

# Space Capital Podcast S01E07 - Who Owns the Moon?

## with Richard Garriott Transcript

**You know, when that auction went live, what I ultimately paid was sixty-eight thousand five hundred dollars to become the world's only private owner of an object on a foreign celestial body. But then immediately what it made me think of is, you know, what is it exactly that I can claim. This began to move me into the realities of questioning what does ownership of property that is not situated here on the Earth, what does that mean? What are someone's legal rights? How do you assert those legal rights?**

Welcome to The Space Angels Podcast, episode seven, Who Owns the Moon? I'm your host, Chad Anderson, CEO of Space Angels - the world's leading source of capital for early stage space ventures. The purpose of this podcast is to provide investors with the context and information necessary to understand the real risks and opportunities in this dynamic new entrepreneurial space age. In this episode, we'll be discussing property rights in space. How do you own something in space? What rules exist to govern and grant property rights? What are you allowed to do and not do? And how are things changing as more new entrants join the space economy? To answer these questions, we'll be speaking with none other than Richard Garriott. Richard is a private astronaut and a famed video game developer. He's also the Vice Chairman of Space Adventures, a trustee of the X Prize Foundation, a fellow of the Explorers Club, and an advisor to our venture fund, Space Capital. But these credentials are not the only reason we've invited Richard to the show. Richard's with us today, because he is the first person to credibly claim ownership of extraterrestrial territory. We have a lot of questions for him, so let's dive right in. Hi, Richard, welcome to the podcast.

**Richard:**

Hey. Thanks, Chad. Looking forward to the conversation myself.

**Chad:**

So today, we're talking about property rights in space. You claim to be the only private owner of an object on the Moon, claiming the Russian rover and lander that you bought at auction, and the forty kilometers of land that's tilled in between.

**Richard:**

That's exactly right.

**Chad:**

So, this is fascinating stuff. But first, I want to ask you a few questions to introduce you to our audience.

**Richard:**

Sure.

**Chad:**

You've been involved in space from a young age.

**Richard:**

[laughs] Yeah.

**Chad:**

Can you tell us what it was like growing up the son of a Skylab astronaut?

**Richard:**

Yeah. So, like you say, young age is about as far back as I can remember. My dad was hired as a NASA astronaut when I was about six-years-old. So, about 1966. He was in the third or fourth group of astronauts that were hired. He was originally hired as the first scientist- in the first scientist group that was intended to go to the Moon, but when the science missions to the Moon were cut short, my dad's first flight became Skylab 2 and then he flew later again on the ninth launch of the space shuttle. And, you know, what's interesting about growing up, you know, that close to NASA - I mean, I was three blocks outside the front gate. Not only was my dad an astronaut, but literally my right and left-hand neighbors were also astronauts. And in my neighborhood were, you know... to say that astronauts were bountiful would be an understatement. You know, even those people who weren't astronauts were generally people involved in either, you know, directly as engineers at NASA or perhaps some of the prime contractors working right around NASA. And so, you know, I kind of grew up just kind of believing it was everyone's manifest destiny to go into space. I mean, it didn't matter what you did in life, you also were involved in putting people in, or going to yourself, space. And I, you know, I always thought the Sesame Street jobs of policemen and baker and, you know, all that kind of stuff, were sort of this fantasy, until I went off to college and realized, "Oh. No, no, no. My neighborhood was the fantasy." [laughs]

**Chad:**

That's amazing. And so, you are just one of seven private astronauts. So you grew up around government, NASA astronauts. How is being a private astronaut different?

**Richard:**

Well, in some ways profoundly different, in some ways the same. For example, the sorting process, shall we say, of becoming a government astronaut is, you know, one where if you think about the jobs at NASA and especially the pinnacle job of getting them to ride the rocket, you know, tens of thousands of people apply and only a handful are picked. And if you're gonna fly privately, you know, only a few have ever done that too, and it still requires a sort. And that sort is to not only be mentally, psychologically prepared and be willing to go through all the training, but also to have, generally, made enough money to fund your own trip to space. And as different as those are, I was really- I thought it was fascinating that the first day that I met my crew commander, Mike Fincke, who became the ISS Commander when I was on orbit. You know, he said- You know, I asked him straight up, I said, "What do you think of private individuals flying alongside, you know, government astronauts?" You, in theory, could think of me negatively from a number of angles. You could say that either, you know, "Who is this yahoo that's funded their way to space? Or who's this person taking up a seat that otherwise could be used by, you know, a government researcher?" And he said, "Look." You know, he said, he knows very well that, for himself and most of the other government astronauts, you know, they spent their life in pursuit of going into space and made it through a very difficult sorting process to get there. And, of course, take it all very seriously and will work hard in orbit to be, you know, productive and safe. He

