[00:00:00]
>> MATTHEW: Welcome to the fourth episode of the Talks at Google podcast where great minds meet. I'm Matthew your host for this episode featuring the bestselling author, Michael Pollan. Talks at Google is an internal speaker series that brings the world's most influential thinkers, creators, makers, and doers all to one place. Every episode is taken from a video that can be seen at YouTube.com/TalksatGoogle. Michael Pollan has written five New York Times bestsellers, including Food Rules, In Defense of Food, and The Omnivore's Dilemma. In this talk he shares insights and answers questions about psychedelics based on his research done for his new book, How To Change Your Mind, with the new science of psychedelics, teaches us about consciousness, dying, addiction, depression, and transcendents. Now here is Michael Pollan, How To Change Your Mind.

[00:01:08]
>> POLLAN: Thank you, David. Thanks very much. Can everybody hear me in the back? So I get to talk about my trips, but you don't? It doesn't-it doesn't seem fair. So I'm gonna just talk for about 10 minutes and-and just tell you a little bit about what this book's about, and then, I'd love to take your questions and-and-and let your interest dictate the path that we take this afternoon. First, thanks. Thank you very much for coming. This book is a real departure for me. Those of you who know me as someone who writes about food might think it's a little weird that I'm turning to psychedelics, but in my head there is a--there is some continuity, as well as change. And the continuity is that I see my writing about food as part of a larger interest in writing about nature, and, you know, the way we eat affects nature dramatically, more than anything else we do actually, in terms of changing the landscape of-of the planet and the-the atmosphere, and I mean, it's-it's one of the--it's your most powerful engagement with the natural world.

[00:02:07]
And I've always been interested in that engagement. And we use nature and plants, especially, for-for many things. Food is an obvious one, beauty is another, but something we almost all use plants for that I've always been, kind of, curious about is to change consciousness. Most of us today probably used a plant to change the contents of your mind, or at least the feeling tone in your mind, you know, whether it was coffee, or tea, or a-or a cigarette, or cannabis, or whatever it is. I mean, this is something we do, and every culture on earth does it with the-with the one exception that proves the rule. The Inuit do not have any plant drugs, but it's only because none of them grow where they live. As soon as they go somewhere else, they get with the program. So it's been a long standing interest, and-and to me, it's all part of that story about this-this fascinating engagement we have with other species that defines us and reveals a lot about us.

[00:03:08]
So I've--so that--and I wrote a little bit about Cannabis and Botany of Desire, and-and I wrote a-a long piece about growing opium in my garden back in the 90s. And I've written about medical marijuana, so I had this interest. And then along comes this new research which I began reading about. In 2010, I read about a really interesting odd study where researchers at NYU and Johns Hopkins were giving psilocybin, this is the

ingredient in magic mushrooms, they were synthesizing it, to people who had cancer diagnoses, people very sick, many of them terminal, in the hopes that they would have what they call the mystical experience, a powerful spiritual experience that would change their attitude toward their death and help them essentially to die with more peace. There were--these were all patients who were struggling with depression, anxiety, and fear--profound fear.

[00:04:06]
And the stories--I--so, I started writing about that, because it seemed like the last thing I would wanna do is trip when I was facing a terminal diagnosis, to lose control like that, and you would-you would presumably have a very dark experience. So I started interviewing these people for a piece I did in The New Yorker in 2015, and just to give you one example to give you the flavor of it. I remember talking to this woman. She was a figure skating instructor in-in New York in Manhattan. She was about 60. She was not a psychonaut. She had never used psychedelics before, and she had ovarian cancer. And her cancer had been treated successfully, but she was paralyzed by the fear of recurrence. She just couldn't function because she thought any day now this could be back. So she entered into this trial at NYU and had a high dose psilocybin experience.

[00:05:04]
And I should explain how this is done because the image you may have in your head of taking psychedelics, you know, taking a handful of mushrooms and going to a concert or something, this is not how it is used in a clinical setting. It's a very controlled experience. It's guided. So you-you work with two guides, a man and a woman, they prepare you over a course of several sessions as to what to expect. So they'll talk to you what to do if-if-if-if the experience becomes frightening, which it often does, and how to navigate that. They call it the flight instructions, and their-and their main advice is, you know, if you see a staircase, go up and if you see a door, open it, if you-if you see a monster, don't run away. Just step right up to it and say, "What are you doing in my head? What do you have to teach me?" In other words, surrender to the experience. Trust. You know, they quote John Lennon, "Relax the mind and float downstream." And that's very important advice, and it's often the difference between a good trip and a bad trip.

