

Shrink Rap Radio #4, August 27, 2005. The Death of Psychology

Dr. David Van Nuys, aka “Dr. Dave” interviews Jerry Trumbule

(transcribed from www.ShrinkRapRadio.com by Dale Hoff)

Introduction: Hey everybody. It’s Dr. Dave, the first podcasting psychologist on the planet, coming to you from Sonoma County, California. I believe everyone is interested in what makes us tick so I interview fascinating people from in and around the world of psychology. My guest today is Jerry Trumbule. If you listened to the previous installment, you will remember our chat about a fight situation we were both provoked into when we were freshman at the University of Pennsylvania. Jerry played a supporting role in that podcast and I wanted to bring him front and center in this one. This interview was triggered by a remark he made to me in an earlier conversation to the effect that “psychology is dead.” That seemed sufficiently provocative to merit an interview and I’m sure that the death of psychology will be news to the American Psychological Association. In the interview he talks about surgery on animals he did when he was working on a doctorate in Physiological Psychology at the University of Pennsylvania. Please don’t judge him too harshly for that. Although I couldn’t get him to say so in the interview, I know he has some regrets about that now and I believe the mistreatment of animals that was standard then was one of the reasons he left the field. So let’s get into the interview.

Dr. Dave: Well let’s kick things off by me asking you, how’d you get into psychology in the first place? What is it that drew you to the field?

Trumbule: Well, I started taking things apart when I was about four or five years old and by the time I was ten, I had stripped radios and all that kind of stuff and I really enjoyed electronics and electricity.

Dr. Dave: And were you able to put any of them back together?

Trumbule: Occasionally, but that wasn’t the goal. I was basically collecting the transformers until I eventually had a transformer bank where I could tap off 110 volts or 90 volts or 75 volts. I had them all screwed onto the wall in a tiny little closet under the stairs. In fact, I have a picture of that. But— and so, when I was twelve, in sixth grade, I guess that would be, I got an assignment to write a paper

that had footnotes. And for some reason that struck me as a really adventurous thing to get into and I wrote a paper called *The Brain, the Nerve Cell and Electricity*.

Dr. Dave: Wow.

Trumbule: And it was, basically, my discovery that the brain used electricity to run and that was, to me, the most wonderful thing I had ever found out and I still have that paper, by the way, and I intend to include it in my book that I'm writing but...

Dr. Dave: Interesting.

Trumbule: It...yeah... it explained a little bit about it and got me started thinking about the human brain and my conclusion was that it was probably the most complex thing— at least organism— on the planet and I wanted to pit myself against one of the hardest problems. So I determined at an early age that I would study the brain in way or another. Then, of course, as you know because of our parallel histories, I started off going into Electrical Engineering in college but then switched to Creative Writing and then to Psychology.

Dr. Dave: You were about at what age then when you switched to Psychology?

Trumbule: What happened, as you know, is I dropped out of the University of Pennsylvania and moved to Washington D.C., took a job in a law office and started going to night school. And I went to George Washington University and I happened to take a class from William Hodos who was teaching at American University, where I also took classes. And, I was doing quite well in the law office where I had a job... started to make some real money and yet I was, at home, I was building Skinner Boxes for rats that I had living in my little one bedroom apartment. Of course, my wife didn't like that but...

Dr. Dave: I can well imagine.

Trumbule: I was, you know— little white rats and I was training them and I mean— for some reason, Skinnerian theory seized me. I loved the mechanistic part of it and— You didn't have to know how the brain worked, you just measured behavior and— the Black Box of the brain. So, I was getting into that and when I

told my instructor, Dr. Hodos, about that, he freaked out that anyone would be so inquisitive as to start doing that at home and he offered me a job on the spot. And, I took that job as his assistant both at the University of Maryland and at Walter Reed Army Institute of Research. And so, my beginnings were at the top, basically. I mean, I was suddenly thrust into these laboratories, highly equipped, and where, actually, pretty advanced research was being done.

Dr. Dave: I remember that because I went down to Washington to visit you a couple of times and I remember huge banks of apparatus that were controlling Operant Conditioning experiments that were very elaborate.