said, "You know, Richard, I know your history. I know your family history. And I know you have also been in pursuit of getting yourself into space for dozens of years like I was. And, you know, your sort was different, but I know you take it seriously. I know you worked hard to be here. I know you're going to work and study hard to be both productive and very safe when we're in orbit. So, you know, we should- let's shake hands and, you know, congratulate each other on making it through the very difficult sort. And let's go fly and have a safe, productive, fun trip." And that's, of course, just what we did. And the part that's the same, you know, once we met at that juncture, the part that is literally the same is that I actually had to take and pass the exact same classes, on all the same equipment, as any other traditional government, either US or Russian, astronaut or cosmonaut. Because, literally, when you get in space, not only do you need to be safe, but you also don't want to become reliant and take time away from any of the other professionals onboard. And so, whether it's how to operate the galley or the toilet, or the radios, or the safety gear, you know, everyone has to be able to operate independently. And if I did not pass all those same exact qualifications standards, and usually in the same classrooms as the career astronauts, then I would not have been able to fly. So, you know, I really am a fully trained, in the traditional training, astronaut and cosmonaut.

**Chad:**

So, you mentioned the training. I know you have a really cool movie, which everyone should see, called *Man On A Mission*, and in that documentary, walks through how you got yourself into space as a private citizen. I'm wondering if you could tell us and the audience today, how you managed to pull that off. And what that training was like. What is was like in space. I'm really interested to know what it was like coming back to Earth, and how you felt transitioning back into everyday life after that experience.

**Richard:**

You know, first of all, to make it happen, my career that I have been- I still do that is not related to space, is I'm one of the very first every developers of video games. And that's largely what funded this whole trip. But one of thing that I learned through that entrepreneurial activity is the never give up, you know, mentality. The only way to stay on top of any business or entity, and especially one that's a new emerging industry that grew as fast as computer games, is, you know, is when you get knocked down, make sure you pick yourself up quickly, get back on that horse, and ride hard again. And so, you know, when I was quite young, I decided that I wanted to go to space, which was a decision I made, interestingly, when a NASA doctor told me that I was ineligible to become a NASA astronaut because I needed glasses. My reaction was, you know, "Who are you doctor, to kick me out of the club that everyone I know in my neighborhood is now a member of but not me? And if I can't go by your rules, I'm gonna have to make my own rules." And so, at the age of about thirteen or so, you know, I devoted myself to opening up commercial space flight. And of course, at that age, you don't do much about it. But as soon as I was making money in the video gaming industry, and began to start making personal investments, I began to invest towards opening up commercial space flight, frankly, so I could go. And, you know, my first five or ten years of investing was generally not productive. I was investing often with ex-NASA astronauts or engineers, who also were frustrated at the government slowness or bureaucracy. And these people seemed like, obviously, knowledgeable, smart people that I could- that might help open up commercial space. I learned over time that, you know, while they might be great scientists and... great government employees, they weren't

necessarily, or that sort criteria did not necessarily bring up good entrepreneurs, or good people who could, you know, change government opinion on things. And I eventually fell in with a handful of like-minded entrepreneurs who had a similar background to me, in the sense of they were entrepreneurs first, often involved in technology, often involved in new industries, and we got together and started opening up, really, a series of companies to open up exploration to the extremes, always with a mind towards space. And so, for example, we started companies to take people to the deep oceans, and the poles, and into zero gravity, which became more directly related to space, obviously, The Zero-G Corp. Then a non-profit called the X Prize, which did ultimately bring into existence the first private sub-orbital vehicle and a company called Space Adventures, which was intended originally to prove there was a market for these sub-orbital vehicles to have customers. But because that took so long to- and we still have not flown paying public folks on sub-orbital vehicles, we sat down and said, "Look. Let's... Why wait? You know, orbital vehicles exist today, let's go make it happen." And we, you know, about the year 2000, sat down again with the only two vehicles that could make it to orbit at that time, NASA's shuttle and the Russian Soyuz. And, you know, we talked to NASA and said, "Hey, is there any price at which you would ever fly a private citizen?" And the answer was a resounding no. And we asked Russia the same question, and their answer was, "No. Because to find out how we would train them and how much it would cost, and if it would be possible at all, would cost us a bunch of money, which we're not willing to invest to find out the answer." And we took that as a qualified yes. And I personally sponsored the three hundred grand, I think it was, for them to do the study to prove that it would be possible. And we got the price backed at, honestly, about at just, uh, had expected. And I was prepared at that moment to become the first private citizen to fly into space. But 2000 is also when the Internet stock market crashed, and all my personal wealth was tied up in, you know, tech companies, video game companies. And so, I lost the ability to pay for the seat that I had just arranged for. And so, we actually sold that seat to Dennis Tito, who became the first private citizen to fly into space. I built another company, sold that other company, and eventually went back and became our sixth client. So, it took me awhile. But in 2008, I finally did make that flight.

**Chad:**

Such an adventure. And something that so few people have experienced. I'm curious, what was it like to go back to the office?

