

US Chemical + Biological Testing
Programme 2/2: Doctors

Dr Alexander Shulgin: LSD Expert

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Interviewer: Dr Shulgin, can you first of all tell me something about your background, your expertise, where you did your training, and the kind of work you do now?

Dr Shulgin: My background - I started undergraduate work at Harvard in Cambridge and finished my batch (?) degree in the University of California, took a batch degree in Chemistry. Then a doctorate degree, also at the University of California in biochemistry. I worked in the industry for a few years then returned to medical school where I completed two years of the medical curriculum and followed that with approximately two years in post doctorate work in psychiatry. So the background has been initially chemical and then eventually in the more psycho chemistry and psycho pharmacology.

Interviewer: Now what does a psycho pharmacologist do, what's ... how do you apply that expertise?

Dr Shulgin: A psycho pharmacologist in my eyes where I am is a person who is interested in pharmacology, the action of drugs, but specifically the action of drugs that affect the mental process, that affect the human cognitive process and as such requires the use of human subjects rather than animal subjects for determining potencies, action of compounds.

Interviewer: So have you been involved with human volunteers in testing during the course of your medical and scientific career?

Dr Shulgin: For nearly 40 years, yes.

Interviewer: Now tell me about the protocols that you designed to protect the people that are involved in that.

Dr Shulgin: The protocols, the procedures that I have followed has been dictated largely by the fact that you are indeed going into the human mind. And as such you are playing in one of the most precious and one of the most complex fields that is known and to me ... and axiom that was put out by Gordon Allas¹ (?), who was a psycho pharmacologist years ago at UCLA, in which one does not follow the classic protocol forms of double blind where you ... neither the person who runs the experiment or the person who is in the experiment will know the character of what's happening. But as Dr Allas coined it, double conscious, that both the researcher and the subject are quite aware what can happen, what is expected to happen, and gives his consent to entering the experiment.

Interviewer: Now we're talking about ethical and moral and philosophical features of your work. Are these things that are laid down by regulation or do you self regulate?

¹ *Gordon Alles*, presumably.

Dr Shulgin: There is very little regulation that I'm aware of is geared toward this psychological aspect of research. There is very little medically accepted reason for doing it, it is an area of medical grey, because the feeling with many people in medical research is ... the feeling is that the reason for giving drugs, the reason for involving a human in an experiment is to determine efficacy¹ of a drug that would repair something or would cure something, would remedy something but very rarely is there an acceptance of the concept of giving a drug to a normal person for what can be seen by some people as a way of achieving abnormality. It's an area of pure research and it does not have an immediate medical application. The applications may follow the discoveries but the initial work is that of research exclusively.

¹ *Efficacy*, presumably.

Interviewer: Is there then any clear distinction made between the testing of animals and the testing of human beings in terms of civilian research that's conducted in the United States today?

Dr Shulgin: The testing of animals is a prerequisite to the testing in humans, you know, they must all ... drug applications for drug approval, in that one determines the potencies, the risks, the kinetics, the activity, the concentration, the metabolites of drugs first in animals, where one holds life as being less valuable and one can learn mistakes an¹ learn through tragedies that are not in the human animal. But once this is passed a protocol is written, an application is then made to go through stages of FDA approval in this country for (...) given the drug to normal people to make sure it does not have some undesired property. Secondly to give drugs to the people who are defective in some way, they are infected, they have abnormally a medical problem to be approached,

¹ As in original; *and* learn.

Dr Shulgin: to be solved, and then finally to larger groups and finally to a commercial market. But almost all of this approval structure, which is with humans, is geared toward the use of a drug to repair something that is wrong. The research aspects where permission is asked for and granted, not for the treatment of an illness but for exploring an unknown in man is becoming more and more under fire as being something for which the rewards are felt not to be worth the risks. And so there is lots of this research done to the point now where it is very scarce:

Interviewer: Is it fair to say that even though ... if you like, animal life is going to be treated differently from human life, you never the less¹ try to take care of animals too when you're doing research, try not to cause them unnecessary suffering ... there has to be a benefit, if you like, some payoff, and that generally speaking you do look after animals when you treat them

¹ As in original, for *nevertheless*.

Dr Shulgin: Rather interestingly, I have abandoned using animals because I have received so little in value from the risk to the animal, because the area psycho pharmacology is the area of the effect of the intellect, the effect of the sensorium effect of changes in the brain that can only come back by human interaction. I can not explore a psychedelic in a rat and have any insight as to whether rat has even had an effect from the drug until you get to such high levels that the rat has been damaged and so I have stopped using animals in research.

Interviewer: That sounds as if you're saying the animals can't talk to us but the human beings can and that I need to listen to the human beings.

Dr Shulgin: In this area of psycho pharmacology, it is only the human animal that can give you the feedback to answer your questions.

Interviewer: Now as you know we're making a film about experiments that were conducted on soldiers largely in the fifties and sixties. And various psycho chemicals were used on them. What I'd like you to do if you would is to describe to me what some of these chemicals do and there are four principal ones that I would like to talk about - LSD, Scopolomene,¹ Atropine and Beezee.² If you could run down each of those and tell me about them and what they are. Let's start with LSD. What sort of a drug is LSD, what does it do and how powerful a drug is it?

Dr Shulgin: LSD is what originally would be called a psychotomynetic,³ meaning a material that would imitate psychosis. This was a medical euphemism to avoid the perjorative⁴ term psychedelic which in the 1960s was associated with a lifestyle and social goings on which was not acceptable to the medical and scientific community. The term psychotomynetic eventually got replaced with the term hallucinogenic which is now is used

¹ *Scopolamine*, presumably.

² *BZ (3-quinuclidinyl benzilate)*, presumably.

³ *Psychotomimetic*, very likely.

⁴ As in original; *pejorative*.

Dr Shulgin: although it also an inaccurate term ... very rarely do these cause true impressive and reality changes hallucinations any more than they cause psychosis. The term that eventually would come into play will be be¹ psychedelic but I think we may have wait a generation before that term is lost - it's connection with the social misbehaviour of 20 years ago. The other three drugs you mentioned...

Interviewer: I'd like to stop you there. You've used a very complex description - I want you to try, if you can, to put this into a layman's terms. When somebody absorbs LSD into their system, what is it actually doing to the person, to the recipient? ... When LSD is actually absorbed into the body, by whatever delivery method, what happens to the body? What physiologically is happening...?

