

Perspectives on DMT Research

From *DMT: The Spirit Molecule*, a book in progress

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Prelude: The First Sessions

IN NOVEMBER, 1990, we gave Philip the very first dose of DMT in our research project. In this case, we were going to administer it by the intramuscular (IM) route. This is in contrast to how we later gave DMT. As you'll see, the effects of IM DMT were too slow and we changed to the IV (intravenous) route after this, Philip's first session.

Philip was 45 years old when he began the DMT project. Bespectacled, bearded, and of medium height and build, he was an internationally-known clinical psychologist, psychotherapist, and workshop leader.

Philip had smoked DMT before and I was glad he had. He and Nils, our second volunteer, had taken it in Philip's house about a year before. This was the day after a Peruvian shaman, or folk healer, had conducted a religious ceremony using plants that contain DMT. This psychedelic plant brew is called ayahuasca or yage, the famous "vine of the soul," or "vine of the dead." The two men were enthusiastic about this orally active form of DMT, and were eager to smoke it that next day, when some members of the workshop made it available. They wanted to feel its effects in a much more immediate and intense manner.

Philip's and Nils' experiences on smoked DMT were typical of many people's. Incredibly rapid onset of effects, a kaleidoscopic display of visual hallucinations, and separation of consciousness from the physical body. And, most curiously, there was a feeling of "the other" somewhere within the hallucinatory world to which DMT allowed them entrance.

While I could not encourage psychedelic drug abuse, only experienced psychedelic drug users were potential candidates for our research. This is partly for reasons of informed consent. Can someone really know what they are getting into with this type of research without having had their own experiences beforehand?

It was hard to believe we were actually now able to give DMT. The two-year process of obtaining permission and funding, which I felt would never end, was finally behind me. Attaining the goal never seemed as likely as a continual struggle to do so. While it was an historic day, the fact that we were going to be giving Philip DMT by the intramuscular, or IM, route had me already thinking ahead. I thought the IM method might be too slow and mild compared to the smoked drug. What I had read about IM DMT suggested it took up to a minute to start working, much longer than the smoked method, where effects are felt while holding the breath from the first inhalation. But, since all but one previously published research paper on DMT used the IM method, I was obliged to begin this way. I thought 1 milligram per kilogram (mg/kg), or about 75 mg, would be a moderately high dose based upon the older medical literature.

It was at least five years since I gave anyone an IM injection of anything, and I was nervous about giving our first dose of DMT this way. What if I missed? Probably the last IM injection I gave was the anti-psychotic drug, haloperidol, to an agitated patient with psychosis. These patients often had arms and legs restrained involuntarily by psychiatric orderlies or the police beforehand, to make sure the patient's disorganized and frightened state didn't end in violence. This also kept the patient's arm in a relatively stable position for me to inject them.

While it was some years ago, I did remember the confidence with which I used to give IM shots, having given hundreds over a nearly 10-year span. I liked giving shots. The secret was to think of the syringe as a dart. We were taught in medical school to pretend you were throwing a dart into the rounded shoulder muscle of the patient's arm, or else the gluteus maximus muscle, which makes up most of the bulk of our buttocks. A single, fluid motion, letting go just as the needle pierced the muscle through the

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to my book-in-progress:
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I hope a sense
of the multitude of feelings:
excitement and anxiety,
discovery and responsibility,
awe and confusion,
surrounding our
DMT research
is at least
partially conveyed.

skin, usually gave excellent results. We had practiced on grapefruits.

Philip, however, was neither a grapefruit, nor an acutely psychotic patient delivered up to me for involuntary tranquilization. He was a professional colleague, friend, and research volunteer with equal footing to us in many ways. Philip was to be the scout. Cynthia, our research nurse, and I were to remain at "base camp," to hear about where he went after he returned.

I practiced my technique in the air, walking down the hall, before entering Philip's room.

I explained what we were about to do: "I'll wipe your shoulder with some alcohol. Take as much time as you need to collect yourself. Then, I'll inject the needle into your arm, draw back to make sure I'm not in a blood vessel, and then squeeze the plunger on the syringe. It might sting, or it might not. You ought to feel something in a minute or less. And, I'm not sure what that something will be."

His eyes were closed, already preparing to venture into unknown territory, a territory only he would perceive, leaving us behind to look after his life functions. He opened his eyes widely to look at us once more.