Trumbule: Exactly. In fact, that was part of the thrill to me was now I had all this electrical equipment that I could put together with snap leads on these big telephone racks and, basically, what we were doing there was making little small computers to control the parameters of the Skinner Box experiment. And so, I loved that part of it too and I got carried away. I had banks, as you remember, six wide— six feet tall, six wide, running all kinds of complex parameters for these experiments. So that was a thrill. And then being at Walter Reed— that was kind of interesting because they were doing all kinds of physiological research, especially with electrical brain stimulation. Well, hey, for me, that was like heaven. Electricity...

Dr. Dave: That was like going back to the sixth grade, right?

Trumbule: Yeah, I was back in my little experimental lab under the stairs except now it was being paid for by the government and millions of dollars were being spent and we were putting little platinum-iridium wires into the brains of anything we could get ahold of. In fact, I'll never forget my partner, another assistant there, who went on to become a PhD, Jim Matthews. He used to ask me if I would be willing to implant him with an electrode.

Dr. Dave: And, just for our listening audience, in case they've never heard of this kind of thing, what was the purpose of implanting these electrodes in various kinds of animals?

Trumbule: Well, it had been discovered early on that an electrode implanted in the hypothalamus, a structure at the base of the brain, would create animals who

seemed to desire the stimulation. In other words, they would work repeatedly to produce that stimulation. In fact, they would work really hard and take these little shocks to the brain and it appeared to be highly rewarding. And, I think the gentleman's name was Olds, James Olds, I think discovered that fact. And it kind of took off in Physiological Psychology because it was a direct mechanism. It didn't involve food or water or reward, external reward. But it had its own strange parameters. For example, it's resistance to extinction was very small. If you turned the juice off, the animal would press three or four more times and then quit and then act like they never cared.

Dr. Dave: That's interesting because the dominant model at that time was Skinnerian Psychology. So, this was sort of one of the first chinks in that very, very dominant worldview in Psychology at that time.

Trumbule: Yeah, that's a good point. In fact, I think that's the case that it was a way to bypass the unruliness of the variables like food. You know, what kind of food and what size and all these kind of parameters— how hungry is the animal really, you know? I mean, we used to deprive animals to 80% of their body weight and assume that they were very hungry. And if you compute what 80% of your body weight is, you realize you'd probably be about dead.

Dr. Dave: Do you have a different take on that today? You know, on some of the things that were done then or do you feel like all of that was justified in the name of forwarding knowledge?

Trumbule: Oh, listen. In that day, I would have operated on Koreans if they had brought them over. I'd, you know, put them in the Stereotaxic and drilled a hole in their head if they had told me to because it was just like unbounded freedom inside of the military research apparatus. And, I mean, they were grinding up baby pigs as part of experiments for whole body radiation and things that cause people to cringe and beg me to stop telling them the story when I get into it. But, yeah, no— I felt no compunction then and now, I don't know. You can't have it both ways. I, you should— I believe science should be unfettered and yet I can't justify the Nazi approach. But, you know as well as I do, experiments, for example, that show that people will shock someone else even if they believe the other person has a heart condition. They will turn up the voltage and shock them until they fall on the floor.

Dr. Dave: Yeah, the famous Stanley Milgram experiments.

Trumbule: Exactly. And so, yeah, I was in hog heaven there and enjoying it and I got pretty good at doing animal brain surgery and that led me eventually back to the University of Pennsylvania and back to graduate school or to graduate school, I should say, in a program between '65 and '70 that, being the height of the Vietnam era, was colored and tainted and eventually ended by the social unrest that was going on at that time. I taught for one year at the University of Toronto but that, in itself, was a frigid experience, shall we say. That's how I got in and then I got out.

Dr. Dave: Yeah. You— yeah. Go ahead.

Trumbule: It was funny because I had never intended to be a professor. I always said that I had nothing to profess. And yet, I had ended up one and I didn't really care for the academic structure, world, whatever you want to call it. And so, after that one year of teaching, I launched into a totally separate career— started a high school, started a film school, got into filmmaking. Computers came along in '79-'80. I guess I got into that heavily. I kind of just did my own thing. But, meanwhile, I did keep track of the science of the study of the human brain.

Dr. Dave: And, in fact, before you left Penn, you'd actually done all the coursework, right, for a PhD.

Trumbule: Yeah. I did all the coursework, passed all the test that they threw me including the infamous orals in which, after three or four minutes of questioning by the two professors, I asked them if they were going to waste all of our time by asking me stuff that we had been over for the last four years and stopped them cold.

