



## Philip Rosedale: "Starman"

### Season 2: Episode 9

**Speaker 1:** Welcome to Stayin' Alive in Technology. A series of conversations with Silicon Valley veterans touching on war stories from the past and practical advice for today. And now, here's your host, Melinda Byerley, founding partner of Timeshare CMO.

**Melinda Byerley:** One of the great pleasures of arriving in Silicon Valley at the precise moment that I did, which was in 2002, was that Steve Jobs was still alive. iPhone hadn't been invented yet, the iPad hadn't been invented, and neither had Facebook, Y Combinator, Uber, Twitter, or even Google. We now realized that we lived in an age of giants, and they walked among us. People would see Steve Jobs at the grocery store. While my next guest may not be as famous as Steve Jobs is today, when the history of this age of technology is studied—long after I and all my guests and likely you are gone—they will talk about Philip Rosedale. I guarantee you. As you listen to this episode, I think you'll see why I think that, and I also think you'll agree.

**Melinda Byerley:** Philip Rosedale is the CEO and Co-Founder of High Fidelity, a company devoted to exploring the future of next generation shared virtual reality, but prior to High Fidelity, Philip created the virtual civilization Second Life, populated by one million active users generating \$700 million in US of annual transaction volume. In addition to numerous technology inventions including the video conferencing product called Freeview, which was acquired by RealNetworks in 1996, where Philip later served as its CTO, Philip has also worked on experiments in distributed work and computing.

**Melinda Byerley:** I met Philip in 2010 when I worked at Linden Lab, the company that created Second Life. You'll hear us talk about Linden Lab in this podcast. A lot of people had heard about Second Life in the late 2000s because nearly overnight in a world without social media, it became a household name through its tales of virtual reality that made users real money. Second Life, for those of you who haven't tried it, is a virtual world, but it's absolutely not a video game.

- Melinda Byerley: I like to explain it like this. Imagine if Disneyland didn't exist, but you could walk in somewhere and bring to life any kind of ride or any concert or a landscape that you could imagine—from carbon copies of things that you wish you could see or have seen on Earth to your most wild and unreal dream. You could present your appearance, your clothing, and your toys in any way you want it without restriction and without social norm. This is a place for grownups. There are children in Second Life, but it's primarily a place for grownups.
- Melinda Byerley: My avatar is just one example. It was a tiny little pink bunny, and there's a whole community of these little tiny animals that have their own houses, and clothing, and in-jokes, and so on. Second Life is a playground of grownup creativity and freedom, and culturally, it's important that you understand it's not only the mother, but also the father of Minecraft, of Oculus Rift, and Fortnite.
- Melinda Byerley: The company that spawned it is also a very special place. The cultural norms of Linden Lab have affected me greatly, and almost all of my fellow Linden Lab alumni, who call themselves Lindens even today, there's no way I would have had the courage or the experience to start a fully virtual company without my experience at the lab as we still call it.
- Melinda Byerley: In the early 2000s, as Philip and his team built what would become Second Life, they had no idea any of that was coming. They just wanted to see what was possible, and what humans would make of this incredible gift they had been given. After spending nearly two years of my life working in what we call the Metaverse, I find it impossible to think about Second Life and my experience at Linden Lab and not also think about what it means to be human and about what our relationships are to each other and how technology can help us or as is currently happening, hinder us.
- Melinda Byerley: Philip, like me, grew up in an age when building technology wasn't done just to make money, but because we loved doing it, and we wanted to see how far, how fast, how freaking cool we could make it. I am so glad I got a chance to put his story into the metaverse for future generations to hear.
- Melinda Byerley: If you weren't aware, by the way, I name each episode after a classic song title. There's a playlist in order on Spotify, and as I said in



episode zero, I can't actually play the song on each episode because the copyright laws we have now is pretty vague, and puts us at risk. So, please, go over to Spotify and check out that playlist, and I say it because this episode is titled "Starman," after the David Bowie song released in 1972, during the time when Philip and I were kids and space flight was what we all aspired to and dreamed was possible.

Melinda Byerley: In this episode, Philip talks about his youth, and what drove him to create Second Life, and perhaps most importantly for all of us, what he thinks the limitations of the internet are now. When we get into talking about why Reddit and Facebook and the web itself limit humanity, I hope you'll see the exact kind of perspective on the last 20 years in tech that I hope to convey with this whole podcast. I also hope you'll see Philip's optimism, and his humanity, and his vision for where humanity can go with technology long after whatever replaces the browser has faded away.

Melinda Byerley: The good news is that the age of giants isn't over. Some of them still walk among us, and there's still so much for us to learn from them. Enjoy.

Melinda Byerley: Philip, welcome to the podcast.

Philip Rosedale: Thank you. Glad to be here.

Melinda Byerley: So, Philip, I've always wanted to ask you this question, and it is, what did you want to be when you were a kid and why?

Philip Rosedale: The earliest thing I can remember is astronaut like everyone else.

Melinda Byerley: Yeah. Same.

Philip Rosedale: I remember cardboard boxes in the basement that I would lay in and look upward, and the cardboard box was the rocket that I was going to go Jupiter on, but yeah, I remember that. I was also very mechanical, making things as a kid. So, yeah, that idea of being an astronaut or making a rocket ship seemed pretty appealing to me.

Melinda Byerley: What got in the way?



Philip Rosedale: Well, I think, in a good way, technology. I mean, I think in a sense, I always had huge ambitious plans to change the world or, I guess, find new worlds or whatever, and at some point, what happily got in the way was the thought that I might be able to do it more easily than going all Elon Musk on it. I might be able to do it more easily by building worlds inside computers, and that those worlds potentially were pretty interesting, and maybe a bit more interesting than other people might be initially thinking.

Melinda Byerley: Did you decide to study physics because you still wanted to be an astronaut?