[00:06:05]
A bad trip is essentially a panic reaction against what's happening in your head, which is very heavy. I mean, you're-you're experiencing your ego dissolving, in fact, in front of you. And then, they sit with you for the whole experience, and they give you a helping hand if you're getting upset or struggling, and they, take you to the bathroom and give you a glass of water. And then, afterwards is a really key moment called the integration session where they sit with you. You tell the story of your trip, and it--and usually is this narrative. It's almost like this intra-psychic movie where you go different places, and you try to make sense of it and apply the lessons to your life. So in the case of this woman, her name is Dina Bazer, she-she had this trip, and there are many elements I won't go into. It was-it was like six hours. And she went into her body imaginatively, and she saw this black mass under her rib cage, and that was her fear.

[00:07:03]
It wasn't her cancer, because that wasn't in the right place, but she saw what she realized was her fear. And she screamed at her fear. And you-you have to see this woman. She's a very timid, small woman, and she said, "Get the fuck out of my body." And it did. It disappeared. The black mass was gone. And afterwards, she said, "I realized during that experience that I can't control my cancer, but I can control my fear," and that distinction meant everything to her. And one of the hallmarks of the psychedelic experience is that whatever insights you have during it have a force the likes of which you've never experienced. These are not just opinions or insights. They're revealed truths. This is something William James a long time ago writing about the mystical experience called the noetic sense. It's a very uncanny thing, and it's what allows people to change that if they-if they think--say they're trying to quit smoking and they have some, you know, epiphany that, "Gee, my breath is really precious. I should not ruin it by smoking."

[00:08:07]
Suddenly that will be so strongly held as a belief that they can actually stop smoking. So anyway, so that's the kind of experience that I was learning about, and I became fascinated to understand the neuroscience behind it, what's going on in the brain when people are taking one of these trips. And we now know some interesting things about that. If you're interested, I can talk about that and also the history of it. Like, what happened to psychedelics in the 60s that they became so stigmatized that research stopped? There had been a very productive period of research all through the 50s that was yielding really promising results in the treatment of alcoholism, in-in dealing with people who were dying, depression, anxiety, obsession. And then, after this moral panic that hits the culture around 1965, nobody studies it anymore. The funding dries up, scientists are a little embarrassed by it, and-and we had an unprecedented situation where a promising line of scientific investigation was stopped.

[00:09:12]
That never happens, and we last 30, 35 years of research into psychedelics. Thankfully, it's resuming, and my book is very much about the renaissance, even though I go back, and look at the history, and figure out why we had this panic reaction about them, and try to look at them in a very matter of fact way as interesting tools-interesting tools for understanding the mind and for healing the mind. Now, we haven't proven all this. There's still more research to be done. We're kind of in phase two, and there's phase--there are three phases to FDA drug approval, but so far the results have been remarkably encouraging. It is one of the most powerful psychiatric interventions that the researchers have ever seen, and we're in a situation where mental health care is so broken in this country. It's failing to reach half the people who need it. The last major innovation were-were the SSRI antidepressants in the late 80s. There really hasn't been anything since then.

[00:10:13]
And so we need some new ways of thinking, and-and along comes this powerful old but new innovation. And-and the research is, you know, it's

being privately funded for the most part. Big Pharma is not interested in this. There's no intellectual property that you can control, but a lot of donors--many in the tech community, actually, have stepped up and are funding this research. And I was just at a fundraiser where, you know, the last $7 million was raised, and-and so we will find out. We'll get the real test, the scientific test of what-what are these drugs good for. And then, there's the question of, what are they--what value might they have for the rest of us? Because they help people who have serious problems, but as one researcher put it to me, they're very important for the betterment of well people. And-and I could talk a little bit about that, too. So as part of this, because it's sort of my brand to do immersion journalism, you know, when I wrote about the cattle industry, I bought a steer.

[00:11:16]
When I-when I wanted to learn about architecture, I built a house. So of course I had to experiment, and-and I-I found some guides underground and there is a-a thriving community of underground guides in America who could give me an experience very much like the ones at NYU and Hopkins. And-and they were, you know, transformative experiences, some of them, some of the most meaningful experiences in my life-life. And the idea that a molecule could occasion that is, to me, still kind of mind blowing. So, I'm gonna--though I've given you lots of leads and things you might want to follow up on, and I'm happy to talk about anything, I advise you not to talk about your own experiences. I want to welcome the Google micro dosing club to today's event. Anyway, so yeah, question?
>> All right. So I don't wanna be the devil's advocate here, but--