He needed little time to calm and prepare himself. He closed his eyes again and said, "I'm ready." The injection went without a hitch.

After about 60-90 seconds, Philip opened his eyes and began breathing more deeply and looking "altered." His pupils were large, he began groaning, and the lines of his face smoothed. He closed his eyes while Robin, his new girlfriend, held his hand. He looked up at her at about 25 minutes.

His first words were "I could have done more."

We all breathed a collective sigh of relief.

Forty minutes after the injection, he started speaking slowly, and haltingly, in his soothing voice.

"I stayed in my body," he said, meaning he stayed aware of his "physical self" throughout the session.

He continued, "Compared to smoked DMT, the visuals were less intense, the colors were not as deep, and the geometric patterns did not move as fast."

He sought my hand for comfort. My hands were damp from nervousness, and he laughed good-naturedly at my anxiety, which was clearly greater than his!

When he arose to go to the bathroom, he was quite shaky. He returned and drank grape juice and ate some yogurt, while filling out our rating scale. He felt "spaced-out" while we walked back and forth to another building where I had to do some errands. I wanted to accompany him and see how he was for the next hour

or two. He seemed well enough three hours after his DMT. We said good-bye in the parking lot, and I told him I'd call him later that night.

When we spoke that night, Philip said Robin and he went to eat lunch after leaving the hospital. He immediately felt more alert and focused. While Robin drove them the 40 miles to her home, in the mountains outside of Albuquerque, he was euphoric and colors seemed brighter. He sounded quite happy on the phone.

Philip sent me a written report a few days later. Most important was his last comment: "I expected to jump to a higher level, to leave the body and ego consciousness, the jump into cosmic space. But this did not happen."

Philip did not believe the effects broke through the "threshold" he expected. This threshold, what we have called the "psychedelic threshold" for full DMT effects, is crossed when there is a separation of the mind from the body, and the complete replacement of the mind's contents with the effects of the drug. There was a sense of wonder, awe, and a feeling of undeniable certainty in the reality of the experience. This level of effect was not found in Philip's experience with IM DMT.

I was glad to have someone like Philip in the role of "human guinea pig." He was psychologically mature and stable, familiar with the effects of these drugs, and could make clear, understandable comparisons among different drugs' effects. I felt reassured in the correctness of enrolling only experienced psychedelic users for this research.

Philip's report left no doubt that IM DMT effects lagged behind those of smoked. We could have given a higher dose of intramuscular DMT, but I didn't think the IM route would ever give the "rush" that is one of the hallmarks of smoked DMT. This rush refers to the first 15-30 seconds of DMT's effects, when the entire shift from normal to psychedelic reality takes place

with breathtaking speed. Perhaps the fact that there is so little time to prepare for the rush makes the effects of DMT so unusual. There was not much someone could do, except hold on, and watch, and remember. There was no working up to it.

Because our work focused on the effects of psychedelics as normally experienced by typical users, we believed it important to reproduce as closely as possible effects of smoked DMT, the way it is normally used "on the street." In addition, I also thought that since DMT is produced naturally in the human body, the best way to determine its effects and possible role in our mental lives is to get it into the brain as fast as possible. A more rapid way of getting it into the system was clearly needed.

Smoking DMT on the Research Unit was impossible. Besides

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the terrible smell of burning DMT, likened to that of burning cellophane, we didn't know what potentially harmful by-products of burning DMT were produced and might get into the lungs. Nor were we certain that all the DMT would be absorbed by smoking. DMT smokers typically describe needing to take 3-4 long "tokes," or inhalations, to get the full effect. I knew that as DMT is smoked, the room seems to be shattering into millions of crystal-line pieces, and your body with it. Deciding whether you were inhaling or exhaling was complicated enough, let alone making sure you got enough DMT vapor into the lungs.

I spoke with my colleague who had made the DMT, Professor David Nichols at Purdue University, an international authority on psychoactive drugs. He thought a switch to the intravenous route was necessary, but he was glad he wasn't going to be the one giving it!

I then called the physician at the FDA who was overseeing this research. He said five words that surprised, reassured, and frightened me, all at the same time: "You're the expert. You decide."

This was true, but the implications of his remark were great. The re-opening of American psychedelic research with humans had begun with this project, by my conceiving of and shepherding through the protocol through two gruelling years. Now I was doing it. With this responsibility came some uncertainty, too. Was I really up to this, despite the many years of training? The challenges and risks seemed almost too great. And now, after our first dose of DMT, I was faced with having to decide to do something with DMT never done before: giving it directly into the bloodstream of a normal volunteer by the IV route.