Philip Rosedale: No. That's a good question. Now, frankly, probably like many people, I don't remember exactly why I ultimately decided to get a degree in physics, although I was resolute about it. I do remember that. I was always like, "Well, of course, I'm going to get a degree in physics." I was self-taught in computer programming, and of course, that was the more logical thing in a sense. From a trade perspective, it would have been more rational for me to be a computer science major because I was doing a lot of programming, but I always did feel like physics was more important.

Philip Rosedale: I think one of the reasons for that was just... I was fascinated about the way things worked, and physics is the best degree you can get for going as deep as you can on the way things work in the most general way. So, I was just really interested in how things are built. If you keep taking things apart, smaller and smaller parts, what do you get to? Of course, that's what you get from a physics degree is at least some intuition about that.

Melinda Byerley: How has studying physics informed your life and your career?

Philip Rosedale: Well, I think it was really helpful because I'll tell you a story. In the beginning of Second Life, I always say it was this recapitulating biblical creation that we did. The very first thing we did..."we" -- I'm saying being Andrew and I, the guy who started Linden Lab ... He was the first person who joined with me, and he and I, he also had studied undergrad physics with me. The very first thing we worked on was simulating water, and then in particular, the problem of waves and water moving between two servers because I wanted to make.. How big of a water area could one make? Could you make something the

size of the ocean, and could you make it run, be simulated, basically, on many, many server machines.

Philip Rosedale:

So, we actually worked on the physics problem of how to simulate waves on water, where the adjacent cells of the ocean were computed on different server machines. So, that was actually a very direct application of physics. Both of the experiences that both of us had had, Andrew had gotten his PhD and I had just gotten my bachelor's, so we had a different set of capabilities in going into that stuff, but it helped a lot. It continues to help a lot. When I look at the atoms of a virtual world, I use that word. I think of them as atoms, and I use a lot of intuition from physics around things like energy conservation or symmetry to help me think about my work.

Melinda Byerley:

So, I find this fascinating because I remember at the time ... I don't know if it's still true, but I remember reading somewhere around the time that water was one of the toughest things to simulate. Pixar even struggled with that. I don't know if that's been crossed since then. Just out of my own curiosity I'm asking.

Philip Rosedale:

Yeah. That's right. Water and fluids, generally speaking, and of course, you can do them in two dimensions or you can do them in three. As you can imagine, it's a lot harder in three, but simulating water, fluids, and anything where little pieces are connected to each by springs and different types of things represent a very difficult area in computer science.

Philip Rosedale:

Happily, and indeed, this has happened within my career, things have gotten faster and faster and faster per Moore's law, and we now have the ability to simulate pretty good water as you can see by looking at any AAA video game today, but yeah, simulating liquids, and simulating things that move around quickly are pretty hard. Frankly, I think it's pretty fun. Some of the short of AI, which is a whole another fun thing, simulating liquids is one of the toughest things we can do with a computer.

Melinda Byerley:

So, that's really cool hear that it was hard to do in the beginning not just because we didn't fully understand how, but also the speed. It required so much from computers that we just didn't have 25 years ago.



Philip Rosedale: Yup.

Melinda Byerley: Fascinating stuff. So, I've always wanted to ask you, there's a lot out there, and for my listeners, there's a lot out there about the role of a particular book in Philip founding Second Life. So, I want to actually ask you something slightly different about that because I'll refer my readers to that, and I'm sure we'll get to it as well. I wanted to ask you about what inside of you drove you to create Second Life, less about how you were inspired, but more about the small voice, if you will, inside of you that said, "This is what I have to do. This is what I'm called to do. This is where my path is."

Philip Rosedale: Well, first off, the thing that was different about me was I wasn't really a big computer game person. I did love the idea of using computers for games, and I did play a few them, but I wasn't really hardcore about computer gaming in the way that a lot of other amazing contributors to computing and to experiential computing have been.

Philip Rosedale: I think I was always driven by the idea that you could create a world that was both new and free and maybe even escapist in some regard. I think I had a little bit of that in me, the desire to make my own world and then go live in it. I think the thing that I was most interested in was just the idea that I know my experiences with both physics and computing gave me, that there really wasn't an argument for why a virtual world wouldn't be as real as the real world. That is to say, with sufficient computing power, we ought to be able to do evolution in there. We should be able to build spaces that are as big as Earth in there.

Philip Rosedale: I think that was the ... I don't know if it's a small voice, but it was this fascination with seeing that happen given that I was certain that it could. I always felt certain that we could create such spaces, that were equally real and detailed in comparison to the real world. So, that is what has continued to drive me. It's just the amazement of the idea that that could be done, and of course, that then leads you with the desire to do it since nobody else is doing it.

Melinda Byerley: Why do you think no one else did it in the early days? What do you think scared people or intimidated them or stopped them?

Philip Rosedale: Well, that's a good question. I have to say at my very first blush I'm really not sure. I mean, to me, it always seemed so obvious that it was what you wanted to do and spend your whole life doing. In my case, it's been pleasurable, although, certainly, as I've grown up there have been moments where I think I've seen the target less clearly than at other moments, but for me, I've always wanted to work on the same thing, and that's been pretty appealing.

Philip Rosedale: So, why didn't other people see it that way? Well, I don't know. The history of computer games is that they simplify human behavior. I mean, we're not all that smart. I mean, we're doing our very best as humans, but it's not like we're the smartest game in town as Google has aptly demonstrated with Go and Chess. We're limited in our ability to imagine things, and I think real worlds are so inherently complicated that we shy away from them a bit.

Philip Rosedale: I get that. I know why I don't. I think that most of the time, we think about simplifying the world when we go into a computer or when we do anything. We want to simplify our interactions with people, and with plants, and animals, and space, and everything else. We want to simplify those things to relax a little bit. I guess I just didn't ever have that in me.