¹ As in original.

Dr Shulgin: Physiologically ...

Interviewer: When LSD enters the body ... cos you won't hear my question, OK? I'm not in the film.¹

Dr Shulgin: Physically, physiologically, very often very little.

Interviewer: You've got to start your answer with When LSD enters the body ... can I cue you and will you start ...²

Dr Shulgin: When LSD is actually taken into the body, when it's absorbed by whatever rout it's administered usually it's an aural rout,³ there is very little effect noted for anywhere between ten and 30 minutes depending upon the dosage that was ministered, the higher the dosage, the sooner the effect. What happens is of course each person's individual expression, and he will phrase it in his own way, but there are certain terms that are often used that are universality to the experience.

¹ All as in original.

² Again, all as in original.

³ Oral route, very likely.

Dr Shulgin: There is an awareness that there is something happening that is not usual, sometimes it's a slight tingling, sometimes it's a slight awareness ... some people express it as a raising of the hair on their neck, some people will say, I am slightly light-headed, some people will approach it with anxieties, some with excitement, some with fear. Very often the first experience is one of the most dramatic and it's direction it will express itself, the way it will express itself, will be on what the person has been told to expect. If a person is entering into an LSD experience and has been told this is an experience of altered state of consciousness, and experience in which you have visual enhancement, intellectual enhancement, and after a period of time you will find yourself approaching where you started, a base line recovery. This will very often with this set ... the feeling of what's in the mind with anticipation will dictate the course of the experiment.

Interviewer: And if you come to it completely cold, no guidance, what could we expect then?

Dr Shulgin: If you come to the experience without an anticipation of what is there and you are just thrust into the storm, it can take almost any direction imaginable. A person may say; this is how I believe my aunt felt when she went mad, am I going mad? This is an area in which I have found there is so much input that I can not handle the input, I see things in such contrasts, in such vividness, that I don't know where to turn for locating myself. These are the things that lead to a traumatic experience and these are the areas in which I feel that much of the negative descriptions of LSD from these areas, the negativeness has stemmed, from the unexpected, the uninformed, the precipitous entry into a very open and potentially very frightening experience can lead to the trauma that is associated with LSD experiences.

Interviewer: I want to just take you back a little bit to ask ... If I asked you the same question, what happens when LSD enters the body, are you able to say in the scientific sense in terms of the physiology of the body what is going on. Does it interfere with certain neurotransmitters in the body, in the brain, and what is LSD doing to the brain, to trigger these effects that it has on people, what is happening to us chemically as a result of ingesting LSD?

Dr Shulgin: The ... way of answering the question of what is happening depends very much on the vocabulary that is used. If one were to say does it act on receptors in the brain, on nerve transmitter (...) in the brain. To a large measure we don't know, because a lot of that work has been done on the receptors of the brain of the rat and we don't know that LSD produces in the rat anything approaching what it produces in man. And it's currently also unethical to go after the human animal and take parts of the brain

Dr Shulgin: during the experiment. One doesn't know. One can make radio active materials and put them into man and see where they go, and you are following where the radio activity goes, but this does not say how the drug works, it merely says where it goes. The answers to your question are not known. We do not know where the site is for the self image, where the site is for paranoia, where the site is joy, because we do not know a rat's self image or a rat's joy.

Interviewer: So is it fair to say that LSD still remains largely an experimental drug and one which we don't fully comprehend its properties.

Dr Shulgin: It's fair to say we do not comprehend its properties because its properties are as diverse as the population that uses it. To say that we are with experimental drug, yes. Because we're still learning from it, we're still finding out the ... finding out what the human is like,

Dr Shulgin: by using LSD as a catalyst for revealing what a human is like. One tends to get into the feeling that drugs do things, but with LSD, drugs allow things to happen, and so one cannot say; look this person had an insight as the meaning of his childhood trauma, and LSD gave him that insight. LSD allowed that person to recall with some authenticity and with some significance an early event. The doing was the person, not the drug.

Interviewer: Let's go on to talk about beezee as an agent, what is it what does that do to people?

Dr Shulgin: Beezee and the other two compounds that were mentioned, atropine and scopolomene,¹ lie quite in a different category. They are very similar to one another in psychopharmacology and quite different from LSD. From the anatomic, from the neurological point of view they could be considered parasympathalitics - awkward term - as opposed to sympathamynetics,² the opposite coin

¹ *BZ* and *scopolamine*, resp., as earlier.

² *Parasympatholytics* and *sympathomimetics*?

Dr Shulgin: Many of the results are similar, there is in elaboration of visual feel, the elaboration sometimes of the auditory field, that with beeze and scopolomine, two of the ones I'm more familiar with, there is a confusion. There is an amnesia that sets it, there is a delusional aspect, a dreamlike aspect to the drug's effect, that clouds recall and has a ... the lack of insight that you are seeing something from different eyes, you are seeing what you see and accept it as being a real world. With LSD and the psychedelic you have the insight that you are seeing things differently, and you approach it quite differently.

Interviewer: Now you are very firmly of the view that there are beneficial side effects from the use of LSD. Can you tell us a little bit about that and what you've learned from your work of LSD.

Dr Shulgin: To say there are beneficial side effect sounds like the main effect is negative.

Interviewer: I didn't mean that exactly, what I meant was I want you describe the positive image as opposed to the negative image. The positive side of LSD as opposed to negative side of LSD.

Dr Shulgin: The positive side of LSD is inherent in the fact that you achieve access to your own unconscious in a union sense. There is a world inside of you in which you often have fear, which is often blocked from availability, which dictates much of your responses, dictates your behaviour patterns and LSD can allow access to this. This is to me one of the most positive values of LSD is the opening up of a communication with part of you that for some reason you have feared interacting with.

Interviewer: The circumstances by which you would work with somebody involving the use of LSD. Are they strictly controlled and ... tell me something about the way in which you would handle an experiment involving a drug like that.

Dr Shulgin: Well from the clinical point of view and talking to physicians and people who have used LSD in psycho therapy, have used LSD in approaching psychological problems, have generally followed in two paths; either that of a catalytic amount of agent, enough to relax the defences of the person, not in communicating with the therapist but in communicating with himself and allow that opening of dialogue and the dropping of paranoia. This is one form of the use of psychedelic in therapy, the opposite one is the total inundation, the total overloading of the person away from the defences; both of these have advocates and both of these positives, both have negatives, but these two approaches of the use of psychedelic - so

Dr Shulgin: called psychedelic - or they psychalitic¹ therapy, represents two mainstream approaches. The discussion is now almost mute² because the withdrawing of these drugs from clinical availability has left this area of research quite dry.