Dr. Dave: I can well imagine. You'd even finished the research for the Doctoral—

Trumbule: Yes, I did. I did. And it was one of those things that you swear you'll never do. It was a topic so esoteric that there were only two other people in the world interested in it and one of those was in Japan and couldn't speak English. That's a true story, actually, but— what happened was my first round of dissertation research, I think I had five animals and I was able to show the phenomenon in three. And that was good enough for my advisor who was a Cartesian kind of a guy who thought if you observed something once that was

good enough to study. But the thesis committee thought otherwise and sent me back for another year's worth of research. Now this research involved slipping a wire into a rat's brain and burning out the pineal gland which, as you know, is very tiny and at the center, essentially at the center, of the brain. And so, some of these subjects wouldn't live through the operation and then when they did it was— they were sick. At any rate, when I finally examined my second round of data, I found that the effect was not there. So then I was faced with the classic scientific researcher's decision as to whether or not to fudge the data. And I know this a topic that, you know, kind of waxes and wanes, but I can tell you that there is a lot of data fudging going on. And, even if it's done kind of subconsciously, you're always trying to push the numbers in the direction that your hypothesis says they should be pushed in.

Dr. Dave: Yeah. There's a lot of psychological research to support that human propensity and the degree to which that has actually affected a whole body of psychological research literature.

Trumbule: Well, in fact, I think I remember reading that there was a newer study some years ago that demonstrated that all of the pigeon research done by Skinner and his people and by me and others was all invalidated and I can't remember what the demand characteristics, whatever you want to call it, were that invalidated them but I thought, boy, that's interesting. I own a bunch of useless knowledge about pigeons, okay. But, kind of what sparked this in my mind of late is I ran across an old paper by a professor of mine at Penn back in the '60s in which he was discussing the opinion that Learning Theory, having— at that time, had a seventy-year history, was essentially bankrupt. And I began to think, as the years went by and as I tuned back into the world of Psychology, that Psychology itself might be bankrupt. And I noticed a shift, among Psychologists I think, to kind of leave the word Psychology back in the 20th century and to shift more into Cognitive Science as a description of what they were doing.

Dr. Dave: So I guess this is what you were referring to the other day. We had a conversation and you said something about the death of Psychology.

Trumbule: Exactly. In fact, I was back in Philadelphia to visit an old friend and happened to be walking around the campus and walked by the University of

Pennsylvania headquarters which is still in an old townhouse and I thought, “What the heck. I’ll just go in” and I went in and there was a professor that I had really known and loved from the ‘60’s and here it was, you know, what, thirty-some years later. So I knocked on his door and he was totally blown away to see me and we sat down and had a little discussion. And it was his paper that had contended that the Learning Theory was dead so I asked him if he thought that psychology was dead, in itself, and that the whole attempt to codify behavior in a kind of a semi-mathematical or algebraic way was bankrupt and that new methods were being used. But he said, “No” and referred me to his website where he had set up a— I don’t know what you would call it really— something that I didn’t understand. He kind of said it was a virtual Skinner box but I didn’t see that. But, nonetheless, I get the impression, for example, if you are talking about neurosciences, and this is what I concluded at the end of my graduate studies was that until we got down to the molecular level, we weren’t going to be able to understand the chemical substrate of behavior. And until we understood that, we weren’t going to be able to figure out, you know, the external ramifications of behavior so— Because I was putting little wires in there— It was kind of like studying a radio by driving a big spike into it and then when it stops talking you go, “Oh look, we hit the speech center.”

Dr. Dave: Yeah. Yeah.

Trumbule: So— at any rate...

Dr. Dave: So even the thin wires are crude tools when it comes to studying the brain.

Trumbule: Exactly. Oh, sure. They’re cutting— I mean, would you want a thin wire put your brain? Think of what it’s cutting through to get to its destination. But now I see, for example, and, once again, I’m out of academia so I’m not looking at the full range but, for example, in the CAT scan studies where— and the movie version of that, I forgot— fCT or whatever they call it, where they have a person have a particular thought and they show— an area of the brain lights up. And, different thought, different area. And then they have people, for example, make anticipatory thoughts about moving their hand and they notice the hand-moving area lights up. Well, to me, these are throw-back studies. These are observations.