The only previously published information on IV DMT was from one report published in the 1950's. And, that project studied severely disabled patients with schizophrenia, most of whom were not able to give clear reports of their experiences. In fact, one unfortunate schizophrenic woman's pulse was not detectable for a short while after her dose of IV DMT. I was glad we had made certain all our volunteers had healthy hearts.

The FDA physician continued, "Try about one-fifth the IM dose when you switch to the IV route. That will probably give you lower maximum blood and brain levels of DMT than you produced by giving it IM, and you should have some room to maneuver."

Philip and Nils both eagerly volunteered for this new and uncharted phase of the research, finding a satisfactory IV dose of DMT in normal volunteers. Since both had smoked DMT, we could compare directly the effects of IV to smoked drug. And, in Philip's case, we could compare IV to IM routes.

Nils, who lived in Arizona, moved in with some friends in

New Mexico for a month so he could start the DMT study. He was 36 years old when he began participating in our research. Nils supported himself for the last 15 years by dealing drugs: marijuana, LSD, and psilocybin-containing "magic" mushrooms. He had also written popular underground pamphlets, under a pseudonym, about smoking the psychedelic venom of the Sonoran desert toad, which contained high levels of a compound closely related to DMT, 5-methoxy-DMT. Nils was a long and lanky fellow, charming, and fun to be with. He was keenly interested in psychedelics, and always was looking for a neglected plant or animal product that might produce a psychedelic effect. He was a store-house of obscure plant and chemical information. He had taken LSD many times, having "lost track after the 150th dose." Nils was no stranger to psychedelic drugs and their effects.

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Nils was powerfully moved by his first and only use of smoked DMT, taken at Philip's the year before. He said, "It made strong telepathic impressions causing mental bonds with the people around me. This was confusing and overwhelming. I became very excited, as an inner voice spoke to me. This was my intuition directly relating to me. It was the most intense experience of my life. I want to go back. I saw a different space with bright bands of color. I couldn't raise my hands, I tripped so hard. It is a mental Mecca, an excellent reference point for all other psychedelics. Those around me looked like alien space insects. I realized they were all part of it, too."

Nils received 0.2 mg/kg intravenous DMT about a week after Philip's first IM dose, in November, 1990. Similar to Philip's first ever dose of DMT, while the actual administration was a landmark, I also felt it was just a dry-run, a rehearsal for the real thing, as I believed we would certainly go beyond 0.2 mg/kg. Such is the method of medical research: slow, baby steps to ensure no harm is caused. Unfortunately, it is sometimes hard to listen to one's own advice, as will be seen soon enough.

The actual quantity of DMT solution was small when it arrived on 5E of the University of New Mexico Hospital, the site of the Research Center, no more than a cc (cubic centimeter), one-sixteenth of a tablespoon. So that I could control the rate of giving the drug, without squirting it all in at once, I added an additional 4 cc of sterile salt water. While this would dilute the DMT in the blood stream only an insignificant amount, I now could slowly and smoothly give the drug in one continuous "push" over a minute or so.

Cynthia, our research nurse, and I sat on either side of Nils, who was inside his familiar regulation Army sleeping bag. He took this bag with him when he travelled, both literally and figuratively: when he would travel on the road, or when he would

take a psychedelic drug "trip." As the injection was half-way complete, he said, "Yes, I taste it." Nils turned out to be one of the few volunteers who could taste the DMT as the drug-rich blood rushed passed through his mouth and tongue on the way to his brain. A metallic, slightly bitter, taste.

Upon finishing the injection, I noted and was impressed with how quickly the DMT solution had made its way upward. I thought, "This seems to be fast enough." I finished the injection by flushing his IV line with a small amount of additional sterile salt water, to ensure that any DMT sticking to the sides of the tubing was washed free and delivered entirely to his bloodstream.

My notes are sketchy as to the effects of 0.2 mg/kg IV DMT on Nils. This may have been because he is a taciturn man by nature, or because I was not impressed with the intensity of the experience either. But, he did say he thought this dose of DMT was "maybe one-third to one-fourth" a full one, relative to his smoked DMT experience.