Interviewer: Does this mean then that anybody,³ theoretically, could try LSD and have some beneficial effects result from it? I mean, should it be available, say, as cigarettes or whiskey?

Dr Shulgin: That is not ... to speak of the availability, easy availability of LSD and relate it to cigarettes is a difficult equation.

Interviewer: Let's say candy in shops, or let's say something that's not going to cause you any harm.

¹ *Psychoalytic*, very likely.

² *Moot*, perhaps?

³ As in original; that *anybody*.

Dr Shulgin: LSD can cause disruptive changes, there's no question on that. The use of LSD by a person who does not wish to, a person who is content with his internal relationships, to go back to this unconscious analogue, should not use the LSD. I would say it can be very hazardous for it to be used.

Interviewer: But by and large, are you saying that if you're going to be involved in it, the circumstances by which you use it should be very strictly controlled indeed.

Dr Shulgin: The circumstances ... the primary thing that should be done of anyone before they go into LSD is to be informed of where one can go and be in the position of choosing with that information in hand as to whether he wishes to open up that part of his psyche.

Interviewer: From the reading that you've done recently and the discussion that we've had, how useful do think it was for the Army to have batteries of volunteers come forward and to be used in the testing of drugs like LSD? What do think the scientific purpose of all that could have been?

Dr Shulgin: As far as the Army extensive investigations of LSD in the 1950s, 1960s, I believe a lot of the potential value that could have been gotten was faulted by the fact that no specific questions were asked. You ask what is the value that has come of it ...postmortem ... very little. They have done a fair amount of disruption in some individual cases, extensive disruption, and have really little to show in reward for this trauma that was inflicted. I believe much of the Army experimentation was not dictated by scientific research, it was dictated by expediency of chemical warfare.

Dr Shulgin: The search for things that might have been used for interrogation, for disruption, for changing behaviour patterns of an enemy and on the other side of that same coin with the belief that the enemy was seeking out exactly the same forms of tools and weapons. What could be done to offset, to compensate, to immunise, to service prophylactic¹ against those various disruptions. Don't believe there was a scientific ... I have not been convinced there was a scientific thread that tied it together; I believe it was a rather a self serving military one.

Interviewer: And what of people who engage in a search like this, and I am particularly thinking of doctors, men of medicine, when they have taken oaths to take care of the people in their control ... do you have any view on any of the moral and ethical issues involved in using volunteers for testing like that?

¹ To serve as a prophylactic, perhaps?

Dr Shulgin: I have the strongest views on the use of ... in the conducting of experiments of this type from the ethical, from the moral point of view, and I'm not at all hesitant to express them. I believe that to bring a person into a change of state of consciousness that could be disrupted,¹ could be productive, it could be negative, it could be ... it could go in directions totally anticipatable.² What must be done is that person must be informed of the entire range of possible changes, must be given not only counsel as to where it might go, but given assurances within the knowledge of the experimenter of the variety of experiences that might come from it and of course must be given assurance with in³ the capability of the researcher that he would emerge perhaps with a memory but without scars. If a person does not have that information to advise his patients he has no business getting into this research at all. If he has that information, he must make it available and base the person's

¹ *Disruptive*, perhaps?

² *Un-anticipatable*, perhaps?

³ As in original, for *within*.

Dr Shulgin: responses, let the person choose to enter into the experiment or not on the basis of the range of effects that might be achieved.

Interviewer: We'll return to these ethical and moral issues that are involved here. It seems to me that there is a point in history where scientists, researchers, doctors, can be forgiven for their ignorance because they're stumbling in the dark, they're operating at a frontier. Just in terms of the history, what is the frontier period for LSD and when did it become less of a frontier and when did we know what its properties were and what the dangers were?

Dr Shulgin: That is an apology to the idea of saying there was a point back in the early part of this post World War Two era when so little was known about LSD that one could excuse a certain amount of stumbling about and apology for a person's conducting experiments in strange ways. But this is not fair, because the LSD is a psychedelic, mescaline is another psychedelic, and that there is a vast literature on the use of mescaline in human subjects that proceeded World War Two. A person would of course be privy to this information, with the works of Beringer¹ for example, where he describes literally scores of mescaline experiments and many of them with the same trauma, the same excitement, the same visual changes and the same sensory changes that LSD had. So one was not embarking on a new exploration of altered states of consciousness, but merely a new tool that happened to be very potent and it caught the fancy of the authorities and of the government.

¹ *Kurt Beringer*, most likely.

Dr Shulgin: But the concept of altered states of consciousness by means of drugs goes way back early in the century, in fact to the end of last century.

Interviewer: That sounds pretty sweeping as condemnation of the people that were involved in the beginning of this who but again, just to be as charitable as possible, could it be that doctors, researchers, scientists who work in an Army environment aren't as fully aware of what is going on in the outside world as people work in an academic environment who exchange ideas, who don't operate in a clandestine or with classified restrictions around them ... what's the most charitable thing that one can say about those people conducting those early experiments?

Dr Shulgin: To be charitable about the early experiments of the army I will have to assume that the questions they were asking were not questions that had been answered already with other drugs

Dr Shulgin: I am to the point of being curious as to what the question was that was being asked! Were they asking themselves will LSD produce an altered state of consciousness that is of benefit to the person? Will LSD be a potential war weapon that could disrupt an enemy? Is LSD something that could be used against us and we need to know how to defend ourselves against it? These are military questions and they needed the questions. But from what I've been able to read, I feel much of it is ... what is this tool we have, let's see if we can uncover the longs and shorts of its disruptive capability. Which is not a question but a game that I feel was being played to ... use a new weapon and just see where the fragments would fall, where the debris would fall from its use. Now ... that is not being very charitable but I can't bring myself to be charitable. I believe the questions were not framed in a scientific or an academic way, I see no evidence of that.

Dr Shulgin: I think the thing is we have a new weapon, let's fire it! And see what happens. And that's not a question, that's a military manoeuvre, a military game.