Philip Rosedale: I think the other thing is that it's tough to say what you use a new world for. I mean, if you're really just creating something that's identical to Earth, I mean, why not stay on Earth? So, I think there's a complicated unanswered or a practical question. If you're trying to make money, for example, you could say, "I can build a world just like the real world, and somehow, we're going to be able to make money there." Well, people might correctly ask, "Well, why wouldn't I just use the real world? I'm not sure what you want me to do there." I think that's still one of the challenges of virtual worlds, by the way, is that what exactly are we going to use them for first.

Melinda Byerley: I'm absolutely fascinated and blown away by this idea of flattening, and I want to come back to it because I see it a lot even in social media now. And arguments, our desire as humans to flatten and to simplify things, that is not serving us very well, just to make an extreme understatement. So, we're going to come back to that because I've never heard anyone phrase it quite like that, and I love it because I had never thought about virtual worlds that way, and that's



really, really interesting. Or games that way, as a flattening of human experience, a simplification. I mean, movies could follow to that, too, right?

Philip Rosedale: Absolutely. Right. I mean, the appeal, and I don't know how much we want to wander or what time is available around this, but the physics, broadly...the way the brain works, and this is recent discoveries that have been driven a lot by AI, we know more now than we ever have about what it is we do with our brains. One of the things that leads to that outcome, that simplification, that desire to flatten as you said, is that for the most part, what we do with our brains is predict what's going to happen in the next few seconds.

Melinda Byerley: We have to. Tiger bad, tiger going to kill us.

Philip Rosedale: Exactly. So, of course, as you may know, the more we learn about AI, and the more we learn about the brain, and the more we try to copy it with AI, the more we learn that it seems that this really is all the brain is doing. Of course, that's a lot, but this desire to basically anticipate what happens, just in the next few seconds, by the way, not the next few years, not the next few milliseconds, but the next few seconds, like if I say, "Bom, bom, bom," then you hear that next note to that Beethoven song, we all know.

Philip Rosedale: That idea of predicting the next few seconds is fundamental to the human mind. So, and of course, when we're able to predict pretty well the next few seconds, we feel good. We get these little bursts of neurotransmitters that reward us. We're really-

Melinda Byerley: If we fake it out, we can sometimes ... That's where we get a laugh, right? If we hit the right... Not what we expected, but still in our realm of understanding, we might get a laugh.

Philip Rosedale: Yeah, and that's what I was going to say-

Melinda Byerley: Sorry.

Philip Rosedale: ... is that we want to fall, yeah, we want to fall...if we're exactly predicting the future, we become bored and ultimately fall asleep, right? If we're way off, we typically become alarmed. It's stressful. It's like walking out of the subway station into Tokyo or something for the

first time. It's exciting, but it's like, "Whoa! This is a lot to take in right now." When we're close and off by a little bit, that's when it's most pleasurable.

Philip Rosedale:

Frankly, real life, being what it is, your mileage may vary, but real life is often a little bit more stressful than we'd like. There's a lot of things that don't match the prediction. The next few seconds don't quite match. Somebody comes into your office you didn't expect, the phone rings, right? These are things that you didn't predict. So, they're a little bit dissatisfying. So game designers say, "Hey, look, man. I got a great plan here. I'm going to make this thing a lot more predictable," and you're going to feel really good. Like you said, there's a danger in that. There's a heroin in being addicted to that simplicity, right? So, game designers, and social media designers, etc. all look for ways to simplify the experience of life to make us more comfortable. Yeah, like you said, there's something to be said for that. I mean, it's relaxing, but there's a lot of danger that comes with that.

Melinda Byerley:

Oh, my gosh, I could probably spend ... This is really profound stuff. We could, like you said, spend a long time on this. I am reeling us back, but sometimes on a podcast, Philip, it's these little spool-outs that are the most interesting.

Philip Rosedale:

Happy.

Melinda Byerley:

So, one of the things I want just to have down in the record is for you to talk a little bit about the first V1 or V0 or V.1 of Second Life, just for people who don't know what it is or what it was or how it started.

Philip Rosedale:

Well, as I said before, we started by simulating the water, and we started by simulating the sun and the moon. We started with a biblical creation cycle, where the first thing we focused on was physical simulation. We didn't even have avatars at the beginning, which is interesting. In fact, when we first did avatars, we made a little alien spaceship-looking thing that had a light on one pie piece of the alien craft. If you imagine your typical area 51 spaceship, that would basically tell us which way we're pointing because right from the beginning, we were certain that if we are talking about a physical space, a physically simulated digital space that had multiple people in it, you at least wanted to know where other people were looking. So, that was actually the thing we started with was that idea of ...

- Philip Rosedale: I had this original ridiculous idea that we should be these giant floating eyeballs, and that as we gain the ability to use our hands in the virtual world, they'd be these big hanging grease guns underneath the eyeball. We should be nothing more than this homuncular idea of attention, and the big hands reaching out at you.
- Philip Rosedale: So, we started with this idea of simulating the environment, and we started with even the idea of scripted objects, and sounds, and things like that. So, in the very beginning, and also, land. Again, we started with this very physical model for reality because ... I don't know why. I guess I just wanted to do it that way. So, we had terrain, and we had water, and we had sounds, and we had the sunrise and sunset, and atmospheric physic coloration, the horizon seeming red at sunset, and things like that. We did that stuff first.
- Philip Rosedale: Then as it became interesting, and as we had more of us in the space together, more of us being five or six of us, then we started getting interested in, "Well, what sort of body should we have? Do we all want to be different colors? How will you remember who's who?" So, we went down that road for a while.
- Philip Rosedale: This story has been told before. We built a lot of this physicality without a sense of how people were likely to want to use this virtual world. In the beginning, we called it Linden World because Linden Lab was just a fun name of the company, and so we naturally called it Linden World. We didn't know how people were going to use it. It wasn't until a board meeting in 2001 that we had this nice epiphany moment that related to creativity and collective creativity, building together, which obviously has become such an important part, I think, not just at Second Life and High Fidelity, but a lot that has to do with VR and virtual worlds or even, say, Fortnite.
- Philip Rosedale: What happened was we had a board meeting. We were showing off a lot of physical capabilities. We were showing off our ability to blow things up, and shoot at each other, and move really fast, and make waves in the water, and all these things that were very much related to simulation of the virtual world because again, that's just my thing. So, we were showing off all these cool stuff that we could do that no other game or system or anything or military simulation had yet been able to do, right?