Perhaps feeling a little puffed up with confidence by the ease with which these first two sessions, Philip's IM and Nils' IV, had gone, I decided to proceed immediately to three times Nils' IV dose: to 0.6 mg/kg. In retrospect, a more cautious move to 0.4 mg/kg, the aforementioned "baby step" forward, was definitely in order. My confidence was premature. Thankfully, I didn't jump to 0.8 mg/kg, which I would have done if I had followed up Nils' comment that 0.2 mg/kg was one-fourth a full dose.

One cold windy Albuquerque morning in December, 1990, I entered Nils' room. He was lying under his Army sleeping bag, awaiting the first 0.6 mg/kg dose. Cynthia had placed a small needle into a forearm vein, for injecting the DMT solution. She was sitting on his right side, while I was on his left, where the tubing from the intravenous line was dangling off his arm. Philip also was here, as he was scheduled to receive this same dose later in the morning, if things went well with Nils. Philip sat at the foot of the bed, curious as to what Nils was about to experience, and to provide moral support for all of us. Little did we suspect we'd need him to give us physical support, too.

I infused the solution of DMT somewhat more quickly than I did for his previous 0.2 mg/kg dose, over 30 seconds, rather than 45. I thought a faster injection might produce less dilution of the DMT in the bloodstream, and thus produce higher peak blood, and therefore brain, levels. After the infusion of drug and saline flush were complete, he said, "I can taste it... Here it is!" Immediately after saying this, he started tossing and turning under his sleeping bag. He then sat up with a start, "I'm going to vomit."

He looked at us, dazed and uncertain. Cynthia and I looked at each other at the same time, and realized we had nothing for him

to throw up into. We never thought people would vomit. He mumbled, "But, I didn't have any breakfast... so there's nothing to throw up." Nils was becoming agitated, pulling the pillow and sleeping bag over his face. He curled into the fetal position, away from us and the blood pressure machine, kinking the tubing connecting the cuff to the machine. We could not get an adequate blood pressure reading at either 2 or 5 minutes, when we expected it to be at its peak, and potentially dangerous, level. He "tried" climbing out of the bed, but this seemed to be more a purposeless flailing of his arms and legs, a substantial volume of limbs in someone 6'4". His hands were cold and clammy as all three of us maneuvered him back into the now- too-small-

seeming bed. He retched at 6 minutes into a basin we found in the closet. Because he had to sit up to do so, we got a chance to reposition him in a way that would let us see him more clearly, and to get a blood pressure and heart rate recording.

He then reached out to Cynthia for some contact, touching her arm and sweater. He looked as if he were about to stroke her hair, but quickly seemed to forget what he was going to do. He began staring at me, saying, "I need to look at you now, not Philip or Cynthia." I did my best to look calm, answering his gaze with my own; praying quietly he would be all right. By 10 minutes, when we finally got a satisfactory reading, his pulse and blood pressure were surprisingly normal. At 19 minutes, he sat up on his elbows and laughed. He looked very "stoned:" large pupils, lopsided grin, mumbling incoherently.

He finally said, "I think the best high dose is between 0.2 and 0.6."

We all laughed and the tension in the room dropped a few notches. Nils still had his wits about him, at least at that moment.

He continued, "There was the movement of the self. I am disappointed that it's ending. It was a cafeteria of colors. A familiar feeling. Yes, I've returned. *They* were there and we recognized each other."

I asked, "Who?"

"No-one or thing identifiable as such." He still seemed quite under the influence; I did not want to press him.

He continued, "Coming down from the high was very colorful, but it was boring compared to the peak. At the peak, I knew I was back where I had been when I smoked it last year. It was a lonely feeling leaving there.

"I thought I had gotten really sick. I felt you hovering over me, like I was dying, and you all were trying to resuscitate me. I hoped everything was all right. I was just trying to catch what was happening inside."

He paused, and said, "I'm tired. I'd like to nap, but I'm not really sleepy."

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Nils had little to say beyond this, other than that he was ravenously hungry, having (fortunately) skipped breakfast. He ate heartily while filling out our rating scale. So, even Nils thought 0.6 mg/kg was "too high"!

I spent a few minutes in the nurses' lounge, reflecting upon what we had just seen. From a cardiac point of view, Nils' blood pressure and heart rate had been only moderately affected, although we missed the readings at their presumed peak. Thus, there seemed to be no physical harm from administering 0.6 mg/kg IV DMT. However, I was not sure if the thinness of Nils' report was because he could not remember what had happened, or if it was more of his style to keep most of what had taken place to himself.