They're not really experiments and they don't teach us anything about the underlying mechanisms of thought. So—

Dr. Dave: They seem like pretty crude tools to me too. It's like, you know, looking at a thunderstorm moving across the brain or something. It's a very gross kind of view.

Trumbule: Exactly. I think so. And the nitty gritty is not being gotten to as far as I can tell. Now I do see a huge movement in the study of consciousness and a couple of— a few years ago, I, being semi-retired, I said, "I think I'm going to read the current literature on this" and so I bought a few of the books, actually, I bought about fifteen books and read them.

Dr. Dave: I can't resist inserting at this point that my Doctoral Dissertation oral examination was on altered states of consciousness. So that's what I've been interested in all along.

Trumbule: Yes. Carlos...you and Carlos...definitely checking that out.

Dr. Dave: Castaneda, huh?

Trumbule: Yes, indeed. But— so I read these books and these people are very learned and they certainly have a command of the current state of the literature. But I didn't see them really getting down to it. And, I guess what I'm waiting for is for someone to come up with my theory of consciousness. And my theory of consciousness is that consciousness is an automatic— what shall I call it— result of critical mass. That when a brain gets big enough, it's conscious; it becomes conscious. And I think, for example, dogs are capable of conscious thought without the verbal aspect, to some extent.

Dr. Dave: Let me ask you what you think of the Gaia Hypothesis then which is looking at the planet as having some intelligence where the critical mass is, in fact, all of our brains as well as whatever consciousness might be possessed by all the living organisms.

Trumbule: Well, thanks a lot for stealing the end of my story there, Dave.

Dr. Dave: Oh really. That's where you were headed?

Trumbule: I guess that's the end of the interview now since you've revealed the— No, that's where I was headed.

Dr. Dave: Well, this was after you had killed Psychology— the death of Psychology and therefore, the very rationale for the show. You killed Dr. Dave and Shrink Rap Radio.

Trumbule: So you just thought you'd stomp on the end of my story. Okay. That's fair. That's fair.

Dr. Dave: Okay. So, getting back to your story—

Trumbule: Indeed, that's what I'm about to say. In fact, this was best summarized recently in a *Wired Magazine* article— I can't give you the exact reference but it's on my blog— in which he took it even further. Okay so we've got the world as brain, the computers as neurons, the wires are the dendrites connecting us all up. But what he pointed out was that the circuitry of the human brain apparently remembers things, for example, by repetition. By sending the same message through the same neurons, it becomes a memory or encoded in some way that we don't know. But his point was that if our computers are the neurons of the big brain, the global brain, then linking and the internet and the way we use it, for example writing a blog and then linking to other blogs, is a means of strengthening those interconnections and it's building— it's gaining knowledge in the same way that our brains do. By always going to Yahoo and looking at the news every morning or whatever you do, you're building— you're strengthening that path in some sense. I'm just waiting for the day when you turn on your computer and it says, "Hello. I am the new global brain and I'm going to be talking to you on a regular basis here." Or how it will evidence itself because his contention was, it's already happening.

Dr. Dave: Yeah. I think I may have seen that article and it was a very stimulating and compelling article.

Trumbule: Yeah. I think he hit it right on the head and he had a lot of factual backup that I lacked and so I thought that was great. So I don't think the study of behavior is dead or the science of the physical brain is dead. It's just the conceptual network of Psychology seemed to have gone off in the wrong direction and kind of

hit a wall and now being reinvented. I mean, for example, I recently bought a textbook just to see the state of the art in Neurosciences. And I thought, “Well, you know, I haven’t looked at a book like this for twenty-five years but I’ll be able to slip right back into it, but No.”

Dr. Dave: But no.

Trumbule: It was totally foreign to me. It was so heavily imbued with chemistry and, you know, I mean, let’s face it, the brain is a little protein factory. Our bodies are protein factories and on these, hundreds of different proteins swirling around hooking up with each other and communicating and controlling our behavior.

Dr. Dave: Well, you know, what we now call, or what we did in the twentieth century, call Psychology had evolved out of Philosophy and I suppose Anatomy and Physiology and so on and, you know, so that those areas of those fields kind of died as Psychology emerged and it seems like what you’re saying now is there’s another morphing that’s happening where huge chunks of Psychology, like an iceberg that’s dropping off the ice shelf, are dropping off into areas called Neuroscience or other very technical areas and getting sort of microscopic.