[00:12:18]
>> POLLAN: Please do.
>> --the--this idea that we're gonna--we're gonna give somebody this drug, they're gonna have this transformative experience, and then, it's gonna change them, I understand how--that makes sense to me, but the idea that that change would necessarily be for the better--
>>POLLAN: Yeah.
>> --that, like, person comes back from a trip and decides they're gonna quit smoking. That's great, but, like, why doesn't a person come back from a trip and decide they need to, like, kill their neighbor?
>> POLLAN: Like, right.
>> What-what--how do we break the symmetry there?
>> POLLAN: Set and setting. So-so the--one of the-one of the important features of psychedelics is how little the experience is foreordained or dictated by the drug itself. The drug is like an unspecific mental amplifier, and so your expectation and intention is very important to what happens. And one of the things that happens in the preparation is that the guide is helping you set an intention, like, I wanna quit smoking. I wanna confront my mortality.

[00:13:16]
And you will usually have an experience in that realm because that's what you've been primed to have. Could the drugs be used for evil? Well, we have the case of Charles Manson. Manson apparently--we don't know that--all the details, but used LSD on his little posse of-of what would become murderers, and the drugs are incredibly suggestible, and that you could

imagine a charismatic figure using them that way. The-the--now, the CIA sought to use them that way, too. The CIA had a very active research program in the 50s. The same time all of this university work was going on in the 50s to help people, the CIA was trying to weaponize LSD and psilocybin. And they thought--they went through a series of different paradigms. One was you would use it as a truth serum. People would--could-could-could tell you the truth if you gave it to them in interrogation. People say crazy shit, you know, it-it didn't work.

[00:14:18]
There was no truth in that. And-and then, they thought, well, we could use it to have foreign leaders. We could dose them, and they would do embarrassing things. That might work. I don't know. And we don't know how far they got with it. And then, the other one was mind control, right? That you could use this drug to control people's minds. As far as we know, that didn't work either, but we don't know for sure. And we shouldn't put too much by them. So I-I think it all depends on your therapist and-and how the-how the situation is. People don't generally go, you know, have violent episodes after psychedelics. In general, the experience tends to be one where you discover that love is the most important thing in the universe, and-and this Hallmark card platitude suddenly becomes this profundity. And-and it is a profundity, but we've heard it so many times that it's banal.

[00:15:18]
There's an interesting line between the banal and the profound, and psychedelics definitely works on that line. So I think we should be mindful of that possibility, but I-I don't think--we certainly haven't seen anything like that. There have been a thousand dosings of volunteers since this next--this new wave of research, and there has not been a single adverse event. No psychotic breaks, no jumping out of windows, but there--it's no question that people can do stupid things on psychedelics, as they can on alcohol and-and any number of other drugs. So thanks for your question.
>> Awesome. Thank you.
>> Do you have any theories of why our brains are wired to react to things from plants and fungi? And are there any things from the animal kingdom that do the same thing?
>> POLLAN: Well, animals do, like, plant drugs, also. And we-we have many cases of a--I mean, if you've had a cat, never give them catnip.
>> No, I meant like any venoms that we--

[00:16:15]
>> POLLAN: Oh, yes. Well, I--one of the psychedelics I-I experimented with is something called 5-MeO-DMT. This is a pretty obscure psychedelic. I see a couple of nods in the crowd that--actually only one. That is the smoked venom of the Sonoran Desert Toad. Somebody figured that out, right? I mean, what a species, huh? So--but you're--the-the--but why are we wired for this is a really interesting question. So the way the drugs appear to work in the mind is that they-they-they bind to your serotonin, in one particular serotonin receptor that's very common in the cortex, and they start a cascade of effects. That's what neuroscientists say when they really don't know what's happening for a while. And--but that-that in turn eventually down regulates something called the default mode

network. When they--I'll tell you what that is because it's very important, actually, and-and it explains a lot.

[00:17:19]
So when they first started doing FMRI imaging of people's brains on psychedelics, they would basically inject you with psilocybin and slide you into the MRI machine, and you'd have what could be a very scary experience. And-and then they took these pictures, and they expected to see lots of extra activity because they're such fireworks in the experience, but they-they were very surprised to find that, in fact, this particular network went quiet. And this is a network that's very active when you're not on task, okay? It--it's in a seesaw relationship with the attentional networks when you're, like, working or something like that, but when you're asked to just lie back in an MRI machine, and they're trying to get a baseline, this lights up. And they were like, why is that? What is it doing? Well, this appears to be the part of your brain that is active when you're mind wandering, when you're ruminating, or worrying, or reflecting on yourself. It's a center of self-reflection. It's also involved in time travel, the ability to think about the future or the past.