I wondered about "them," with whom he had re-acquainted himself. What did he mean, "We recognized each other"? Why was he "lonely" as he left "them"? He thought they were "friends" and was sad to part. I was intrigued by Nils' sense of the "inhabited" nature of his experience. This did not jive with many of the stories I had heard about other psychedelics, such as LSD or psilocybin mushrooms, but did with many of the DMT tales I had heard while interviewing DMT users for the development of our rating scale.

We had clearly broken through the "psychedelic threshold." The suddenness and intensity of onset, the irrefutable nature of the experience, the temporary (and perhaps too prolonged) disorientation at the beginning while getting his bearings, the inhabited sense Nils described, all added up to a "full" DMT dose, according to both Nils' report, and with stories I had heard about DMT from other users. But was it too far beyond the psychedelic threshold? Nils was a self-acknowledged "hard head," requiring higher doses than most to attain comparable levels of altered reality perception from the same drug. How would Philip fare?

Philip and I walked down the brightly lit hall. We passed Nils in the hall, looking for more food. He felt great. I was happy to see how well Nils looked so quickly after being pushed off a seeming psychic cliff.

I asked Philip, "Are you sure you want the same dose?"

"Yes," he immediately replied.

I was not so sure.

I hoped Philip, as we prepared for his session, would decline undergoing an experience such as Nils just had. Perhaps he would settle for 0.5 or 0.4 mg/kg, which would have been easy enough to do, stopping short of emptying the entire syringe full of DMT solution. While I believed this dose most likely was physically safe, the mental effects loomed in front of all of us with even more uncertainty than they had before Nils' session. However, Philip was not to out-done by his friend and fellow "psychonaut." He was ready for his 0.6 mg/kg dose.

This tendency in our volunteers, to persevere even under the possibility of an annihilating psychedelic experience, was marked. It was most apparent during our tolerance study, in which no volunteer, no matter how worn out, refused the fourth and final high dose of DMT in one morning.

I was faced with a scientific, personal, and ethical dilemma. My training was such that one always had to prescribe a little too much of a medication to see what toxic effects were, to be able to recognize them quickly in various circumstances. This is even more important when a new experimental drug is involved. I could have told Philip I did not want to repeat the 0.6 mg/kg DMT experience with him. That was within my power as the principal investigator of the project. But, Nils seemed fine now, his blood pressure and heart rate never approached dangerous levels, and most importantly, Nils was the first and only person to get this dose of DMT. I had planned to give two 0.6 mg/kg doses that morning, and saw no convincing reason not to. Philip lived far from Albuquerque, and to force him to drive there again to get 0.6 mg/kg if 0.4 or 0.5 were not "enough," would have inconvenienced him. Also, I liked Philip, and he did want his dose of 0.6 mg/kg. How much of a role did my valuing our friendship, and doing as he requested to maintain it, play? Many competing priorities. I hoped I made the right decision by agreeing to give Philip 0.6.

Philip and I joined Cynthia and Robin, his new partner, in his room. Another 0.6 mg/kg IV DMT session was about to take place. Philip's bare and sterile room had brightly waxed linoleum floors; salmon pink walls; and tubes for oxygen, suctioning of secretions, and water, exiting from behind the bed. He had taped a poster of Avalokitesvara, the 1000-armed Buddhist saint of compassion, on the outside of the closed bathroom wooden door which faced his bed. A television attached by a maze of cables hung from the ceiling, looking down at his mechanized, single bed covered with thin hospital sheets. The air conditioning hummed loudly. He wore a t-shirt and pants, laid down on the bed, and made himself as comfortable as possible.

Cynthia smoothly and skillfully inserted an intravenous line into one forearm vein for giving the DMT. This arm also had wrapped around it the blood pressure cuff. His other arm had a larger IV in place for blood drawing, so we could measure concentrations of DMT in blood after administering it. This line was attached to a clear plastic bag dripping sterile salt water into the vein, so the blood in the blood-drawing tube would not clot. Cynthia and I sat on either side of Philip, not sure what to expect in light of Nils' reaction.

Robin sat off to the side, near the foot of the bed. Philip, fresh

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from Nils' harrowing session only an hour ago, needed little preparation for the process of drug administration, and what to expect from us while he was laying in bed, most likely unable to move, speak or otherwise interact. He knew we would get up and help him if he needed it. We wished him luck. He closed his eyes, laid back, took some deep breaths and said, "I'm ready."

