694	405,528	31,241
	2003	1,421,815	349,530	25,997
	2002	1,206,855	283,541	23,042
	2001	798,400	207,427	17,300
	2000	462,000	126,000	12,000

VERBATIM

"If merely 'feeling good' could decide, drunkenness would be the supremely valid human experience."

– William James (1842–1910)

"Creative people who can't help but explore other mental territories are at greater risk, just as someone who climbs a mountain is more at risk than someone who just walks along a village lane."

– R.D. Laing (1927–1989)

"We are continually faced with a series of great opportunities brilliantly disguised as insoluble problems."

– John W. Gardner (b. 1912)

"Conquering any difficulty always gives one a secret joy, for it means pushing back a boundary-line and adding to one's liberty."

– Henri-Frédéric Amiel (1821–1881)

"People everywhere confuse what they read in newspapers with news."

– A.J. Liebling (1904–1963)

"Books are the compasses and telescopes and sextants and charts which other men have prepared to help us navigate the dangerous seas of human life."

– Jesse Lee Bennett (1885–1931)

"Liberty cannot be preserved without a general knowledge among the people."

– John Adams (1735–1826)

"There is science, logic, reason; there is thought verified by experience. And then there is California."

– Edward Abbey (1927–1989)

"We can no more invalidate an experience because its physiology is known than we can invalidate physiology because its biochemistry has been identified."

– *The Psychology of Religion* (1985)

"Our greatest problems result from the difference between how we think and how nature works."

– Gregory Bateson (1904–1980)

Il y a plus de philosophie dans une bouteille de vin que dans tous les livres.

[There is more philosophy in a bottle of wine than in all the books in the world.]

– Louis Pasteur (1822–1895)

"Life is not a problem to be solved; it is a mystery to be lived."

– Søren Kierkegaard (1813–1855)

"Science is organized knowledge. Wisdom is organized life."

– Immanuel Kant (1724–1804)

"In every work of genius we recognize our own rejected thoughts: they come back to us with a certain alienated majesty. Great works of art have no more affecting lesson for us than this."

– Ralph Waldo Emerson (1803–1882)

"All religions, arts and sciences are branches of the same tree. All these aspirations are directed toward ennobling man's life, lifting it from the sphere of mere physical existence and leading the individual towards freedom."

– Albert Einstein (1879–1955)

"It is the tension between creativity and skepticism that has produced the stunning and unexpected findings of science."

– Carl Sagan (1934–1996)

"The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!' (I found it!) but rather, 'hmm…that's funny….'"

– Isaac Asimov (1920–1992)

"I do not feel obligated to believe that the same God who has endowed us with sense, reasons, and intellect has intended us to forgo their use."

– Galileo Galilei (1564–1642)

"Science and art belong to the whole world, and before them vanish the barriers of nationality."

– Johann Wolfgang von Goethe (1749–1832)

"No science is immune to the infection of politics and the corruption of power."

– Jacob Bronowski (1908–1974)

"Reason and free inquiry are the only effectual agents against error."

– Thomas Jefferson (1743–1826)

"When choosing between two evils, I always like to try the one I've never tried before."

– Mae West (1893–1980)