- Philip Rosedale: We were showing our board members this, Mitch Kapor, most notably, who was the big supporter and believer in what we were doing. After we showed off all this technical capability, we shifted over to more of a review of the financials and have a business discussion. When we did that, I said, not in Slack because there wasn't any Slack, I probably shouted to the people that were in the backroom. I said, "Hey, you guys just goof around in there," because we had a big screen that was up on the wall above the boardroom table, and everybody just started goofing off using the building tools that we had. Now, the building tools we had were like Lego blocks at that time, even more so, just colored primitives.
- Philip Rosedale: I remember that as we went through the financials, out of the corner of our eye we were all enjoying watching whatever those people in the next room were doing as avatars that we could see on the screen. They just started goofing around. You could tell that they were making each other laugh. I think probably we could even hear them laughing from the next room. Somebody made a snowman, and then somebody else, one of our other early teammates made little tiny snowmen that were worshiping the larger snowman.
- Melinda Byerley: That's so very Linden.
- Philip Rosedale: Snowman cold meeting, yeah. Totally Linden. I looked up, and Mitch looked up, and we all looked up, and we said, "That's it. That's what people are going to want to do." They're just or they're amazingly going to want to just make things together like that, that there has to be some big piece of it that way. So, that really influenced the subsequent development of it.
- Melinda Byerley: Which is about enhancing the building tools? I don't want to lead you, but that's what it seems like from what you're saying.
- Philip Rosedale: Enhancing the building tools, also the big thing that I ... It was one of the things that I think Second Life did really right, and that nobody gets even today. I'm constantly arguing with people about this. Sometimes, honestly, I'm just like, "Are you really that dumb?" It was the idea that two people could stand next to each other and make things, and you could see what the other person was doing. So, you could have ... I remember later, I'm sure you remember this. With



Second Life, we would have these building contests that were like Iron Chef contests.

Melinda Byerley: Sure.

Philip Rosedale: You'd put 10 people in a circle. By the way, folks like Minecraft have done this long after us to a great profit as well. We'd have a bunch of people standing in a circle, and you'd say, "Grandfather clock," or "Turtle," or something like that, and then everybody would have five minutes or whatever to make one, and then we get to vote on it or something.

Philip Rosedale: Yeah, that idea of keeping the system live, so that a person could as easily as possible, and in as pleasurable a way as possible build with other people. I have to say ... I just said I think people are dumb, but I actually think that's maybe me being unfair because that idea of building things together, I still think we all don't understand why it's compelling. I don't know. I have to smile at that. I like hard problems. I seem to have found something there that is really difficult to value. If you're sitting with a bunch of executives, stack ranking features, it's really difficult to say why that one is so important or to compare it to something else like graphics quality.

Melinda Byerley: You know who actually sits together and works to make art?

Philip Rosedale: Who's that?

Melinda Byerley: Theater people.

Philip Rosedale: That's true.

Melinda Byerley: Because I have a theater degree, and I mean, just listening to you describe it, I'm thinking, "Who doesn't get that?" Because that's what we do in theater, "Let's put on a show."

Philip Rosedale: You mean like set design?

Melinda Byerley: Yeah, it's everything. I mean, it is a totally collaborative experience. So, you have a script, whether the playwright is still alive or not, right? It could be Shakespeare, it could be Lin-Manuel Miranda. That person has a set designer, a costume designer, and a makeup designer, and

actors, and lighting, and sound. Actually, as the rehearsals are going on, that team is talking every week, and they're presenting their vision, and they're creating, and ultimately, the play is this reflection that starts out with a director, but it is not top-down. It is influenced by his or her team. Their vision is there, but the team is ... That was what was always a hook to me, was that idea of this debate and shared vision together, and that the thing that ultimately stands on the stage represents the collective vision, which is pretty powerful stuff.

Philip Rosedale: Wouldn't you say, though, that this idea of collective creation is relatively new in the human experience, and relatively infrequent? I mean, I think a lot of our great works are still done alone-

Melinda Byerley: It's true.

Philip Rosedale: ... whether it's a PowerPoint or a book or-

Melinda Byerley: I mean, the solitary, it's a cliché, the composer, the lone genius. This is true. I think there is a lot that's done there. That's why I often, when I was applying to business school, and not to make it about me, but I often say theater is the only truly collaborative art form. It is what has influenced me as a leader, and the way that I work with people because no one is more important than any other. The actor isn't more important than the director. You need everything in order for the thing to be successful. So, I'm just fascinated because it's ... It also reminds me of the blank page problem. What you've described, it's theatrical in some ways because they're working together. It's like a symphony as well. All of the artists, all of the musicians are playing together, but it's also the same problem of the writer who sits down to a blank page of paper, and just says, "I don't know what to do next," and not everybody is wired to pull from the blank page.

Philip Rosedale: Absolutely. Yeah. That is, I think, one of the limiting challenges of building new worlds from scratch is that it's a big ask.

Melinda Byerley: Of course, the people who are most inspired are children, which doesn't shock me at all with Fortnite and Minecraft, right? No matter who you grow up to be, if you hand a crayon to a child, they know what to do with it.

Philip Rosedale: In a sense, I think Second Life was one of the first, and it continues to be one of the first things that got adults to create, which is interesting. I think you're right that Minecraft ... People always say to me, "My gosh! You just got to do Minecraft. We got a new Minecraft the size of a planet." I look at them, and I say, "Well, how much do you use Minecraft?" As an adult, of course, not much. So, there's something limiting about these cubes, colored cubes, basically, where adults won't use them. So, I think there's this interesting challenge, which is how do you get big worlds to be built by grownups. It's a tough one.