Interviewer: In some circumstances one might hold that given that societies traditionally have given themselves defensive capabilities in the shape of amours, that some type of research into weapons is necessary. You're saying that this was really research in using another weapon but of course we're talking about something very different here, aren't we. We're talking about not ... we're not talking about causing death, of administering death, we're talking about mechanisms from controlling human beings without killing them which necessitates interference with the mind's mental processes.

Dr Shulgin: Incapacitating agents, I think is term they used at that time. Ways of incapacitating an enemy without killing, but removing or at least disrupting his capability of defending himself or or¹ attacking you. Now this was probably the overall leitmotif, the reason for this exploration was to find out how disruptive would this be? Could one remedy the disruption, could one prepare and defend oneself against it? So this is still a paraphrase of a military weapon, not a research into changes of states of consciousness.

Interviewer: Given what you've been able to read about the Army research, into LSD and other psycho chemical drugs, tell me something about the kinds of doses they administered and the size of doses and the irresponsibility if it is of those doses that were given. I mean, how good a doctors or scientists were the people doing this research for the Army.?

¹ As in original.

Dr Shulgin: I don't know the people personally, I cannot speak as to their background, the reasons for what they did but I can speak to the tools they used and the way they used them because that is part of the record. LSD is an extremely potent compound, one measures the dosage in microgrammes.¹ A microgramme is a thousandth of a milligram which in turn is a thousandth of a gramme, so we're I dealing with millionths of a gramme. The amount of material that is administered in a light LSD experiment may be 40 or 50 microgrammes. The materials are virtually unseeable, it is colourless and only when administered directly to the tongue does it have a slight bitterness, it is for all intents and purpose, tasteless. A full effective dosage depends on what effects are sought, for a person which is merely to open up the change of state of consciousness, 15 microgrammes may do it. If a person wishes to enter into an intense experience with changes of profound nature in the

¹ Spelling of *gramme* et al., as in original.

Dr Shulgin: sensorium when they use 2/300 microgrammes,¹ six times the dosage of the small entertainment level. But from what I've been able to read in the various Army reports they went ten times that again. From 300 microgrammes to 3 miligrammes,² to 5 miligrammes, which would lead to a completely chaotic storm. To what end? Possibly to see if a person were overdosed to that extent would the person be able to rally about in what length of time, to find out ... if there was any communication that could be achieved, if the person could serve out a role, presumably in the military sense; this would be more inkeeping³ not of finding of what the drug does, but how disrupted the person can become by the use of drugs. And to use that level in a subject I consider to be outrageous. And to use it in a subject without informing him of the extent of the parameters of the adventure he may get into I consider to be both unethical and immoral.

¹ As in original; 200-300 micrograms, presumably.

² As in original; *milligrams*.

³ As in original; more *in keeping*.

Interviewer: You've read the follow up tests that were eventually done by the United States Army after the public criticism of what they'd been doing; tests conducted by the US Army but also by the National Institute of Health. Looking through there, what point are the authorities trying to make in those reports and do their judgments hold scientific water?

Dr Shulgin: The whole epidemiological¹ approach to finding out post facto what were the consequences of a drug experiment by following it 10, 20 years later, is almost terribly compounded and confused by the fact that to begin with not all people were the same to start with, they were not all given the same dosages, and in the intervening years they had been subjected to many many other inputs from health, to diet, to emotional components to other drugs, to other life changing events, and then to take that population or as much of that population as they were able to find two decades later and try to

¹ As in original, *epidemiological*.

Dr Shulgin: look back through the telescope to see what of their ... where they are now ... could be ascribed to a drug event then, I consider to be an exercise¹ in rationalisation. One would find many changes but you cannot make them drug related because there have been many other factors that have played that role. You have this in a much more dramatic sense right now in the effort of going back from something like lung cancer and determining the possible contributors of tobacco or of smoking. Now they have brought in the issue of radon; is radon a contributor? There will be something else coming in next week. All of these might play a role. You have the analogy of trying to go back into the use of Agent Orange in Vietnam, the trying to connect trauma and damage now to exposure then has been futile.

¹ Spelling as in original; an exercise.

Interviewer: They seem to be saying in those reports that the health of the volunteers in general is no worse or no better than the general health of a similar number of people taken at random throughout the population of ... but those reports take into account very few, if any, of the psychological trauma that these individuals, volunteers, have gone through. Could you speak a little about the inability of post factual¹ rationality here because they are trying to undo the damage by giving you a report that makes everybody feel comfortable.

Dr Shulgin: They are looking at the physical state, at the possibility of some lingering change in the body or in the health of the person, following exploratory drug that ... LSD for the point of LSD a drug that does not produce changes in the body, and changes in the state of the physical health. The efforts to try to ascribe LSD as a cause of blindness, it turned out to be totally falacious²

¹ As in original; post-factual, perhaps?

² Spelling as in original; totally fallacious.

Dr Shulgin: The efforts to try to tie chromosome changes to LSD exposure, turned out to be totally fraudulent. These things are the efforts of trying to build up a irrationalisation for saying LSD is bad, don't use it because these things can happen, are based almost entirely on moralistic and behavioural modification hopes of the speaker. There are no changes which occur with LSD; one's legs don't drop off, nor does one's hair fall out. And so looking for lost legs and bald people will not adequately reflect the potential damage that LSD can do and LSD is a psychologically traumatic agent and to find out if there had been changes that could be ascribed to LSD one has to almost as far as I'm¹ concerned, must look down through the glass at psychological changes that have evolved in the intervening period of time.

¹ Changed to single quotation mark from the double in the original; it simply could not stand.

Interviewer: It must therefore come as no surprise to you to discover that we found several volunteers -a dozen - quite easily, who have described to us chronic psychological problems as a result they believe of their experience of the US Army.

Dr Shulgin: If there are surviving trauma, surviving psychological problems from exposure to LSD 20 years earlier, I would say that an equal guilt must be placed on the fact ... not just on exposure to the drug ... but the exposure to the drug without a forewarning, without enconsuming¹ that changes may occur. The trauma would be much exacerbated by the absence of information. I would like to have been able to dissect the Army's reports and go after those who had been exposed to the most traumatic dosages and see if perhaps there is a dose response curb that would make them the most susceptible² to suffering and the lack of being informed of the changes that could occur. I don't believe that kind of correlation was made.

¹ As in original.

² Spelling as in original; most *susceptible*.