I watched the second hand of the wall clock approach the "6", so I could finish the 30 second injection of drug at the "12", what was seeming more to me as "time zero." It was nearly 10 a.m.

Just as I finished inserting the needle of the syringe containing the drug into his intravenous line, but before depressing the plunger, emptying the DMT solution into Philip's vein, there was a loud, insistent knocking on the door. I looked up, paused, and removed the needle from the line, capped it, and placed it on the nightstand next to Philip's bed.

Dr. Davis, the Director of the Research Center Laboratory, was waiting outside the door. We stepped into the hall, out of ear shot from the room. He said, in a curt and what seemed, in my own heightened state of awareness, a little too loudly, that previous blood samples for DMT analyses had been incorrectly collected. I told him we would modify our technique.

I then let myself back into Philip's room, and took my chair by the side of his bed once more. He seemed unaware of the interruption, having begun the inward turning and letting go which we have found allows for the smoothest possible entry into the DMT realms. For him, in this way, "the trip had already begun."

I took a deep breath, and apologized for the interruption. Trying to joke, I said, "Where were we now?" He replied with only a grunt, opened his eyes, nodded for me to proceed, and closed his eyes again. I uncapped the syringe, and inserted its needle into his IV. Cynthia nodded, too, to go ahead if I were ready.

I said, "Okay, here's the DMT."

I slowly and carefully began infusing the 0.6 mg/kg DMT into his vein.

Half-way through the injection, Philip's breath caught in his throat, sounding like a cough that never quite got out. Later, we were to find that whenever this catching in the throat followed a high dose injection, we were in for a wild ride. Twenty-five seconds after the infusion was complete, he began groaning, "I love, I love..." His blood pressure rose, and his heart rate jumped to 140 beats per minute, up from his resting level of 65 beats per minute. This rise in pulse is about what would happen racing up 3-4 flights of stairs. But in this case, Philip hadn't moved an inch. At one minute, he sat up, looked at Cynthia and me with saucer-sized eyes, his pupils hugely dilated. His movements were automatic, jerky, puppet-like. There seemed to be "no-one home"

behind Philip's movement.

Philip leaned toward Robin and stroked her hair: "I love, I love..." Twice this morning, a volunteer in a dazed state, attracted to a woman's hair. Nils to Cynthia's, Philip to Robin's. Perhaps it was the most powerful image of living, organic, familiar existence available when one looked around, in such a highly psychedelic state, a dreary hospital room, as Philip and Nils both found themselves today.

To our relief, he laid back down without prompting or assistance. His skin was cold and clammy, as Nils' had been, his blood drawing poorly from the vein because of the intense vasospasm. This is where, due to high levels of adrenaline, the tiny muscles lining the veins clamp down, reducing "unnecessary" blood flow to the skin.

His body was in a classic "fight or flight" reaction: high blood pressure and heart rate, cold clammy skin, blood moving into the vital internal organs, all while performing almost no actual physical activity. At 10 minutes, he began to sigh, "How beautiful, how beautiful..." Tears ran down his cheeks. "Now that was what you would call a transcendent experience. I died and went to heaven." He continued, "There were less visual effects, more feeling."

His pulse and blood pressure were completely normal at 30 minutes. "It was flying within a vastness. There was no relative space or size." I asked, "What did you feel when your breath caught in your throat?" "I felt a cold, contracting feeling in my throat. It frightened me; I thought maybe I would stop breathing. The thought, 'Let go, surrender, let go,' was there for a split second, then the rush of the drug swept even that away."

"Do you recall sitting up and stroking Robin's shoulder and hair?" He replied, "I did what?" Forty-five minutes after the injection, drinking tea and no longer feeling any effects of the drug, he said he had no recollection of sitting up, looking at us, or touching Robin.

He and Robin drove 90 miles to his home later that day, and we spoke the following evening. He felt a little run down, but had slept very well. He had "more interesting than usual" dreams, although not particularly bizarre ones, which nevertheless, he could not remember. He worked 10 hours the next day, although "not at full steam." However, "Nobody but I would have noticed I was tired."

Amazingly, these are all the notes I have from that session and the next day's report. This is in great contrast to Philip's usually quite eloquent descriptions of his drug sessions. Maybe his getting through the session safely was the important information

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I really needed from him.