Melinda Byerley: It is a tough one, and then our desire to always want to find the real world analogy could limit us.

Philip Rosedale: Perhaps.

Melinda Byerley: So, as I've mentioned in the intro or I will mention in the intro, I worked for Linden Lab, the company that owned or created Second Life. As I was talking to a fellow Linden recently, we both reflected on how it was one of the most diverse workforces we had ever, either of us. Had worked in in our whole career, in any format, in any way, not just in tech, but in any of our prior lives, and whether that was people of different colors, different races, different genders. Both of us remarked on the fact that Linden was where most of the trans people we had ever met were people that we met at Linden.

Melinda Byerley: So, I wanted to ask you about how this way that Second Life evolved, and how that ... I think it's true in tech. The company and the product are so related to each other. How did your vision for Second Life affect the type of people that you selected or that came to work at the lab? How did that interaction work for you? Was it intentional for you to create a workforce like this or not?

Philip Rosedale: Well, it wasn't intentional, although I certainly embraced it as it happened.

Melinda Byerley: For sure.

Philip Rosedale: A few thoughts about that. I mean, one is that I was struck and I'm pausing to try to remember when it was, but at some point on our evolution, I was struck by how important it was that the people be diverse because that would maximize the degree to which they were

interesting to each other. In other words, if you walked up to somebody in Second Life, which of course you often did, and you started chatting with them, I mean, if it was somebody that was exactly like you, that you didn't know... Because, of course, I mean, maybe not, maybe this isn't obvious, but Second Life and High Fidelity and any kind of build-it-yourself virtual world that is widely available is naturally going to have this property, just like any other strange gathering that happens for the first time, that you're not going to know most of the people. Because it's not inherently a friends and family kind of a thing. It's more of an open thing, and then you get a very random set of people.

Philip Rosedale: If you run into somebody who is demographically, whatever, identical to you, there's not really as much to be learned from that person. Whereas if you go in to a bar in the virtual world, and you immediately hear three languages being spoken, and a lot of different ages, you're going to feel like, "This is pretty interesting. I want to go learn more." So, I know that at some point it became obvious to me that that particular people-aspect of it was critical.

Philip Rosedale: I know that around the same time, I observed, because I can remember saying this a lot, and I say it a lot at High Fidelity, too, that it would be the best and safest way for us to proceed to have as diverse a set of people programming the thing as we were likely to have using it. So, my feeling with Second Life and with High Fidelity as well has always been that we would be best served by being as diverse a company as we think our users will be.

Melinda Byerley: I'm fascinated by how that also played out. I remember as I was telling you in the pre-call, there's a documentary, which we'll put, and I'll link to in the show notes about the use of Second Life and virtual worlds and High Fidelity by the disabled. I would love for you to talk about that.

Philip Rosedale: Yeah. That was another thing that I think just happened. Honestly, I didn't expect it, and that I embraced it when I saw it. I think we still don't understand what a large share of people using Second Life, for example, are disabled one way or another. I think it's a lot, and I think that's a great way in which it's a real service to people, and will continue to be. I think it's indicative of why we must press on and get bigger and bigger virtual worlds working for the world because the

impact is disproportionately positive for people that are disabled or in any other way marginalized.

Melinda Byerley: That is the truth, and I think that comes back to maybe the diversity of the team. This was a place where marginalized people felt safe. So, they were attracted to not only the product, but the company.

Philip Rosedale: Yeah. I mean, I had a lot of crazy management ideas as you remember, and I think they did generate a really great culture. I mean, I believed, and I think as I've gotten older, I've thought, "Well, I was a little crazy to believe as resolutely as I did," but I believe that everybody was a CEO of their own company just like me, and that they would want to have 100% freedom to do whatever they wanted and take risks, do anything they'd like to make the virtual world of Second Life better. So, I managed or I should say didn't manage in that way. I said, "You guys are all free to do whatever you want, but know one thing. If you're not adding value," it's like Westley, the old quote from The Princess Bride, "most likely kill you in the morning." So, I think we had an environment which had tremendous freedom, was very welcoming, and was probably a little too stressful for people sometimes because of that.

Melinda Byerley: The same idea, this open page without structure.

Philip Rosedale: Yeah.

Melinda Byerley: So, people really flounder.

Philip Rosedale: Yeah. I mean, I think we did a lot of great things with that. I think there are probably hard problems that are difficult to solve without more organization than that. I'm not sure. I think that's true. I'd say High Fidelity, for example, is different. We do have more structure. I think I've learned a lot over the years, but yeah, certainly giving people a great deal of freedom to self-govern, and to come up with their own big missions. There's a lot to be said for that.

Melinda Byerley: What do you think the lessons of your time at Second Life through High Fidelity, I mean, just standing where you are. I mean, this answer may change in 20 years, but from where you stand right now, if you can send a time capsule of yourself to future generations to say, "This is what I've learned so far. This is what's important to take with us as

we journey forward in the human species." What do you think those lessons are right now?

Philip Rosedale: Gosh! That's too big a question to answer. I mean-

Melinda Byerley: We're talking about simulating Earth, Philip, I think you got it.

Philip Rosedale: There's a lot more possibility out there than we might initially imagine. There's that great Star Wars quote from Han Solo when Luke says, "She's got a lot of money, more money than you can imagine right now," and says, "I can imagine an awful lot." I always think that's a good lesson or thinking that I'd send forward to the future, which is if you think you've come up with the best possible version of the world, you probably haven't. I think that's something that we can learn already from virtual worlds is that they create infinite possibilities that are considerably more infinite than we initially thought.

Philip Rosedale: People used to ask me what surprised me about Second Life. I would say, "That's a dumb question. It was built to be pretty surprising." I think even then, the range of things that people are able to do together creatively in virtual worlds is very considerable and suggests to us that we should humbly regard ourselves as being only at the first few steps of the journey in terms of what we as sentient beings are able to do together. That's my message.