[00:18:20]
And it's involved in theory of mind. This is the-this is the term for the ability to think about the mental states of other people, central to compassion, and imagination, and things like that. And lastly, it's involved in something called the-the narrative self or experiential self, and this is kind of where you knit together what happens to you at any given moment with the story of who you are based on who you've been and who you wanna be. And it's kind of where we sustain that story that our sense of self depends on. And so this network--so if the ego has an address, it's in the default mode network. This is-this what the research shows. It's really interesting that this is what gets down regulated during the experience, and it-and it-and it chimes with the experience of ego dissolution people report on a high dose experience.

[00:19:17]
I had an experience on a guided psilocybin trip where I felt my sense of self scattered to the wind like a blizzard of post-its. And then, I looked out, and I don't know. What--who's the I? Who's looking out at this? I mean, there was a split in consciousness where I could watch myself then get spread over the landscape like a coat of paint out there, and I was fine with it. This other self was fine with it. And it was this kind of very imperturbable consciousness that could behold this thing, and I realized I'm not identical to my ego. And what was going--and that's a very important insight to acquire, I think, and very useful. But what was going on in my brain was the default mode network was going offline for a period of time. The sense of self dissolves. And then something else happens which is other networks in the brain which normally would only communicate through this hub start talking directly to each other. And there's a map in the book of the brain on-on a placebo in the brain on psilocybin.

[00:20:18]

And one looks like the route map of American Airlines, and the other looks like the route map of some, like, little commuter line that, you know, only goes to 10 places. And so new connections form, and what are those new connections? I mean, that's the interesting question. Is that your--say, your hippocampus talking to your visual cortex, and so you start having images of things that you-that you fear or-or desire? Is it the basis of hallucination, or is it perhaps the basis of a new metaphor, or a new insight, or new meme? We don't know yet. That's the next step is to really understand that. So these are temporary changes in the brain. Eventually your ego kind of reconsolidates, but having had a glimpse of that other way to behold experience is very powerful.

[00:21:07]
And in my integration session I said to Mary, who was my guide, I said, "Well, okay, I've had this amazing experience of ego dissolution. And I realized I'm not identical to my ego. I can have a little distance on it, but I said my ego is back in uniform and on patrol. What--so what good is that?" And she said, "Well, basically you've had a taste of another way to react to-to life. A little less defensive, a little less trigger happy. And you can cultivate that." And I said, "How?" And she said, "Through meditation." And meditation is kind of how you keep alive with the psychedelic experience. It makes you a very good meditator, although I know you're not supposed to say good or bad meditator, but being trapped in that language. So that's-that's kind of-of, you know, a real shorthand of what we understand about the neuroscience. The-the-the-the neuroscientific investigation of this phenomena is absolutely fascinating, and for me, that chapter of the book was, you know, the-the most challenging to write. Well, not the most challenge, but one of the most challenging, and-and fascinating to learn about.

[00:22:08]
So thanks for your question.
>> Thank you.
>> Hi. Oh.
>> POLLAN: Hi.
>> I--so I have heard rumors that monks have been able to achieve a similar thing to a psychedelic trip. Do you know anything about what that entails or if it's like--if there's any research that hints to it--
>> POLIAN: Yeah.
>> --being a strong or...
>> POLLAN: It's--I mean, there's anecdotal research that's really interesting. So one very relevant fact, at the same time we were doing this imaging work on psilocybin in the human brain, there was another researcher at Yale imaging the brains of very experienced meditators, people who had 10,000 hours of meditation experience. And they would go into the FMRI and meditate, and their brains looked identical. They also had this suppression of the default mode network, and of course, that is the state of kind of selflessness that people report coming out of meditation.

[00:23:08]
In terms of the monks, these are people with really long experience meditation--in meditation in that they can almost at will probably quite had the default mode network. There's a famous story about Ram Dass,

Richard Alpert, who was Timothy Leary's collaborator during the Harvard psilocybin project in the early 60s. He--this guy went on to become a-a-a guru basically, and he's still alive. He's in Hawaii. And he was very interested in psychedelics and then found Hindu religion. And he went to India, and he told his guru about LSD. And his-and his guru said, "I wanna try it. I wanna see what happens, because you're telling me you're reaching this spiritual plane on this drug, and that's my-that's my territory." And so Ram Dass apparently gave him 600 micrograms of LSD which is beyond heroic dose. And that's what the guy wanted. He said, "Give me as much as you have." And-and the-the monk or whatever he is.