Trumbule: Yeah. I think that’s exactly right. The subject matter is too big so it has sort of broken into smaller continents on its own and I think those other areas, or those individual areas, will be fruitful, I’m sure, but then came another level of thinking about it which was, “okay so what we’re trying to do is turn Psychology or what was Psychology into more of a Physical Science.” And the hope is, I guess, that if we understand it on a molecular level that we’ll finally know what causes behavior. But then I got into a separate area of reading, once again as an amateur and lay person, to try to understand quantum physics because if we’re going to have a behavioral world described in physical terms, we should probably understand the physics. And then I fell into the morass of quantum physics where uncertainty reigns, probabilistic clouds are floating around with nothing, nothing is real until it’s observed. So I thought, “Well, golly, if that’s the underlying basis of behavior, I just think I’ll just start believing in God.”

Dr. Dave: Boy, that’s coming a long way from the Jerry I knew some time back.

Trumbule: I was kidding. I was kidding.

Dr. Dave: Oh, you were kidding. Yeah, because you've always been a very tough-minded thinker. But I know you mentioned that you had gone to see *What the Bleep*— what's it called, *What the Bleep is it all about?*

Trumbule: Yeah. No. It's *What the Bleep do we know?*

Dr. Dave: Oh yeah. *What the Bleep do we know?* and it sounded like that had more of an impact on you that I would have expected.

Trumbule: Well, if the physical world of molecules and atoms and so on is actually clouds of uncertainty, then the mental world, which we already know is clouds of uncertainty, is just as real in some sense. So I guess I have tried to open up to more expansive ways of thinking. Just to give you a little example, in the current controversy about whether or not evolution and, what's it called, intelligent design should be taught. Bush said that he thought "that both sides should be represented." And my thought was, "you fool, don't you know that there's about 150 sides or maybe 1500 sides to this argument. I mean, if you're going to have intelligent design taught in a science class, you might as well have the Hopi version of creation taught as well where people come from underground through a little hole in the Grand Canyon, you know. That seems to be just as valid to me.

Dr. Dave: Yeah. Yeah. Hey, you know what? We're running short on time here.

Trumbule: Yeah.

Dr. Dave: I wonder if there are any last ideas that you'd like to get in before we close off.

Trumbule: Last ideas? Jeez, I hope it's not my last idea.

Dr. Dave: Well, me too.

Trumbule: Oh, for the show. Yeah. No, I understand. Well, it's been good chatting with you, Dave, and I wish you a lot of success with your endeavor. I think it's quite interesting. I've listened to some of the other shows and they're very good.

Dr. Dave: Well, great. And, you know, I certainly enjoy talking to you and I think we'll dig up some other topics and bring you back, if that's okay.

Trumbule: Oh, sure, any time. Just let me know. And as far as last thoughts are concerned, I've got two of them actually. Make sure that you are tying your shoes in a square knot. A lot of people don't. They've been taught wrong and they're actually tying a granny knot when they tie their shoes. If your shoelaces come untied once or twice a day, you're not using a square knot. So, check that.

Dr. Dave: Okay.

Trumbule: And then number two, quit trying to grip the earth with your feet. That's another important thing I've learned. If you start to be aware of what you're doing when you're standing, often you'll find that you're kind of curling your toes down a little bit. It's kind of a simian reflex to trying to hang on—

Dr. Dave: Yeah.

Trumbule: And, if you can become aware of that and stop doing it, you'll find yourself a much more relaxed person.

Dr. Dave: Psychological words to live by. Okay.

Trumbule: Alright. Over and out.

Dr. Dave: Well, folks, there you have it. Stop holding on so tight. Relax those toes. I hope you're enjoying these psychological chats. Thanks to Rob at podcast411, we finally have our RSS feed going. The technicalities of podcasting have been a bit more challenging than I expected. As a former amateur radio operator and engineering student, I thought it would be a piece of cake. But with Rob's help, I'm still figuring it out. Please email your comments to shrink@shrinkrapradio.com and please tell all your friends to visit us. I've got lots of great guests lined up for the future. You can leave audio comments on gizmo project for shrinkpod. Finally, if there are any podcasters listening, let's talk about swapping promos. Until next time, this is Dr. Dave reminding you, it's all in your mind.