Melinda Byerley: I have often said, if only humans evolved as fast as software evolved, maybe that would be bad, maybe it would be good, but it's hard for us in tech sometimes to accept that the wetware, if you will, just is slow and buggy.

Philip Rosedale: Although with Crispr as Wired put on their cover, I think, this latest issue, yeah, we may well have, in shock and awe, we may be approaching that. I don't know as a-

Melinda Byerley: Is that horizon?

Philip Rosedale: Yes, as the science guy. That aspect of the singularity, if you will, is rather disturbing, our ability to edit our own gene sequences, but yeah, yeah. I mean, we are certainly not evolving as quickly as our computers. I think that fact is an important one that really affects businesses and ideas a lot more than you would think. I mean, I guess

if you're a completely pie in the sky Silicon Valley thinker of, "Hey, it's all just Moore's Law, and everything is getting faster and faster." It's like, "Well, that's true on a technology, pure technology level, but in terms of people actually building things, that relies on humans and human brains," and as you said, human brains are not evolving one bit.

Melinda Byerley: Well, as you said that fundamental millennia of evolution about the next few seconds is going to be the thing that we have to face. That's the barrier, if you will.

Philip Rosedale: Well, and how much data can we take in, right? I talk about this a lot. I mean, our passion for consuming additional information is unbounded. As humans, we mainly, as you said before, because we're looking for danger, our desire to take in information, particularly visual information, auditory information, is infinite. We have infinite desire, appetite, but the brain does not have an infinite capacity to take in information.

Philip Rosedale: As we open our eyes, well, as we use our mobile devices most recently to present us with information, we are all finding out that it's not just a free thing. You can't just read more and more text messages, and just because become better as a result. That's not the way it's going. What's happening is the brain has a natural capacity for integrating information, which is finite. As a result, we're unable to think as deeply about things as we were before because we are flooded with new information that we are, unfortunately, very willing to take in.

Melinda Byerley: That's the rise of the software sabbatical or the tech sabbatical, and even, I would argue, sleep. Everybody who knows me knows I'm such a proponent of the seven to eight-hour sleep because all the science says that's when the brain actually does its processing is when we stop taking in information.

Philip Rosedale: Yup, and that very same...Looking a few seconds into the future, as you may know, is precisely why we sleep and dream is to decide the meaning, essentially, of all that unsettled data that we've taken in during the day. That's why if you travel to a faraway country, I always give this example, at least it's anecdotally true for me. It's consistent with my knowledge and interest in the brain. If you travel to a foreign country and you see all kinds of new stuff you've never seen before,

guess what? You need to sleep longer that night. You dream more, and that's your brain trying to make sense of it all.

Melinda Byerley: That's super interesting. I think that's true, too. So, this is a good way to segue I think into this idea of the 3D web because this phrase is not something I remember being used a lot when I worked at Linden Labs. So, I think just for the purposes of helping the listeners, in your mind, what is the 3D web, and what is the 2D web?

Philip Rosedale: I think that topic is really interesting, and I'm going to preface this by saying I probably annoy a lot of people with my perspectives on it because I think nobody is sure, first of all, but the first thing is the 2D web is the proto-structure that we built as a population in the form of Tim Berners-Lee's wonderful protocols coming out of CERN. We all built together this vast network of web pages, where in a very open fashion, that is each person who creates a page, is free to link to other pages as they care to, right? The links themselves are links mediated by text.

Philip Rosedale: That idea is magnificent and awe-inspiring, and it's given rise to, in some ways or in many ways, the largest corpus, the largest thing humanity has every built is the web with all its links intact.

Melinda Byerley: I never thought about it that way, but that's totally true.

Philip Rosedale: So, there you go. Now, naturally, I think, in the minds of dreamers such as myself for decades, we've all been saying, "What's the equivalent version of that, but in 3D?" Because the mind understands things in 3D better than anything else simply because that's where we live most of the time. We don't live in a world full of texts like the Matrix. We live in a world full of three-dimensional objects, and actually, also landscape, and rooms, and sky, and clouds, and things like that.

Melinda Byerley: Smells and sounds, yeah.

Philip Rosedale: Yeah, that's true. Yup. We can't away from that world. So, naturally, as we gain the ability to put that in the computers, everybody says, "Hey, there's got to be a 3D thing that's like the web. So, that's why people say 3D web, but what I would say is once you get down to the real work of building that, things get a little bit more complicated. In



particular, and I think this is an important observation: Because the web was opened, and egalitarian, and bottom-up in its creation, there's a lot of good in that. I mean, I think there's a lot of inspiration that we all take from that.

Philip Rosedale: There's a tendency that any time we see an opportunity to do something new that's really profound and big like 3D, we put the word web after it for a wrong reason, which is what we're saying is, "Yeah, like that other open thing," right? Whenever there's an open source project, everybody wants to bolt it on to Mozilla or Chrome. They say, "Well, that should be an extension of the browser."

Philip Rosedale: The question I would ask about that is "Why?" We can make open source things. We can make bottom up things. We can make democratic things. We can make egalitarian things. We can make open economies using a variety of different models and pieces of software. So, I am a person, and maybe, again, this is a bit contrarian, but I'm a little bit down on the idea of 3D web. The reason why is because: for there really to be a logical 3D version of the web, it would mean that there's a logical 3D version of the web as it stands today because the web isn't just a protocol. It's the content, right?

Melinda Byerley: For sure.

Philip Rosedale: The thing that's amazing about the web is all those billions of web pages. I would make the observation that although a lot of people have spent a lot of time thinking about this, I have as yet never, and this includes me, I have as yet never seen a way to make a web page into a 3D thing that I thought was useful for a human.

Melinda Byerley: Say that another way.

Philip Rosedale: Let me say that again. If you look at a website, let's pick one that we all know like Reddit or Craigslist or the New York Times. Now, imagine that web page springing to life as a three-dimensional thing.

Melinda Byerley: Now on the screen like a holographic projection or something like that?