Interviewer: In terms of counselling, what form should post experiment counselling have taken then, for these people? There were no follow up tests done on them. But what should the Army have done?

Dr Shulgin: (...) that should have been done as a complete sharing of the extremes of psychological change that could occur. With that as a foundation then the post experimental counselling should be to evaluate the experience where it did go, where it fit into the anticipation, where it was in conflict with the anticipation and the reintegration of the person's self image and of his psychological integrity as a consequence of however the ... what the results of the experiment were. The counselling has to go on both sides of any experiment that's involved in psycho pharmacology. The omissions were twofold, that the before was omitted as well as the after.

Interviewer: Were these volunteers guinea pigs and did the Army treat them as they were guinea pigs, do think in this case?

Dr Shulgin: If you use guinea pig as a euphemism for an experimental animal, yes! The subjects were experimental animals that were submitted to a potential psychological trauma without being given enough information that they could make an informed consent.

Interviewer: Now is the time when we should put the lights on and go back over

TAKE 166 take one

Interviewer: Tell us about LSD, what it is and how powerful it is.

Dr Shulgin: LSD is a complex molecule, it is not a natural molecule, it does not occur in any plant or in the real world except in the synthetic hand of man. It is a derivative of ergot, which itself has an ancient, ancient history of causing all forms of psychological trauma, ergotism is a well known problem over the centuries. It is a derivative that is excruciatingly potent, the active amount of the material is a fraction of a grain of salt. A matter of microgrammes.

Interviewer: I want to squeeze that even further now, I want you if you could to say: LSD is an extremely potent drug and then just that last bit that you said, it's a fraction of a fraction ...

[Original goes from page 60 to 62]

Interviewer: What are the risks of using LSD?

Dr Shulgin: The major risk in my mind of using LSD is that you are put into a environment with which you are not familiar. You are put into a flooding of colour and light and sound and various sensory inputs that you are not ... build up a relationship with. And your responses to them may be volunteered in strange ways. One may respond to a input in a way that would be ... not be your normal choice and hence behaviour patterns may be unexpected from the objective viewer's point of view.

Interviewer: Should we then be at all surprised to hear from some volunteers that they had terrifying experiences during the course of the experiments that were conducted on them?

Dr Shulgin: Not at all surprised ... that there would be some reports of terrifying experiences. When a person is familiar with his environment and is thrust into a new environment, terror is one of the human defences against it. Unconsciousness is a human defence. Fear...

Interviewer: Let's go back and start with : I'm not at all surprised, but we're talking about the Army volunteers, young soldiers we're talking about.

Dr Shulgin: Having read of young soldiers having gotten to terrified places I am not surprised. You are taking a person who is just coming into his self, into his self awareness, where he fits with his environment and then suddenly you disrupt that environment and you superimpose interpretations on that environment that are totally new and totally unexpected. Terror is a very reasonable response.

Interviewer: Could it be that the consequence of those experiments could have lasting effects on the individual soldier who had participated in LSD experiments?

Dr Shulgin: A very reasonable expectation is of having been subjected to a very traumatic event that the resonance of that trauma would last for years. That is not at all unexpected. The difficulties ... it is not all unexpected that there may be sequelly¹ of that same fear or of the same psychological changes over a period of time. It is not common, but it is not to be unexpected.

Interviewer: But if you had hundreds, several thousand soldiers undergoing experimentation, it wouldn't surprise us then to find plenty of people who have had trauma.

¹ *Sequelae*, presumably.

Dr Shulgin: If one takes a large enough base of people, enough people, a thousand people perhaps, there'd be no surprise in finding some who have expressed any and all of the adventures of the LSD exposure at a later time.

Interviewer: In the past, the Army has concentrated on the physical health of some of those soldiers, belatedly. Should they now go back and have a look at some of those to see the psychological damage that some of them might have had?

Dr Shulgin: To go back and search for physical changes, to changes of body, of health, of offsprings, malformed offsprings, of medically physically definable residues I feel is not addressing the primary problems of LSD exposure. LSD does not cause changes, it does not lead to changes in the body. The amount of chemical is by far too small to do a dramatic insult to an organ. What is there is the change in the state of mind, change in the attitude toward one's environment,

Dr Shulgin: change in the framework of one's own psychological integrity. And if you wish to do a follow up one must look for residues of those changes - that is where you will find there is a drug adage.¹

Interviewer: Why do think the Army bothered with experimenting with LSD?

Dr Shulgin: Why would the Army even be interested in LSD? It is a potent compound. It is a potential weapon. It is a weapon that could be potentially used against them. And I think their urge was to find out the limit of that weapons capability, both in their own hands and in the hands of someone against them. My feeling is that since this is so potent, it could be easily distributed, it could be surrepticiously² administered, there are many vehicles that would become available for making it. A weapon of war. That would not be possible if you had to use gross quantities of the chemical. So the very potency of it was both an appeal and

¹ As in original.

² Spelling as in original.

Dr Shulgin: threat and I believe that that was probably the prime instigant for its research with it.

Interviewer: And yet at the end of the day, people have suggested to us that there's a side from calibrating instruments and finding out how the brain works, that its use militarily was negligible. What would you say about that?

Dr Shulgin: The use of these kinds of weapons in actual military manoeuvres has fallen out of favour. The idea of flooding an area with a poison this, or an incapacitating that leaves problems such as residue, problems of wind change, and an unpredictability of the area that's being affected. Areas of trying to administer a uniform dose are increasingly condemned by the fact that no dosage is uniform, some will be exposed more, some will be exposed less, why else would the Army have tried milligram amounts of a material (...) microgrammes but to see what would be the consequence of overdose

Dr Shulgin: And that would be an immediately applicable question to field hospitals ... the only rationalisation that I could conceive of with the use of multi- millogramme¹ amounts in experimental research.

Interviewer: What do we know of the history of the LSD research that the Army were conducting, and also what do we know of their understand of the true effects of LSD?

Dr Shulgin: The history starts ... that I have been able to read has started in the 1950s, and I must assume that those who are starting to look into the weaponry potential of psychologically disruptive drugs would be familiar with the past research that has studied just such drugs and this work has been done in the 1930s in large groups of people, largely in Germany, and I would be a little bit ashamed to have to acknowledge that one would start in a whole area that has already been explored without the background knowledge of what has already been

¹ Spelling as in original.

