Adventure Upgrade: Going Deep Into Risk, Fear & Awe – Bob Ballard & Jill Heinerth – #955

Dave Asprey:

Today's special episode format features two different experts sharing knowledge about a single subject that I've chosen because I think it can make a big difference in the quality of your life, your energy, or maybe even the length of your life. Across about a thousand episodes of biohacking, I've brought those topics to you for upgrading physical, emotional, mental energy, even spiritual energy. Now I'm putting some special guests together in shorter episodes, introduce you to the topic in a broad way in a very small amount of time. You can go deeper if you want to, but at least you've got the knowledge. This is about knowing something exists and then choosing what you want to put your attention on. Just go to Daveasprey.com/podcast to check it out. Enjoy the show.

Dave:

Today's guest, Jill Heinerth, is an underwater explorer, one of the greatest cave divers on the planet. She's dived deeper into caves than any woman in history and explored places in the world where no one has ever been. She's a writer, award-winning photographer, filmmaker, an absolute legend in the diving community, spent more than three decades of her life submerging herself in caves for National Geographic, in OAA, and TV shows all over the place, and the first explorer in residence for the Royal Canadian Geographical Society. Jill, welcome.

Jill Heinerth:

Hi, thank you. Nice to be here with you.

Dave:

There's so many questions I want to ask you because you've got all this knowledge about diving and what our bodies do, but there's also something that drives you to go literally into the planet, which by the way, is the name of your book. Of all the things you could have done with your life, and you could have said, I want to be the first person in space, I want to be the first X, why did you pick this crazy, dangerous, mysterious thing?

Jill:

Well, when I was a little kid, I actually wanted to be an astronaut. I was totally inspired by watching the Apollo astronauts on TV, and that's what set the idea in my mind that I could be an explorer. I also saw Jacques Cousteau on TV exploring these underwater places where nobody had ever been before. I thought, oh, wow, well, that's how I can explore these new, exciting places. I loved being outside and had quite a bit of freedom on my own to explore the woods or go paddling in a canoe or whatever. I've always liked learning, so learning and curiosity was very much at the center of it too, and problem solving.

Dave:

All right, Bob. In your book, you're talking about some of the things that made you who you are, and certainly dyslexia is part of that, but you've lived a life that is so different than most people. I want to know what really made you who you are. Is this like parenting? Is this early childhood? Where did this come from?

Bob Ballard:

Actually it came from, because I'm dyslexic I didn't read the book 20,000 Leagues Under the Sea, but at 12 I saw the movie 20,000 Leagues Under the Sea that Disney made. Disney, by the way, was dyslexic, and he had a little plaque that says, if you can dream it, you can do it. All parents, they ask their kids, what do you want to be when you grow up? I told my parents I wanted to be Captain Nemo. Now, thank God, they didn't laugh at my dream. They didn't humiliate me to say what a dumb dream that is. They said, let's work on it. I know they were gone into the next room and said, Houston, we got a problem, but they didn't do that in front of me. They sat there and they said, well, tell me more about Captain Nemo.

I said, he had a submarine. We were living in San Diego. Boom, the next day they got me on a submarine. It was a diesel submarine from World War II. I then went on, as you know, to become a Naval officer and spent a tremendous amount of my life in deep diving submarines. Then they said, well, the Nautilus was more than a submarine. I said, yeah, it had a window that opened like the iris of a lens, and you could see the bottom. They said, hey, that sounds like an oceanographer. They took me up the street from where I was living, a place called Scripps, largest oceanographic institution in the world. I went on to become an oceanographer, so fundamentally I lived my passion. In many ways I admit I probably never grew up. I never lost the spirit of a middle school kid, the wonderment of everything.