- Philip Rosedale: Yeah, or a virtual world. Imagine that you put your website site on, you put your headset on, your VR goggles on, and you're suddenly in the middle-
- Melinda Byerley: Of The New York Times.
- Philip Rosedale: ... of the NewYorkTimes.com. What does it look like? I think the problem is there's not an answer to that. You can have 10 seconds in a movie that suggests an answer to that. I've been most delighted recently by Ralph Breaks the Internet. If you've seen that-
- Melinda Byerley: I haven't, but now, I will.
- Philip Rosedale: Well, it's great. It's a film. In it, our hero Ralph and Glitch, they go into the wires, they go into their network cable, and they journey into the Internet itself. So, the artists that made that film created the city, and the city has these huge towers, and all these streets and stuff, these little packet cars on the streets. Of course, what are the towers? Why, they're Amazon.com, and Snapchat, and Google, of course. It's exciting, and they do a great job creating a fiction around that.
- Philip Rosedale: Again, if you go back to that question of Reddit or The New York Times, what is it in your head that's better than a webpage? It's nothing. Those structures were built, those pages were built to contain texts and images, which is a very, very powerful thing that we've done together as humanity, but they don't just convert to 3D. So, I'm going to say while there's an open virtual world that's coming, it isn't the 3D version of the web. I don't think that all these pages mean anything in 3D. In other words, I think the way we're going to use the worldwide web and virtual reality is on a tablet, in our virtual hands, browsing it the same way we do today like our mom and dad did, everybody will say.
- Melinda Byerley: Absolutely. It's funny. As you kept talking about web, I kept thinking about, well, what's a spider web? A spider web is a flat thing. It is not in 3D. It's really two-dimensional. The spider web is all these links, and these things that the spider travels on, but it's not generally something, the classic version of it is not three-dimensional. It's on two planes.



Philip Rosedale: You've seen those pictures. We've all seen that poster. I know we have one at Linden because I loved it. The internet has a series of lines on a page, right?

Melinda Byerley: Well, we could do that.

Philip Rosedale: Yeah. It was a million little lines, yeah, but of course, it's beautiful like as a piece of art, but is that the way you want to navigate the web? I mean, when you look at that, are you like, "Oh, God! This is awesome. I mean, I'll just start from here at my homepage, and why, it's obvious. I'll just go over to the left there, and that's toward liberal politics," or whatever. Well, no. It's absolutely not true. That's actually, technically, it's an end-dimensional hyperstructure. The dimensionality of it is very high, and would be the average number of links between the pages, which would be dozens. It is absolutely incomprehensible to a human mind. So, we must begin anew with 3D is what I would say. So, we may like to call what we're going to build with virtual worlds the 3D web, but it's not some 3D version of the web.

Melinda Byerley: So, this leads me to ask you the question. So, in this new space that is not the web, right? It is a 3D space. What promise do you think it has for us, for people, for humanity, and what risk does it hold?

Philip Rosedale: Sure. Well, it has the same promise, and technology is delivered well in this, despite our appropriate concerns about it in the last couple of years. Technology has delivered the ability for us to communicate at a distance, and by so doing, bring us closer together as human beings. We now ... Kids today that play Fortnite, many of them, the majority of them, play the game with a set of lightweight friends that they're playing with enormously more diverse than kids could possibly, well, could have played chess, say, with others, 30 or 40 years ago.

Melinda Byerley: Indeed.

Philip Rosedale: So, they are connected to ... They don't even know. If you tell them, "Where's that friend from?" "I don't know. Somewhere in Europe. I don't know. Has a funny accent." They don't even worry about it. So, that's what technology has done. Technology has made the world smaller in a good way by allowing us to communicate now. This is, I think, part of the promise of virtual worlds. It hasn't, however, as we would all be quick to point out, enabled us to communicate face-to-



face. It hasn't enabled real human connection. Of course, as you know and I know, Second Life was a really interesting and important step in the direction of closer to face-to-face.

Philip Rosedale: It wasn't face-to-face, but it was very interesting in ways that email and forums and blogs were not. So, especially for the time when it was released, Second Life was singular in its ability to deliver a different and more intimate form of human connection.

Philip Rosedale: I believe that VR, voice, sound, and headsets done correctly in three-dimensional worlds, and there's a lot to that "correctly", but what I mean is when the technology is done right with respect to latency and what your avatar's body looks like, and what your eyes do, and things like that...If it's done correctly, it will enable two people that are 2,000 miles apart or as far apart as they can be on Earth, which is, what, about 16,000 miles, those two people will be able to stand face-to-face, shake hands, give each other a hug, make eye contact, indicate that they're paying attention, nod in agreement, in a way that is identical to standing face-to-face.

Philip Rosedale: I think that that promise of that is just enormous because we have built technology, which does connect us to each other, but it does so through a drinking straw. It's a very narrow channel. We're given a very narrow channel to communicate with each other. VR, potentially, expands that all the way, if you will, to the experience of standing in front of each other.

Melinda Byerley: Man, I'm in. I have to say the worst part of getting older is that I don't get to see how the movie ends.

Philip Rosedale: Well, hopefully, we're in exponential timescales. So, hopefully, we all live to the end of days here. We'll see.

Melinda Byerley: ... and get to see that. I have just a couple of last questions for you. It's really reaching out to the audience and saying, what are some of the best advice you've ever received? It doesn't have to be your advisers or it doesn't even have to be business-related. Who's given you some of the best advice that you carry forward, and what was it?

Philip Rosedale: Well, I haven't listened as much as I should have.

Melinda Byerley: This is entrepreneur's disease. I know this disease.

Philip Rosedale: Yeah. First of all, I'd say it's like that Pulp Fiction line, where he says, "Do you listen or do you wait to talk?" He's like, "Well, I still wait to talk," but I'm trying. So, I probably haven't heard all the good advice. I have gotten advice like, "Just do what you want to do. Don't overcomplicate things." I think that as I get older, I feel like that's pretty sound advice, that we spend a lot of time troubling ourselves about things.