Dr Shulgin: done, and what is known. The potential difficulties with this type of research had to be evident to them from the earlier work that had been done. There are written documentations of warnings that had been given about the potential for difficulties, and not to attend to those would also be irresponsible for me ... medical and from a personal point of view.

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Interviewer: Tell me about the document that you referred to recently which gives us an insight into the state of knowledge the Army had about LSD.

Dr Shulgin: I have here a document that was given me ... originally it was a completely secret, or confidential, item that was covered in 1956 which very clearly states an acknowledgement of the need of caution. The fact that there may be serious after effects ...

Interviewer: ...this secret document on psycho chemical agents laid out the facts and then you're welcome to read what it says, ok? So I'll cue you ...

Dr Shulgin: By 1956 the Army was clearly aware that there could be long term effects - there could be side effects, there could be problems associated with LSD usage. In fact this document was given me here was dated in 1956 and it very

Dr Shulgin: clearly extends word of caution about the using of these materials without the precautions for the possibilities of difficult experiences. This puts it right in their hands as having been warned by people who were familiar with the complications that could follow LSD experimentation and it adds additional fuel to the irresponsibility of not having taken adequate precautions.

Interviewer: Could you read the relevant paragraph out to us?

Dr Shulgin: ...this document is confidential when it was available but has now been declassified. Right here it says: A word of caution to those who would like to see immediate large scale experiments conducted in this programme. The observations of certain British investigations on normal volunteers and reliable reports from their colleagues suggest that during acute LSD intoxication the subject is a potential danger to himself and to others.

Dr Shulgin: In some instances a delayed and exceptionally severe response may take place and may be followed by serious after effects lasting several days. This is explicit ... this says that there are potential problems that can come from LSD exposure as is very factual - these problems can be there, they're not common, they may not even be there to be expected as a thing to anticipate but they occur and when you deal with thousands of people you're going to have fragments of the edge of your distribution curve, they're going to range from the sublime to the frightening and here is a warning that the frightening can occur.

Interviewer: You've dealt with LSD but you've had successful experiments with it - tell us something about the positive side of LSD and the kind of dosage we're talking about - just contrast that though with some of the dosage that you've read about that the Army would use.

Dr Shulgin: I have worked with LSD, at the time it was quite acceptable and legally allowable to be worked with; my experiences have not all been benign and rich and positive - I have had my very difficult times, I have worked in my research group with people who I have seen the good and seen the bad. There is no black and white, there is no all one and all the other. The drug is a complex, it causes complex changes in the person's mind and when at time you start disrupting it and changing a complex structure the way it changes is not predictable. The usual dosage that has been explored has been the matter of scores of microgrammes. At this level one can find as a rule, with the proper - with the correct set of where one might go, as a rule the experiments are positive and are pleasurable and are memorable. But not always. When you start getting into heavier doses, into overdosages,¹ into monstrous dosages then the devils are more active up here.

¹ Spelling as in original.

Interviewer: Could you please tell me something about the dose levels that you've read about and the research that the Army conducted and your judgement on some of those doses that they were administering to these volunteer soldiers

MAN.: The usual dosages that are used in the clinical work range from perhaps 50 microgrammes for a slightly modified and a catalysed change of viewpoint to perhaps two or three hundred microgrammes or even 500 microgrammes. To be totally disruptive, it's a concept of kicking a car to see if it might run better as opposed to enquiring into the status of the car to see why it's not running well. This is a therapeutic experience. The Army in these reports have gone to 10 times that, they've gone to five milligrammes, areas that I did not even know had been explored in man, accidentally, let alone intentionally. And I'm not at all surprised that these levels might be psychological storms unleashed, it could be very long lived.

Interviewer: You mentioned that there had been doses of up to ... a dose of up to 500 microgrammes could be beneficial to somebody but that is in the right controlled circumstances of somebody who knows what's happening and is giving his informed consent to what's going on. Could you have relatively small doses of people who don't know what's happened to them, not even aware that they're taking a drug like LSD? And thus have quite frightening experiences from that?

Dr Shulgin: There's no reason one could not have frightening experiences from small dosages if one is aware of the fact that the disruption is going to occur, that it is going to change points of view and change sensory integrity and is unaware of the fact that there is an end at the end of the experiment at which point recovery is assured. Not to share the quality of the change, nor the reality of the finite duration of the change would provoke ... would aggravate a negative experience.

Interviewer: You seem to be saying that it's a question the hands of the people who are administering the experiment that are crucial here. Is that the case? And what kind of skills are we talking about? What is the difference between the way you do your work and the way some of those scientists did their work at Edgewood Arsenal in the 1950s and 1960s?

Dr Shulgin: I think the primary difference in my own approach to research, from what I have been able to read and gather from the Army's approach to research, is one of the reasons for curiosity. I work with people who work with me. In my earlier working in the research with the different psychedelics including in the earlier work with LSD - the questions would be asked: What can be gotten, what can be learned. Address a question to oneself. Why am I afraid of snakes? Some question that might be answered with access to some part of the inside of me that knows the answer to which I cannot normally communicate.

Dr Shulgin: These are the roles that I see these drugs of being powerful tools in therapy and in personal relationships. In the Army's case I don't think these questions were asked that way. I wonder if questions were asked at all. Perhaps the question was: What would a big dosage of this do? At which point you're using the human subject as an animal to observe the effect of large dosages of a toxin!

Interviewer: Or small doses?

Dr Shulgin: Small doses, disruptive to a lesser degree, but again, not to know, not to be advised, not to assure the person that these things can be positive, that these things will have a finite duration and that these experiments can be disruptive is the ... omission that was done before the experiment.

Interviewer: But if you're a young soldier, in your late teens or early twenties from a remote part of the country, you're not exposed to sophisticated experience\$ and you administer the drug like this without knowing that you're even taking a drug ... even in small doses, what could that do to you?

Dr Shulgin: If you were to take a person without sophistication, without forewarning, without a preparation background of the type of changes that can occur and suddenly thrust him into an altered place, take a person who has never drunk and suddenly inject a tremendous amount of alcohol into him - what were the changes. He will suddenly find his motor systems don't work, he'll find his thought processes are inconsistent, he'll find that he cannot retain memory of a certain event for long enough to interact with his environment in a reasonable way where he'd choose to. This is true of any drug, this is true with any dramatic experience. Let a person without warning

Dr Shulgin: observe an execution!¹ And a loss of life! What would this do to a naive person who's never even thought that the human animal could take another human's life? You'd have the same sort of trauma. It can be a very traumatic experience.