I had parents that, and all the way along the road, I saw my biggest challenge was surviving the educational system because for people like me, everyone's born with that flame of curiosity, every child is born a scientist, and yet the educational system can turn off that pilot light and kill it. I was lucky enough, right when my pilot light was getting low, someone put their arm around me and said, you can do it, helped me through it. I had people all the way. In the book you can see all the people along the way, right at critical pathways in my life were there, starting most importantly with my mom who was my champion. She said, you're not stupid, and so, yeah, that was fortunate. I just got lucky. I'd have to say luck had a lot to do with me sitting here. Certainly I wouldn't have found the Titanic if the military didn't want me to do a top secret mission in the same area. Yeah, just lots of crazy things have happened and I'm still at it and I'm not going to quit.

Dave:

Did you get a lot of crap for being a woman, especially at the beginning of cave diving, or was it a non-issue?

Jill:

Oh yeah. I got a lot of crap throughout this entire career. It's a niche sport, within a niche, within a niche, within a niche. None of those niches had very many women in them. It's been an up the hill battle at times where I had to maybe work harder, or jump up and down, or have a pretty hard exterior to deal with some of the misogyny. At the same time, there are times when being a woman has been an advantage to me. I've been on a project where I'm the only woman on a small exploration team doing dives that are way outside our understanding of physiologically possible. The guys are having to be competitive for their spot on the team. Not so much for me, once I proved myself worthy. I was just always out to do better for myself, improve, go farther, do more, where these guys were like, oh man, if I don't do what he did, I'm not going to get the next opportunity.

In that sense, sometimes it's been advantageous to be the lone woman. I mean, as a young woman, I thought, well, gee, maybe I'll do commercial diving. I knew that I wanted to be underwater, and I thought, well, commercial diving. I'll be a commercial diver. They make great money. Oh, look, there's a workshop I can go to for a weekend at a commercial diving school where I can see everything

that's going to be involved. It's like an orientation. Then presumably everyone that goes to the orientation then signs up, pays their tuition, and ends up going to the school for a couple years. I thought, all right, this is it. I'm so excited. This is fantastic.

Literally, on the first day, after I'd asked a ton of questions, and I always think asking questions is a good thing, the instructor walked right up to me and he said, listen, and I was the only woman in the room, he said, listen, there's no room in commercial diving for women. He said, if you just want to go off and train dolphins, there are other ways to do that. You best find yourself something else to do.

Dave:

Wow.

Jill:

He said that with absolute confidence. I was young enough and not confident enough in the diving end of things, that that slammed a door for me. It's the same way when someone says, oh, well, we don't have a Canadian space program for women astronauts, so nah, sorry. When a young person has an experience like that, it slams the door in their face, never to be opened again in many ways. Now that I'm older and I have experiences like that, I'm like, yeah, watch me. The wisdom of age has changed things for me. Yeah. I realized that anything I want to do is possible.

Dave:

Do you think you make your own luck?

Bob:

I think you do.

Dave:

How?

Bob:

By just being in the game, by being in the game. I mean, here, it's all about being on the bottom of the ocean. Here's what's so easy about what I do. I boldly go where no one has gone before on planet earth and turn on the lights. I can't miss. I'm going to a place, we will spend the next X months literally going to a piece of the earth never seen by a human being before. Imagine that. Year in and year out for 62 years, I've been going where no one has ever been. How can I miss finding things that no one has ever seen before? It's a piece of cake.

Dave:

One of the early things you did is you contributed greatly to the tectonic plate theory.

Bob:

That was my first biggie, the plate tectonic theory. Yeah. What I have found in science when we finally figure it out, it's simple. That's the beauty of it. When you look at all the equations that preceded E=MC squared, boom, the blackboard was full of equations. I always tell people, if you can't tell a fifth grader what you're doing, you don't know what you're doing. You can always, when you finally crack the nut, explain it to, remember, I'm first of 13 generations of my family to go to college, and I was able to sit

down with my grandma and explain, plate tectonics, and she got it, so it's pretty simple. The earth is alive. It has pieces. We call them plates. They're about 22 big ones. Those plates are doing one of three things, not four, one of three things. They're either moving apart, and when you rip open the earth, it bleeds. Its molten blood, rises from inside its body up to the crack. That's called the mid-ocean ridge where the plates are separating.