[00:24:11]
He's a guru, I guess. Takes it, and nothing happened. Is this true? I mean, it's, you know, Ram Dass tells this story and-and swears that it's true, but-but it goes to your point. There are other ways to achieve the same effect. Psychedelics are probably a shortcut to becoming a really good meditator, but my guess is we will find at some point that all the disciplines, the spiritual disciplines that share this sense of-of transcending the ego, are doing the same thing in the brain, that-that is where that's happening. And I'm thinking of sensory deprivation, you know, if you get into these tanks, sensory deprivation tanks. They're sort of coming back. They were a thing in the 60s. Or fasting, or prayer, or the right kind of music, and-and breathing exercises.

[00:25:04]
One of the psychedelic trips I had involved no drugs, something called Holotropic Breathwork. It's-it's based on a yogic breathing exercise where you-you essentially hyperventilate. Your-you breathe really fast. You exhale more than you inhale and you enter a trance state. It's-it's the most uncanny thing, and my guess is that hyperventilation is starving the default mode network of oxygen and reducing the activity there. So this is all areas to be explored. We may find other ways to achieve the same thing, but I think it's all connected.
>> Thank you so much.
>> POLLAN: Thank you.
>> Hi.
>> POLLAN: Hi.
>> One of the interesting trends that I've read about on blogs and whatnot is the rise of microdosing.
>> POLLAN: Yeah.
>> For those who don't now, microdosing is taking small doses of psychedelics, somewhat regular basis, a small--far too small to actually cause any sort of trip. And proponents of microdosing claim that it can help with thing such as depression and anxiety, improve mood, improve creativity.

[00:26:06]
I'm wondering if you got a chance to investigate microdosing at all in your book, and--
>> POLLAN: Yeah.
>> --if you get a sense that some of the renewed research interest for high dose experience might carry over into researching whether microdosing--
>> POLLAN: Yeah.

>> --is clinically significant or not.
>> POLLAN: Excellent question. So microdosing is a very interesting phenomenon. As the questioner said, it's taking a sub-perceptual dose with--often with LSD, about 10 micrograms every third or fourth day. And the reason you don't take it every day is because it would lose its effect. The drugs kind of cancel themselves out at a certain point. Many people anecdotally report success with this, that it's kind of a brain tonic, and-and it does help with depression. There's a wonderful book written about it, if you want to follow up, by Ayelet Waldman called, A Really Good Day. And she's someone who's struggled with depression and--for many years and found more relief on-on this regime of microdosing, and she's been through the whole pharmacopoeia, I'm sure. The reason I don't spend a lot of time on it in the book is that there isn't yet anything beyond the anecdotal reports.

[00:27:10]
They're interesting. They're really provocative, and they're being systematically connected. If you go online, there's a guy named James Fadiman, who is one of the first generation researchers who's advising people on the protocol, and soliciting reports, and-and getting this interesting data set, but it has not been trialed the way these--the-the large dose psilocybin has. I hear that these trials are about to happen, and so we may get some really solid information on whether microdosing works. The fact is, though, there is such a strong placebo effect with psychedelics. They're so suggestible that it's very easy to see how it would work. Just the very idea that you're taking a small dose of LSD probably would have an effect, but is it a pharmacological effect or a placebo effect? That's what we--remains to be learned. So, you know, I'm-I'm skeptical about it. I-I do want the research to happen.

[00:28:08]
And this interest in-in micordosing if you will, is--has stimulated people to fund some research, some of which will be underground and some of which will be above ground. So I'm very excited to see what they come up with. Thanks.
>> Thank you.
>> Thanks for being here today. Wozniak pretty famously said that LSD was one of the things that differentiated Apple from Microsoft.
>> POLLAN: Yeah.
>> And at--
>> POLLAN: I think Jobs said that, too.
>> And at this organization, we selected apocryphally Eric Schmidt as CEO because he was the candidate that had been to Burning Man. As an external observer, I'm curious what are your observations about the intersection between psychedelics--
>> POLLAN: Yeah.
>> --and-and the technology or the tech industry?
>> POLLAN: It's a-it's a really interesting relationship. So Steve Jobs famously said, too, it had been formative to his intellectual development, and-and I thought it was him but maybe it was Wozniak who said that Windows would have been a much better product had Gates ever taken LSD. It was, like, a really mean thing to say, I think. And Gates-and Gates immediately said, "But I did, but I did."