Philip Rosedale: I remember at Linden when we had a whole bunch of offices, and I asked a very famous coach guy, Bill Campbell, who was chatting with me a bit about this, and I said, "My company is really conflicted. We got seven offices, and we got all kinds of different people in them." That is to say it's complicated because we have senior and junior. As you remember, Linden was really materially distributed as an office. A lot of the team members, appropriately, especially at the time, 10 years ago, were like, "This is madness. We can't have executives in four different offices around the world. This is nuts."

Philip Rosedale: So, I asked this guy about it, Bill Campbell, and he said, "Well," he was very abrupt, and he's just an amazing coach character, but he said, "Well, what do you want to do? Do you want to have distributed offices?" I said, "Yeah. No, totally, that's what I want." He said, "Well, then just make it work." I always thought that was great. He didn't say something like, "Well, the technology at this time will allow up to 50 people to be in a distributed office." He just said, "Well, just make it work."

Philip Rosedale: I think there's a lot to be said for that advice that you can get really confused by believing that there's a careful set of things you need to consider when, in fact, you ought to just do what you want to do. Try your hardest. I think our ... In a similar way as we were describing, our mobile device is overwhelming us. I think there's a risk as entrepreneurs that we're going to overwhelm ourselves with data.

Melinda Byerley: Oh, yeah. I see it all the time.

Philip Rosedale: There's so much data. Yeah. I see so many young entrepreneurs say, "Well, we have to be data-driven about this decision making." I think, "Oh, okay." I mean, for sure. I mean, you don't want to be doing



something where every bit of data that's coming back is saying, "That's a dumb idea." You should start making sure of that. On the other hand, the data is never going to tell you the new thing you need to do. It doesn't. It never does.

Melinda Byerley: They can't optimize your way to ingenuity.

Philip Rosedale: Exactly. Yeah, exactly. That's a great way of putting it. So, I think another piece of advice I would give to younger people or newer entrepreneurs or whatever is that, which is despite all this data, you still got to follow your heart. I mean, what do you want to do? Are you working on something that's genuinely interesting?

Philip Rosedale: One of the things I've been struck by that I think is just great is when I was younger, all we wanted was money. All we were all trying ... It's like that risk line, "Do you guys want to do something with your lives or do you just want to make money?" We're all like, "What do you mean?"

Melinda Byerley: "What are you talking about? That's not a choice."

Philip Rosedale: "What would the other choice be?" I think that we all were like that, and me, too, when I was a kid. I think that kids these days are not like that, and that's really cool. I think that when you think about retaining great people that you want to have work with you, I mean, do something interesting, right? They're demanding it. In a way that wasn't true 20 years ago. 20 years ago, you could just tell somebody, "You're going to make a lot of money. We're going to go public," and they're like, "I'm in. I don't care if it's a toilet paper we're making. I'm down for that." Now, people aren't saying that, and I think that's great.

Melinda Byerley: I love the statistic about how most Millennials prefer being in a company that's mission-driven. They want to be doing it for a reason.

Philip Rosedale: Yeah, not a bad choice.

Melinda Byerley: And the child shall lead us.

Philip Rosedale: Exactly. Exactly. I like that.

- Melinda Byerley: So, just any other advice? I was thinking, too, often, engineers, too, or computer scientists, programmers, because you are someone who came out of programming, and talking to them because I think one of the things I've always admired about you, Philip, is that you do have a heart. You're incredibly smart and technical, but you also think about people, and I'm not trying to lead you in your advice or say that there's an acceptable set, but I think it would be neat to hear you talk to developers, in particular, about what advice you have for them or suggestions as they start on their career and grow.
- Philip Rosedale: Man, you keep asking these big tough-
- Melinda Byerley: You got a big mind, Philip. That's why you got to ask the big questions.
- Philip Rosedale: Geez, I don't know. I mean, well, I guess what I would say to developers, I mean, this is probably pretty patent nowadays, but it's just that communication counts for a lot. If you're working on something ... I grew up learning about Microsoft because I worked in Seattle at RealNetworks, and there were a lot of people there, Rob, our CEO included, who had come from Microsoft, and Microsoft seemed to be a place in the '90s where being right was all that mattered, and being non-communicative or even rude or abusive to others, you actually get extra credit for that.
- Melinda Byerley: Good times.
- Philip Rosedale: It was solitary. To be right and alone, and tragically, and majestically alone was the biggest idea. I think that we have changed. As developers maybe are, in some ways, on the trailing edge of that because software development is so often still a solitary thing, but I would say that increasingly, and we certainly saw this with Second Life with its complexity, the really complicated projects that we're all going to be living in, say, as developers in the future, the really interesting ones, will require a degree of coordination amongst different people that is substantial and unique.
- Philip Rosedale: Actually, I think some of the web development paradigms and tools that we've built over the last, say, 10 years, take us in the wrong directions for good reasons, which is there's such easy to use toolkits that everyday now we hear the story of this 12-year-old built this



major website, and deployed it on Amazon, and got a million customers, and a billion dollars in 24 hours, all by herself or himself.

Philip Rosedale: I think that is a bit misleading because the biggest projects like High Fidelity or Second Life actually aren't that way. They're going to actually require an escalating need for very, very sophisticated communication, emotional intelligence, listening, active listening. So, I would say that ,despite the fact that we have better and better tools, if you were a young developer today, I'd say stay on that whole EQ thing. That's going to really matter because you're just not going to be able to build the things that you're dreaming about building without other people helping you, and communication skills are going to matter a lot more than you think.

Melinda Byerley: Philip, this has been really fun. I just want to thank you for your time. It's been a pleasure to talk with you.

Philip Rosedale: It's been equally delightful to talk to you. I've heard a lot of good restatements on some of these things, and I'm going to steal from you and use it out there in the world at large.

Melinda Byerley: Well, that's awesome. Thanks again.

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