After Philip's session, comfortable with his state and confident Robin could look after him, I walked out of the north end of University Hospital. I went through a hard-to-find door in this building, which has been added on to piecemeal for the last 30 years. An icy breeze whipped around my face, jolting me from my reverie. I squinted into the sun and sighed, exhausted from the morning's activities.

There were several explanations for why Nils and Philip had such poor recollection of their experiences. One possibility relates to what is known as "state specific memory." State specific memory refers to what happens when things perceived, felt, and thought in an "altered state of consciousness" are not accessible during the "normal" state. This occurs with drugs such as alcohol and marijuana, and prescription drugs like the sedatives, Valium or Xanax. It also occurs with non-drug altered states, such as hypnosis as in the so-called post-hypnotic suggestion, or in dreams.

Another possibility is that Nils and Philip may have suffered from a brief delirium, an "acute organic brain syndrome" or "acute confusional state." This term comes from the Latin, *de*, "from, or out of," and *lira*, "a furrow;" literally, "going out of the furrow," or "out of it." Delirium can be caused by overwhelming psychological stress, or physical factors such as fever, lack of oxygen, drugs, or low blood sugar.

I was unsure how much "psychological stress" contributed to Nils' and Philip's brief episodes of confusion, or "deliria," early on in their sessions. How much was a "reaction" to the drug's effects, rather than a direct effect of the drug itself? That is, climbing a ladder to view a scene of unimaginable shock value might throw one into a delirious or confused state, but it is not the ladder, rather the view the ladder provided, that's responsible. Was what Nils and Philip saw so bizarre, so incomprehensible, so utterly aberrant, that the lights just went out to spare them the shock of seeing clearly what was there? Sadly (or perhaps not) they nor we may never know.

In either case, too much drug or too much experience, whatever 0.6 mg/kg IV DMT did to these two seasoned psychedelic veterans, it was "too much."

Philip went on to develop a month or two of "flashback"-like symptoms from his 0.6 mg/kg experience. These will be discussed in the chapter on adverse effects, which will cover the topic in general, and describe what we have seen in our own work. We stayed in close contact during this time, both by phone and in person. He referred to his 0.6 mg/kg session as "a cosmic blow torch... a tempest of color, bewildering, like I was thrown overboard into a storm and spinning out of control, being tossed like a cork."

Driving the 40 minutes to our home in the mountains outside of Albuquerque that night, I had time to think. I was glad that both these intrepid volunteers had come out the other side of their 0.6 mg/kg sessions intact. But, I also thought, "What was the point of giving doses of DMT that didn't lay down any accessible memories?"

Professor Nichols and I again discussed DMT dose. What should be a lower "high" dose? A 0.5 mg/kg dose would only be one-sixth less, while a 0.4 mg/kg dose would be a full one-third less. It was hard to decide. I had several conflicting motivations. One of these was a desire that volunteers "got enough," so as to

make their participation worthwhile, in what I was concerned might be an overly demanding study. On the other hand, I did not want to have volunteers' "minds blown" from too much DMT. "First of all, do no harm" is the overriding dictum for medicine in general, and for research with humans even more so. Having a group of psychically damaged volunteers was not an option.

Sobered by Philip's and Nils' 0.6 mg/kg sessions, I decided to make 0.4 mg/kg our top dose of DMT for future studies.

Later in the month, I had the opportunity to speak by phone with Dr. Stephen Szara, the Hungarian psychiatrist and chemist who was the first person to inject himself with intramuscular DMT, having found that it was inactive orally. This took place in Budapest in the mid-1950s. Soon thereafter, Dr. Szara immigrated to the US, where he embarked upon a successful 30-year research and administrative career at the National Institute on Drug Abuse.

I asked Dr. Szara, "Did you ever give too much DMT to your volunteers?"

He thought for a moment, and answered in his thick East European accent, "Yes. They could not remember anything. They could not bring back memories of the experience. We did not believe it worthwhile administering those kinds of doses."

After administering 0.4 mg/kg IV DMT to 56 volunteers over 100 times, I have seen that there is an extra-ordinarily wide range of sensitivity to this dose of DMT. A few have said, "I could have done more." However, there also have been those who said they would have dropped out if the dose were any higher. And some, even at this lower dose, could not remember what happened at the peak effects. I am glad we decided to perhaps "under-dose" some, rather than "over-dose" any more people, as we did Philip and Nils.