[00:29:10]
"But it didn't work. It must not have been enough." So--and I thought this was the beginning of the tech community's interest in these drugs and--because it's very-very current. I mean, you know better than I, but I mean, I've talked to lots of people in Silicon Valley and it's a big part of the culture right now. Microdosing, macrodosing, there's--I mean, I know one prominent tech-tech company that uses it in their management training, you know, LSD. So, it's--there's a lot of, you know, a lot of interest there, and-and-and it is the tech community, as I said, that's funding a lot of this research. But it turns out that engineers have been interested in LSD back in the 50s and that there's this very interesting episode. Before Timothy Leary and the whole 60s psychedelic story that we-we think we know so well, there was this research period and there was this very interesting character, who's kind of a counterpart to Leary, named Al Hubbard.

[00:30:11]
And I tell this story in the book. He's a very mysterious figure. He's got--he's involved with the OSS, which became the CIA. He's playing both sides of many worlds, but he had a vision in 1951 that told him he could be involved in a major civilization change. He realized it was LSD. He went to Sandoz, where--which owned the patent on it. It was a Swiss pharmaceutical company persuaded them to give him something like a liter bottle of LSD, which probably is enough to trip a third of the population of Earth at that point. I mean, just an incredible amount, which he keeps buried in Death Valley at his place. And anyway, he's a great character. He's so much more interesting than Leary. So he's--he becomes the Johnny Appleseed of LSD, but he's got a different theory. He said--he was kind of a conservative guy. He wanted to turn on the elite, so he was going to do captains of industry, you know, engineers, artists, people in the church, the Catholic church.

[00:31:15]
And he would go around with this satchel tripping people. Remember, it's legal--it was legal then. And he became-and he became a very gifted guide. So he has his eye on the tech world as one of the places where you could have this multiplier effect. So he turns on a couple engineers who are working at a company called Ampex, which is actually one of the first Silicon Valley companies in the 50s. They make magnetic tape on which, as you know, all computer information was stored, but also video and sound recording. They had 40,000 people in the valley before it was called Silicon Valley. And-and the head of strategic planning, he turned on, and another guy, and actually Ampex, for a while was gonna be the world's first psychedelic company and--but the president was Jewish, and Al Hubbard was Catholic. And he kept bringing in crucifixes and things, and the-and the president said, "No, no, go away." And--so but anyway, so these engineers, though, were so taken with this experience that they left the company.

[00:32:18]
A group of three or four engineers and started a big research, something called the International Foundation for Advanced Research. And they were doing a lot of psychedelic research. And I've always been interested as to why engineers in particular had such a strong reaction to this drug,

and I talked to--I talked to a couple engineers about it. And-and you can tell me if this chimes with your sense of things, but this guy--this one guy in particular told me that--oh, and the--or some of the early chip designers were into LSD. It's very hard to design a chip without a computer, but of course, at the beginning, you had to. And you could hold this complex 3D structure in your head with the help of the drug. And this guy said--oh, and one of the--sorry, one of the early people at the International Foundation for Advanced Study who was tripped was someone you probably know if you know your history of your industry, but Doug Engelbart, right? Who invented, you know, the mouse, and the interface, and email, and like everything, right?

[00:33:19]
There was this mother of all demos. Well, that guy got LSD from those Ampex guys and under the influence--they were doing a creativity study, he-he invented something then. It wasn't that profound. It was something he called the tinkle toy to take--to toilet train boys, and it was something you could, like, aim a stream of urine at it and it would make things happen. Okay. It's not quite the, you know, the mouse but it was pretty cool. But it primed the pump, you know. So anyway, where was I? So this-this engineer I was talking to said, "Well, the problem--if you're an engineer as opposed to a scientist, a scientist can--like, their goal is to reduce problems to the simplest terms, but engineers are faced with an irreducible complexity and number of variables. So the challenge is different. The challenge becomes finding pattern, and psychedelics--one of the things that happens is you find pattern where you didn't see it before.

[00:34:20]
And that, he thought, was why so many engineers found this a useful tool. I think that's fascinating. I-I think there's--John Markham wrote an interesting history about Silicon Valley and-and the 60s, and-and there's some very good stuff on-on drugs. And he interviewed Jobs about his experience but yeah, it's part of the tradition you're-you're in.
>> Thank you.
>> POLLAN: You're welcome.
>> Hi.
>> POLLAN: Hi.
>> So you talked a little bit about how, like, every culture in the world has experienced this to some degree or is integrated into their-their culture, and I'm curious from a sort of anthropological perspective, because I imagine there's a-a huge range in the way that-that these drugs are-are applied, right? It's a select few, or it's open to everyone--
>> POLLAN: Right.
>> --or it's ritualistic, or it's ordinary, or whatever. Are there other sort of cultural patterns that can be--
>> POLLAN: Yeah.
>> --deduced or associated and, you know--
>> POLLAN: Yeah.
>> --from-from the drug use within those cultures?
>> POLLAN: That's a good question. I actually think we have a lot to learn from the traditional use of these drugs.