Just like blood, it's liquid, it coagulates, and it forms new tissue called oceanic crust. Then as it moves away from its side of genesis, it bumps into another plate, because the earth is not getting bigger or smaller, so there's a dance going on, a dynamic dance going on. Then when the plates collide, one subsides against the other and remelts. That's where we get the big earthquakes in Japan and Indonesia. Then there's a third kind of behavior where it's not doing this, not doing this, but going by that way. That's called the San Andreas fault. It's a transform fault. You have San Francisco sitting on the North American plate, Los Angeles sitting on the Pacific plate, and the two towns are going towards one another. It's going to be a long time before the Dodger-Giant games across town rivalry, but those two cities will get closer, your height in your lifetime. They're getting closer. That's plate tectonic. Bingo. End of story.

It's so beautiful because then we know how the earth works. All the resources of the earth were not put here by an Easter bunny. They were systematically made by plate tectonics, so we now know where to look. It's amazing. A Rosetta stone we were given in the sixties, and I was lucky to be in that graduate student period and mount a historic famous project that confirmed the theory in 1970, '72, '73 and '74. It was cool.

Dave:

You've dived in the Antarctic, inside an iceberg. What was that like? What did the temperature do to all these other crazy things that you deal with?

Jill:

Yeah. I do a lot of diving in the polar regions, but the one project you're talking about was when I was the first person to cave dive inside an iceberg. The water is minus 1.8 Celsius or 28 degrees Fahrenheit, so 1/10 of a degree colder, and it would be frozen solid. It's this coldest water can really get.

Dave:

Wow.

Jill:

It's tough. It's very hard on the body. You're never comfortable. You do everything you can to wear the right layers of stuff to make it as comfortable as possible, but you're never totally happy.

Jill:

Well, yeah, it's pretty much the same as what I normally do, but I am a real believer in keto diets.

Dave:

Oh you are? You're already into keto.

Jill:

Yeah. Yeah.

Dave:

Do you see a difference underwater when you're in ketosis versus brain on glucose?

Jill:

Yeah. Yeah. I'm definitely more tolerant to cold. I don't know whether it's necessarily just the keto diet or whether it's other things as well. Certainly learning how to breathe properly and effectively is part of that too. You're probably familiar with the Wim Hof Method?

Dave:

He's been on the show. He's a friend.

Jill:

Wim Hof, yeah. Yeah.

Dave:

Yeah.

Jill:

Okay, cool.

Dave:

You do the Wim Hof breathing before you go down?

Jill:

Yeah. I think that that's really helpful in the whole pre-visualization phase of my dive. Also, if I need to warm up afterwards, I'm really focusing in on my inner fire, and breathing is very helpful too.

Dave:

You don't have a thick skin. There are people who have a thick skin, but it's calloused. You can tell this doesn't bother you at all, none of the stuff. You take it humorously.

Bob:

Yeah. People take straight aim at me and never hit a vital organ.

Dave:

How do you do that? What's your secret to that?

Bob:

Processing. It's okay. I mean, yeah, there are things that are said, but I've had everything, I've had a lot of practice at being criticized for popularizing science. I say, well, why don't you guys try it? Oh, that's right. You may not know what you're doing. Right? Here's the problem. Wisdom comes late, and fortunately at 79, maybe I got a little, and what I'm trying to do is share that. I think that's our job at this point in our life. I'm mentoring. I got an amazing team, and I'm stepping back, handing off. They don't quite do it the way I do it. They do it very differently, but who am I to judge? My grandmother thought I

was going to a bad place because I listened to Elvis Presley. I can remember. Every generation stands on the shoulders of the last and sees new horizons we can't see.