Lastly, while driving over the winding mountain roads home, I was struck by several themes that appeared in Nils' and Philip's accounts. These were to be repeated many times over by our volunteers, and serve to inspire much speculation about what happens on high doses of DMT. While in this article, I'm not

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enthusiastic about numbering items, there are many but discrete topics that were raised by their sessions that day.

1) The "inhabited" nature of the DMT realms. Who or what do our volunteers encounter? Where do "they" reside and what is their nature? How do we address what they "say," or "tell" us? Are they figments of the "imagination" or do they represent denizens of independent, free-standing "alternative" realities?

2) The near-death, or death theme. How is it that people believe they have died, or are near death, on a high dose of DMT? Is this indeed a foretelling of the state encountered at the time or death? Or is it a so-called "near-death experience," whose relevance to actual death is hotly debated?

I have proposed that the pineal gland might produce DMT and other tryptamines at the time of death. If this were the case, might a "dry-run," using "outside administered" DMT, the same compound released at the time of death, provide practice for those either dying, or interested in the dying process?

3) The religious/spiritual nature of the experience. Near-death states share much with mystical/religious experiences. These, then share much with high-dose psychedelic sessions. My years of practice and study with a Buddhist contemplative organization inspired and helped shape my thinking about our DMT work. Now that these sorts of experiences were being had by our volunteers, how would the "rubber meet the road"?

Many senior students had shared with me the importance of their own psychedelic experiences in prompting their pursuit of the monastic, meditative life. Could those same leaders of an organized religion, albeit one based upon mystical consciousness, absorb and hold experiences that traditionally were brought on by what are disparagingly referred to as "intoxicants," or the "wine of delusion."

On the other hand, could these drugs be used to help religious practitioners? Or, could they hurt the progress of those practitioners? If these drugs are to be used "religiously," how is the best way to do so?

4) The element of fear that accompanied both of our courageous volunteers' initial entrance to the DMT state. The sudden, unexpected, unpreparable, and totally compelling nature of the shift from normal reality to that of DMT is the "acid test" of one's ability to let go. People's inability to manage this transition seems to be the major ingredient in the development of adverse reaction, to both DMT, and later on, we would find, to psilocybin.

5) My motivations for giving DMT. Was this another example of "research is me-search"? In retrospect, I ought to have given a lower dose than 0.6 mg/kg. We could have gone to 0.4 mg/kg, and then if that weren't "enough," 0.5 or 0.6, depending on how close to "enough" we had gotten.

However, as alluded to, there were many conflicting feelings

driving my decisions to give 0.6, and as time went on, many more issues involving my relationships to our volunteers emerged. In general, I wondered if I were up to the challenge. Was Pandora's box opened? Should it have been kept shut? Were there greedy and manipulative motives conflicting with altruistic and helpful ones? What effect did giving so much DMT to so many people have on me: personally, psychologically, professionally, spiritually? How did it impact my family?

6) The model. While scientific data collection was the sine qua non of this research, how did this model affect our volunteers? What are other competing models? Is "psychedelic

research" an oxymoron, a contradiction in terms? Along these lines, who should give psychedelics, and how should they be trained and monitored? Should people have their own experiences if they administer the drugs?

7) Are these drugs good or bad? That is, what is the real benefit to risk ratio? Were more people helped more than they were hurt? Who was helped, and who was hurt? How are these terms even defined? Could we predict who had what type of response?

How important is set and setting? If these drugs have inherent utility, is just sitting around quietly enough? How much preparation, guidance, and supervision should be provided? If "stacking the deck" in favor of a particular type of reaction is to be encouraged, how then does the role of the drug itself take shape? Do you even need a drug?

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This was not easy work. Neither was it ever straight-forward or conflict-free. Three years have elapsed since we left New Mexico, and this research ended. Even with that much time, answers to questions raised by this project are not yet as in-focus as I wish they were. However, the questions are becoming clearer. It is only by asking the right questions that the debate surrounding psychedelics can be enlarged adequately enough for us to find the best answers.

In introducing MAPS readers to my book-in-progress, *DMT: The Spirit Molecule*, I hope a sense of the multitude of feelings: excitement and anxiety, discovery and responsibility, awe and confusion, surrounding our DMT research is at least partially conveyed. •

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