[00:35:21]

So we're gonna stay on psychedelics, and there are lots of plant drugs that are not that controversial, like caffeine, although in some cultures they might be. But psychedelics have been used for it looks like several thousand years. It appears that the ancient Greeks, all the writers you've heard of participated in an annual ritual that involved what it--what seems to be a psychedelic. It's called--it was called the Kykeon. It was an annual rite in honor of Demeter, harvest related. It was called the-the Eleusinian Mysteries, and everybody was sworn to secrecy about this, so we don't know that much about it but everybody took this potion and went to the underworld, had experiences of a beyond. And it was very profound, and-and it was the only time you were ever allowed to take this drug. We don't know what the drug was. And in fact, one person was caught using the drug, like, at a party and, you know, was, you know, imprisoned, or killed, or something.

[00:36:20]
It was-it was a big crime. The lesson, I think--the takeaway from lots of traditional cultures use is that they recognize that these were very powerful medicines not to be treated casually and that they all surrounded the use of their plant medicine, as they often call it, with ritual, ceremony, elders in attendance. It was never careless. It was never casual. It was never recreational. It was a profound experience. And I think when the drugs hit the west, beginning in the late 50s or early 60s, we didn't have any container for them, you know. We didn't have rituals. We-we just kind of, like, took a handful of mushrooms and went to a concert, or we drank LSD from the punch bowl. And-and I think that's why some people really got in trouble. And so the-the lesson that we failed to learn was that, yes, these drugs have an ancient lineage, but look how they were used.

[00:37:23]
Look at what those cultures learned by trial and error of, you know--and now we see it in shamanic ceremonies in South America. There were mushroom cults in Mexico that went back--we don't know how long, but at least a thousand years. But they were always taken in a group with guidance, with someone who wasn't taking the drugs, and with enormous care. And I think that's what we lost, and we need to now invent that container for ourselves. Maybe it's this therapeutic protocol I'm-I'm describing, I'm not sure, but that's the cultural work that needs to be done. So...
>> Thank you.
>> POLLAN: Sure.
>> Hi. I was wondering whether in your research you'd come across the video of a debate from 1967 between Timothy Leary and Jerome Lettvin at MIT.
>> POLLAN: No. Jerome?
>> Lettvin.
>> POLLAN: Uh-huh.

[00:38:20]
>> For those who don't--
>> POLLAN: I don't know who that is.
>> --recognize the name, Jerome Lettvin was one of the pioneers of neuroscience. He was one of the four authors of one of the first papers

on the physiology of perception titled What the Frog's Eye Tells the Frog's Brain.
>> POLLAN: Uh-huh.
>> And he was also one of the most charismatic professors at MIT in the 1960s. And they held this debate sometime in 1967, and Leary went first, and he had the whole audience lulled into going along.
>> POLLAN: He was very charismatic.
>> And-and-and Lettvin got up and said, "Bullshit." I think it may have been the first time bullshit was allowed to be said on broadcast television. Anyway, Lettvin's made biggest argument against taking LSD was the phenomenon of uncontrolled flashbacks.
>> POLLAN: Uh-hmm.

[00:39:20]
>> And how that could get people into trouble, but as I-I was standing in line here, I looked it up, and it's on YouTube.
>> POLLAN: Great.
>> The whole thing actually ran about two hours. WGBH, public TV station recorded it and broadcast it at one hour edited version but--
>> POLLAN: So, Lettvin, L-E-T-V-I-N?
>> Yes.
>> POLLAN: Okay.
>> Maybe-maybe two--one or two T's. Two T's?
>> POLLAN: Well, this is a good occasion to talk about risk, so let me--unless you wanna frame the question, but I'd love to address that question.
>> Actually, I just have--I'll let you talk about it, but I just wanted to ask one more side question.
>> POLLAN: Uh-hmm.
>> When you talk about food, you almost always bring a bag of groceries.
>> POLLAN: Yeah. Oh, yes. Where's the mushrooms?
>> I was wondering if you brought a bag-a bag with you today.
>> POLLAN: Let me tell you a little tutorial on the law. So, you know, I was a very nervous Nellie doing these experiences.