Interviewer: And what of the after effects on somebody like that, could there be after effects and could they continue for some time? I'm thinking about things like loss of memory, personality change, suddenly becoming aggressive, where before hand they were reasonably placid. I mean can in the situations that we've discussed ... going to change magazines.

¹ As in original; *execution*.

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Interviewer: Tell us something then about the dangers resulting from experiments from LSD, even in relatively small doses where people are not forewarned about what they're about to go through. What can the after effects be?

Dr Shulgin: The after effects of the experience of LSD without adequate warning and the after effect of an exposure without adequate warning can go in many different directions. After the original name of the state was that of a psychotomynetic,¹ something that imitated psychosis. Just to say that this is a possibility would almost assure a certain percentage of people who would have the ... a psychotic experience and would be afraid of permanently being crazy. This is a frightening baggage to have to carry with you because you are never quite certain if you are or not back where you were, you know that you have seen the devils of insanity and will this recur, will I be

¹ Psychotomimetic, presumably, as before.

Dr Shulgin: jeopardised in my life hopes by the fact that I may be carrying a certain amount of metal disruption? These things will live well beyond the shortened duration of the drug in the body.

Interviewer: While soldiers were at Edgewood they used to give them a little bracelet, identity braceles to wear with a number on it, and kind of please ring Edgewood Arsenal if you find this person. And there were also the people who administered the test aware of things like flashbacks but they never told the soldiers that they might experience flashbacks so what does this tell us about the quality of the care that they got from physicians in that establishment?

Dr Shulgin: If you have an experimental subject and you don't tell him where an experiment might go but you provide him with a number to phone in case of trouble or a bracelet that would tell a person in case of difficulty and you find this bracelet on a person who is behaving badly please inform someone ... you are in essence loading the gun for a bad experience and just the act of giving precautions against misadventure but not advising the subject himself that misadventure might occur, would increase the probability of bad experiences.

Interviewer: But it also tells us something else, as well, that these were experiments, and what I want to know is whether or not these young soldiers were actually guinea pigs. What's your feelings about that?

Dr Shulgin: These experiments that I'm looking at were clearly directed toward finding the effect of a psychologic and disruptive thing on an innocent person, or on a person very near innocent because of the

Dr Shulgin: absence of forewarning. These are in essence not experiments using the person as the intellectual brain, intelligent mind carrying individual, but as an animal. As an agent to observe toxicity and disruption and from these observations to find results ... to record result that might make the next experiments go in a better direction.

Interviewer: Could that happen today, and it did happen, what would ... could the legal consequences be for a civilian company employing such research to make techniques ...?

Dr Shulgin: Could these kind of things be done today? I wouldn't be surprised such things could be done today if you did not have to answer to law or to regulatory control. I would imagine there is a great deal of this occurring today that we don't know about because it's cloaked in secrecy or in military need to know, or in the privacy of the annals of chemical warfare or nuclear power.

Dr Shulgin: There are exposures that go on routinely ... these experiments, no, they may well be unrecorded exposures to toxins to radioactivity, to residues, to environmental poisons, in which the ... one is not fully informed of the risks involved because to inform a person that you may be exposed to some problem is to in essence admit your legal responsibility and eventually your liability. There is a less than candidness today in what is going on because of the (.....) are in (...) Probably none of it's openly done, I imagine the Army and who else would have that same degree of immunity, Government agencies in general, are probably conducting experiments in various ways right now. We don't know about it, we cannot defend against it,¹ and we cannot advise the people who may be influenced by it that this is occurring. The speculation that² the human animal does not change that easily.

¹ As in original; defend *against it*, or *against this*, perhaps?

² As in original; The speculation *is* that, perhaps?

Interviewer: Many years went by before the Army finally got round to conducting follow up tests and then only as a result of public exposure of what had been going on. You've examined those reports. What do they tell you; what do you think the purpose of the report was and do they have any real genuine scientific validity?

MAD: I believe that most investigations that follow a potentially traumatic exposure by years, in this case people were exposed to a drug and 20 years later a search is made for physical damage that may have followed connection of physical, the association of physical change was LSD not even then not valid.¹ So I believe a lot of this searching through the bones and the children of volunteers, to use that term in the Army sense, 20 years later is an attempt to assure the enquiring public that the Army was not at fault in doing any damage. I can see no other reason why this study in statistical analysis was performed. And indeed they came to that conclusion.

¹ All as in original; only the gist seems clear.

Interviewer: In a nutshell then, do those follow up tests have any ... do they hold water scientifically and do they have any real value? Shall we take any notice of them?

Dr Shulgin: I think these follow up tests address the wrong question. They're asking is there a long term physical damage from LSD when there's no evidence of short term physical damage of LSD. The question should have been asked - is there a long term psychological changes from LSD exposure when we know there is the potential for short term disruption. Those are the questions should be asked and to a large measure they were not.

Interviewer: We've discussed at length the failure of the Army to tell these volunteers what they were about to go through, to obtain their informed consent, and also the criticism that that yielded some time later. But what should the Army have done in this situation; what ... I don't mean ideally what their situation was, but what should

Interviewer: physicians working with these volunteers, a carrying out experiments, what ought they to have done?

Dr Shulgin: Physicians in running a experiment¹ with humans must decide to what extent informing the experimental animal of the potential good and bad of the experiment, the information must be given ahead of time, based upon the risk that might come from that experiment. If you are creating 10 people with diarrhoea, with a potential cure for diarrhoea, you can say well we'll treat five with the drug and we'll take five with placebo and all we have to do is say this may address your problems. If you are creating a person with a drug that could disrupt his psyche, there is none of this blindness that is permitted, one must address the subject and say: This may change your point of view. This may change your viewing, your sensory integrity, all aspects of your personality may reflect this on the basis of our experience. We have studies that have passed,

¹ As in original; an experiment.

Dr Shulgin: we have found that this is possible and that is possible. These are the ranges of possibilities that you are facing. Then, with this information, do you still want to volunteer for this experiment. You can't say - this may be interesting, it may be good for the country; that's fine if you're deal¹ with how to set a broken bone but (...) affair and is not right if you're dealing with a thing that can disrupt the cognitive intactness of that person.