Jill:

I'm one of the pioneers in what we call re-breather diving. Most scuba divers wear a tank on their back. They inhale from the tank. They exhale and make bubbles. With a re-breather it's exactly the same gear that you would use to make a spacewalk from the International Space Station. We exhale into a loop, trapping the gas. We scrub the carbon dioxide out, and then we make micro injections of oxygen back into the breathing mix to make up for what we've metabolized, so you're not wasting anything at all. You can use far fewer resources for deep and long dives, and you also won't make bubbles, which can be quite handy. It's also a little bit warmer.

Dave:

Oh nice. Yeah.

Jill:

Yeah. Yeah. That's all really, really helpful. We're constantly manipulating our breathing loop. We're constantly manipulating our life support gases, which could be one of the most dangerous things you'll ever do in life, but it has a lot of advantages too. When we were first starting to use re-breathers, I wanted to know about what's it going to feel like if I'm hyperoxic? What's it going to feel like if I'm hypoxic? What's it going to feel like if I'm breaking through the carbon dioxide scrubber? Now this is not the safest way to figure these things out, but in those early days, we knew nothing about the re-breathers. We knew nothing about how to safely train on them, and so we wanted to have these experiences and see how we would respond. We did this hypoxia training in a somewhat controlled situation. The instruction to the diver was if you start to feel hypoxic bail out.

Dave:

What does that feel like?

Jill:

Yeah, so we hid the display from them so they don't actually know what their PO2 is, their partial pressure of oxygen in their body. They're just supposed to go on gut. What we discovered is that the afflicted diver would recognize symptoms, even be capable of writing down a word like tingling on a piece of paper, but if you're feeling tingling and you recognize that that's hypoxia, that should have triggered the manual motor control of actually switching off the loop and saving your life. Somebody who actually writes down a symptom or reports a symptom, but doesn't necessarily physically act to save their life, it's kind of interesting. We found that most people drifted down into that hypoxia where they still had the mental acuity to know, oh, this is hypoxia. It's happening. I'm going to die. Even in their mind, sometimes they actually thought they had made the physical motion of bailing out, but they didn't before they physically passed out and we had to rescue them.

Dave:

What have you done to be as robust as you are at 79?

Bob:

Well, I took care of myself. I was an athlete. I was a star athlete in college and high school. I've always loved that Greek philosophy of a fit mind and a fit body. I love the two. Being dyslexic and ADHD, I found that I needed an outlet for my energy. I think ADHD kept me active, up and down, up and down, up and down. My son, Dougie, is also ADHD and dyslexic. On the mirror, when he was growing up, I had a little sign, and it said my body is like a race car. When I learn how to drive it, I'm going to win lots of races. I learned how to drive my race car. I learned how to take my bundle of energy and not make it destructive. I was never put on Ritalin. My mother, though, said if we were twins, she would've drowned both of us at the time.

In the book, as you know, remember me going over the back fence and showing up at the grocery store, and finally she put me on a leash and I ran up and down on the clothesline, I kept saying, just like a puppy dog. I learned how to control and use my energy in a very useful way. I have a rhythm that I have where I do physical things. My wife loves it because during the pandemic, I make all the beds. I do all the dishes. I put everything in place. My grandmother always said, everything has a place, and everything should be in its place, so I'm a, I confess, neat freak.

I use my energy while I'm thinking. It relaxes me because my mind is going so fast I need something to slow me down. I do puzzles. I love puzzles. My wife gets puzzles, and she doesn't show me what they are. I get puzzles, and she covers up the box so I just don't know what it is. She gets thousand piece puzzles. Here's what she did to me once. She got commissioned a puzzle of a thousand pieces, okay, had no borders. All the borders were gone, so you couldn't do that. You ready? It had holes in the puzzle that could never be filled. It gets worse. It gets worse. There were puzzle pieces that were worthless and went nowhere, and the coup de grâce, every piece was the same shade of blue. You know what? I did that puzzle. It took me a little longer than most.