[00:40:20]
I didn't have a lot of experience with psychedelics in college, and-and even after. I was really too afraid to take these drugs. I didn't think I was psychologically sturdy enough at that point in my life. And so before I dove in for this project, I did a lot of research, as I'm--want to do as a journalist, to figure out, "Well, how--what are the dangers?" Because there are-there are lots of stories you heard in the 60s. You know, people staring at the sun until they would go blind. That was one story. Scrambling of your chromosomes. Both those stories, by the way, were--one was made up. The first was made up, and that's been proven, and the chromosome story was withdrawn within months. It was just really bad research. Psychotic breaks, and that did happen sometimes. There are people at risk for schizophrenia that-that an acid trip was what tripped them off, but a lot of what was--well, let me divide it into two. There's physiological risk, and there's psychological risk, okay?

[00:41:16]
The--on the physiological side, it's stunning how, I don't wanna overstate this, but that how compared to other drugs that we take

routinely how nontoxic, relatively nontoxic classic psychedelics are. And I'm talking about LSD, psilocybin, DMT, mescaline. There-there is no known lethal dose, which you can't say about over-the-counter drugs you take for a cold or for pain. There are very few molecules in your brain. They're washed out really quickly, and they don't seem to affect the--you know, they affect your brain, and they don't affect other parts. If you have a panic attack, your blood pressure is gonna go up, but they don't directly affect other systems. at's one thing, and they're also non-addictive. The-the first thought you have upon finishing a psychedelic trip is like, "When can I do that again?" It's actually, "Do I ever have to do that again?" And because it's really intense and so they're not habit forming.

[00:42:17]
If you give the rats--you know, with the--in that experiment where the rat has two levers, and one's cocaine, and one's food, and if he presses the lever, he gets a dose of cocaine, and they'll press until they die over, and over, and over, again. You put LSD in that contraption. They'll press it once and never again. I mean, imagine being a rat on LSD. So from a-from you--from the physiological point of view, they're safer than a lot of drugs we take routinely, and I was surprised to learn that, frankly. Psychologically, you know, it's very hard to sort through the stories. The flashback phenomenon, which-which I've heard reported, I had never found any really good research on it. And I'm still looking for it. If anybody has a good paper on that, I'd love to see it. There are--you know, I've had--I've kind of flashed on things that happened in my experience because they're part of my store of psychic--powerful psychic memories.

[00:43:19]
Is that a flashback? I don't think so because I can get it out of my head, but there are people who have these unbidden moments of consciousness that are--that, you know, may be connected to what happened to them. I-I haven't heard that they interfere with people's life or mental health, but it's-it's a-it's a question mark. The great danger is the danger you have drinking too much, also, which is doing stupid things, walking into traffic, falling. All that happens on psychedelics, as it happens with any powerful drug, and they-they--that's why a guide is really important, somebody to look out for your body. In the-in the studies that have gone on, there have now been a thousand dosings of people who have been screened for mental health problems and things like that. And there has not been a single serious adverse event. So are there adverse events when people use the drugs recreationally?

[00:44:16]
Yes, we all know people who have had really bad trips, and they usually stop using it at that point, felt trapped, had panic reactions. But often psychiatrists would--who didn't know this territory would misinterpret a panic reaction as a psychotic break, because it sure looks like that. You're having delusions, you're hearing voices, you know, I mean, to an average psychiatrist, this would say psychosis, but often it was a panic attack. I interviewed Andrew Weil--Dr. Andrew Weil, about this, and he was very interested in psychedelics in the 60s. He was at Harvard and Leary was there, and when he graduated from medical school in 1968, he-he

went out to San Francisco and volunteered at the Haight-Ashbury free clinic. And they were seeing lots of LSD casualties, as they call it, people coming in, having bad trips, thinking they're losing, their mind or they're dying. And he knew the territory really well, have--having used a lot of psychedelics, and he would come into the little cubicle with somebody who was completely freaking out and he had on his white coat, and his stethoscope, and his clipboard, and he'd ask a few questions.

[00:45:21]
And then he'd say to the person, "Will you excuse me? There's someone in the next room who's really in trouble." And he'd leave and they were like, "Wow, someone's more fucked up than I am." And they would suddenly feel fine. It would just completely subside. So suggestibility is a very big part of the experience. Yeah.
>> Thank you very much for coming to talk to us today.
>> POLLAN: Oh, thank you. Thanks for your great questions. Thank you.
>> MATTHEW: Thanks for listening. If you have any feedback bout this or any other episode, we'd love to hear from you. You can visit G.co/talksatgoogle/podcastfeedback to leave your comments. To discover more great content, you can always find us via YouTube.com/talksatgoogle or via our Twitter handle, @googletalks. Talk soon.