Interviewer: When we look at the Blower case, and the Awlsome case, was there really any difference between the way the CIA and some of those civilian doctors behaved and the way the Army behaved in their treatment of unwitting volunteers?

Dr Shulgin: I can see very little difference. The whole world of the CIA exploration were lumped together in these Army reports as saying there were Army experiments and then there were civilian experiments. The message that was given was

¹ As in original; *dealing* with, perhaps?

Dr Shulgin: civilian experiments was those out on the streets of the Haight Ashbury. But what they are really doing is embracing the CIA and all these other intelligence agencies as being the others, civilian others. Which is a way of apologising for their own behaviour, saying at least we acknowledge what we did, they have not. But the basic disruption is just as devastating to take a volunteer in a psychiatric hospital and administer a psychedelic drug to him without telling him its ramifications, as it is for an Army general to administer a psychedelic in a Fort Deitrich Barracks somewhere without telling the subject of the potential of change.

Interviewer: We're going to stop there and change rolls.

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Interviewer: To digress slightly, tell me about your view on the treatment of Howard Blower and the doctor that injected him with that substance.

Dr Shulgin: The incident with Blower occurred, I believe, in New York which I have been told that the doctor that injected him with an experimental drug acknowledged he didn't know what it was. It could even have been dog piss - I think were the actual words he said. And yet I've been told by another source that the physician involved said that the bottle was mescaline sulphate obtained from some commercial source and yet I have it notes in my own files from the written by the nurse who was involved at that time, who said it was MDA that being injected intravenously. This is totally unbelievably irresponsible, to treat a human in some captive way with a drug of which you have no idea whether it came from the bladder of

Dr Shulgin: a canine or from a chemical supply house. And apparently one cannot find out now accurately and the strong feeling is one didn't know then accurately. So you have compounded a medical travesty by actually using drugs of a known character, of an unknown name, unknown quality.

Interviewer: I'm going on to my next question now ... Which talks about what kind of counselling could have been given after the soldiers had had these tests and how it might have helped them. So can you just discuss what the Army should have done by way of follow up counselling for these soldiers.

Dr Shulgin: What should the Army have done in the way of follow up counselling? It's easy to speak now in retrospect because we now know what kind of intervention is effective. At this time, if you find a person that's been in some sort of a psychological trauma, the counselling, the interaction is one of therapists, psycho therapists, psychologists.

Dr Shulgin: To touch on, probe and either diffuse or consolidate the events that have occurred during an intense and disruptive psychedelic experience. At that time this should have been done but at that time perhaps it was not appreciated in fairness, it may not have been appreciated to the extent of long lived resonances from these insights or from these frightening events. So what should have been done is a person should have been approached as patient who has been through an intense experience and with a little bit of psychological benignness, with a little bit of compassion, enquire into the changes that occurred and what they mean to the person. Not to put them on a bus going back to Georgia!

Interviewer: Is it credible then that a young person, a young soldier who hadn't received that counselling, some time afterwards could have felt that they were going mad and not understood what was happening to them, actually believed that they were going mad?

Dr Shulgin: I think it's a very real possibility that if a person had not been comforted and assured that the event was a past event and only has this resonance of a frightening, almost a psychotic character of experience, that the person may very well at some subsequent time, this is maybe a form of a flashback, this may be a form of an uncertainty about one's intellectual or mental integrity, could very well see this as being a damage that was done and can try to find some way of coming to live with something that he may feel he has been a wounded person. And that may be the form of his (..) to some mental disruption.

Interviewer: Let's just cover that again. Is it credible that a person who wasn't counselled, a young person that wasn't counselled, administered a drug in the way that we've discussed, could actually believe¹ they were going mad, out of their mind? Crazy?

¹ Spelling as in original.

Dr Shulgin: Without some following counselling there's no question but their probability, their chances of having a long term mental disruption is greater. A person has been into new territory, they have found it very frightening, he may have seen it as some form of mental instability, and that will stay with him. The recall is excellent and it's a very real possibility that at some later time he might say: I wonder if what happened then could happen now or is happening now. This is real, it's unlikely, but it is possible and I think it would be minimised by having a friendly counsellor, a psychologically adept interviewer coming in after the experience and evaluate those things that had happened and put them in their right perspective.

Interviewer: Why do you think the Army used human beings for this research?

Dr Shulgin: I believe the Army used human beings for research primarily because animals don't show the response to the psychedelic drugs as people do. And they can see very directly what the goods and bads are, the consequences of disruptive overdose, where they would get a verbal feedback immediately from the subject and quite honestly they had inexpensive subjects available! That could be coerced, or asked or encouraged to volunteer their services.

Interviewer: And why do you think the Army used LSD as a potential weapon, what do you think they saw in it?

Dr Shulgin: The use of LSD as a potential weapon fell in at that time at least in the category of incapacitating agents. It didn't fall into enlightenment, or finding God or religious experience, I don't think the Army held these ends as being particularly high goals. I think the idea was incapacitation, disrupt, make a person completely ineffective as an enemy, without killing them.

Dr Shulgin: The concept of incapacitation is exactly that. If you can knock them out and not stop their breathing then you have a way of avoiding the most ugliest of war ... a dead enemy is of lot less consequence to the opposition than an incapacitated enemy, because an incapacitated enemy must be cared for , he must be removed from the fight, he must be tended under medical conditions; a dead one can be ignored. So one of the virtues of the entire direction of incapacitation was to burden the enemy with the responsibility of caring for their wounded.

Interviewer: Was what the Army did immoral?

Dr Shulgin: I believe what the Army did was unethical and immoral. The reason for the lack of ethics is because they were doing to others that which they would not choose to have done to themselves. Immorral¹ because, no! Perhaps not immoral, but amoral. I believe it was done without a sense of morality,

¹ Spelling as in original.

Dr Shulgin: not with a sense of misguided morality, to bring a human subject into a psychological storm of this type without preparing them for what might happen, and at the end of the experience to release them to their own devices without having counselled them of the strengths and weaknesses of what did happen shows a complete disregard of the value of that person.

Interviewer: So were the volunteers like animals in a cage, were they guinea pigs?

Dr Shulgin: I believe the volunteers were strictly human animals in these experiments, they were like guinea pigs, yes.

Interviewer: Thank you.