Yeah. I like stuff like that. I like climbing tall mountains that take a long time. I love goals that take 15 years because then I love to dream up one every few minutes. I find that people, there aren't a lot of people that will take on tall mountains so it's not crowded, and you can really get up those mountains pretty fast. I think I crack the nut. I'm hoping that the book will help people that are like me, bundles of energy, and help parents understand us 20% who are wired differently.

Dave:

What is the craziest thing you've noticed that you just wouldn't have thought a human body could do that that it did?

Jill:

Oh wow. I don't know. I mean certainly the whole navigating in the dark has always been really, really fascinating.

Dave:

Yeah. That's a superpower.

Jill:

Yeah. Yeah. Even the endurance factors for me. When I look back on some of the things that I've done, some of the things that I've survived, I realize that we are capable of so much more than we could possibly imagine. Even the course of doing this 22-hour mission after being up for a whole day, just to prepare for it, we can really dig deep and do so much, but you got to be willing. I've been with people on dives where I've had a really good mental framework around the dive. I've had a very positive dive. It's gone well. I haven't been scared, but I've been with someone who's had a bit of something scary happen

and their whole mindset changes. Then that person has gotten bent after exactly the same exposure that I've had. I feel like there's so much more about our mental state of mind that will deliver physical success or more detrimental things too. Yeah.

Dave:

You've mentioned that you think there's a couple million shipwrecks just laying out there.

Bob:

There's three to four million. I didn't make the estimate, scholars did. If you go to the United Nations and say, you know how many shipwrecks are there? There's three to four million. These are chapters of human history. They have stories to tell. I like to tell the kids in middle school, my favorite group I talk to, I said, listen, your generation is going to explore more of earth than all previous generations combined. The greatest explorers are in the room today. They just look at one another. Who is it going to be?

Dave:

Well, you're one of them. You've had such an impact on the world, and God, your energy, thank you for sharing it with my audience and with the world and allowing Bulletproof Radio to be the second ever from your studio. We are all rooting for you. Guys, if you get the chance, you really, really want to pick up Bob's book because it is worth reading. You want to know how to kick ass hundreds of times throughout your life? This is the man to learn from. You are one of the masters, one of the elders, and thank you for sharing your wisdom. I genuinely appreciate you.

Bob:

Thank you so much for having me, and please thank Lara for me for making this union possible.

Dave:

You've seen the changes in our oceans over the last 30 years, and the increases in plastic and just the way the environment's changing. You've also seen some of the most unspoiled, most amazing parts of the ocean. Do you think that the oceans are recoverable in the state that they are now?

Jill:

Whew. Well, we're in a really tough, tough point in human history with climate change and everything that's happening, the acidification of the oceans, the plastification of the oceans. I truly believe that we are very close to, if we have not already, passed the tipping point where decisions that we make in the next couple of years will determine the survival of our species. The Earth's going to be fine. Whether we're on it or not is another question.

Dave:

There will be life on earth too. It just might not look like us.

Jill:

Right. Right. Yeah. I believe that. I used to feel like I had gone to these places that were so pristine and untouched by humanity. Going to Antarctica you don't see contrails in the sky for six weeks, eight weeks. You see no evidence of humanity and you feel like you're on another planet. Now, with the

whole understanding of plastic oceans and even how we're acidifying the ocean and changing the global circulation of water around the planet, I realized that there's no place that's untouched. There's places that should be pristine and untouched that are suffering great ills from the actions of people very, very far away.

Dave:

Yeah. We're just not aware of that. Jill, it's been really fascinating interviewing you. You've developed a very interesting self-awareness through the path you've been through, and I appreciate the way you're able to put it into words and to share it with everyone listening. Likewise, it's been a pleasure.

Jill:

Oh, thank you so much. Thanks for what you do. All this great information out in the world is helping a lot of people.