**Richard:**

Well, you know, what's interesting is all these things, at least for me, you know, I- In fact, the book we mentioned at the very beginning, where I- I just released a book in addition to that documentary. The book is called Explore/Create, and it's sort of my belief that, at least for me, that exploring and the creative process of trying to create something new and original and compelling, those two things go together deeply. And... And so, for me, going back to the office was sort of needed. You're sort of going like, "Okay. I have those new feelings and thoughts and experiences, and I need to share them with people and see what creative spark that has created." So, I was quite ready to get back to work when, you know, when it came time to get back to the office. Although, I did take off, you know, the better part of a year just to decompress and wrap up all the experiments, and go on a speaking tour and, you know, do things like that. So it did take me, you know, months before I was really traditionally productive, at least back in the games market again.

**Chad:**

So, the X Prize Foundation has obviously played a key role in the entrepreneurial space age. You mentioned it earlier. In 2004, Burt Rutan and Paul Allen won the Ansari X Prize, a ten-million dollar prize for the first non-government organization to launch a reusable human space craft into space twice within two weeks. In 2007, the thirty-million dollar Google Lunar X Prize was organized by the X Prize sponsored by Google, to encourage private exploration of the Moon. Can you tell us about your role as a trustee of the X Prize Foundation?

**Richard:**

Well, yeah. Well, I mentioned this group of like-minded entrepreneurs that I've been partnering with now for, you know, twenty, thirty years. And... key amongst them is a person by the name of Peter Diamandis, who is... if you had to pick one person to say who started all these organizations and, frankly, is most responsible for this era of commercial space flight, you know, I'd say it's Peter. And I had already joined with Peter in Zero-G Corp and a few other activities prior to the launch of the X Prize. And the thing that I think was most brilliant about the moment of starting the X Prize, was the insight he had to do two entities at once. To do the X Prize as a non-profit and Space Adventures as a for profit. Because anybody that was gonna go out and try to win this prize, I mean, it's traditional, if you put up a ten million dollar prize- And in fact, you know, the winner, Paul Allen - well, it was Scaled Composites backed by Paul Allen - you know, Paul Allen, back then, with forty million dollars in order to win a ten million dollar prize. And that's not uncommon to do with these incentive prize or activities. In fact, as you probably know, you know, hundreds of millions was spent by if you add up all the teams together in pursuit of the X Prize. But one thing that people who back these competitors for these prizes also need to know, is that the prize is not the end. Because the prize is not gonna pay it back. The prize is there to help open up a market. You need to show that that market exists. And by starting Space Adventures at the same time and signing up a few hundred clients who are willing to part with, you know, a hundred grand-plus each. It demonstrated to the supporters of the teams of the X Prize that not only was there a prize there, but if they won that prize, they could then go on and build vehicles that would carry passengers into space in the future, and that passengers would be there to support that industry. And I think it really is that pairing of activity that made it particularly successful. And so, I became one of the first to, you know, backing members of the X Prize. You know, what's interesting is, you know, with the X Prize at the time I backed it, I would've- could've been called a big fish economically in the support of the X Prize, and in the team that started doing some of these. Now, of course, you know, when... past the original, and sorry X Prize, now we're into- the X Prize, itself, has now moved onto much bigger and much bolder things than even I would be able to support significantly myself. Just as we're, you know, targeting bigger things like landing on the Moon proper.

**Chad:**

So, you've been involved in exploration and have been on all these different adventures. I'm curious to hear how you think about investing in space, and how that fits into your, I guess, adventure, expedition portfolio. Is this- does this tie in with the adventures in your life? Is this just another investment for you? How do you view investing in space?

**Richard:**

Yeah. Well, you know, what's interesting is, you know, twenty years ago when I started this process, you know, I was honestly investing purely with goal in mind, which was to go myself. And I had no illusions or expectations for if there would be at all any return other than the trip itself at the end. And so, I wouldn't have ever advised others to join me, you know, twenty-plus years ago. Interestingly, that view has completely changed. First of all, I now no longer invest just to go, since I've now been. I now invest because I believe the times have profoundly changed. I now do it as literally an investor. And especially with my wife, who's a professional investor, that's what she's done her entire career. You know, we've kind of transitioned from... personal passion plays to good business sense. And what's interesting is - and I don't think any of us who were around at the beginning of the X Prize could have predicted this - we obviously predicted, or at least hoped, that we would see sub-orbital vehicles come into existence, and humanity beginning to fly into, at least, above a hundred kilometers with some regularity, and a sound business would come out of that. That was sort of our- But that was as much reach as we expected to achieve out of that. Interestingly, the world has changed far more profoundly on the heels of the original X Prize. You know, when we first did the X Prize, and we described, you know, commercial private companies flying into space, it had what we called the giggle factor. People would literally go, "[laughs] That's so funny." And they'd kind of look at us and go, "Oh. You're serious. You actually really think that can be done." And, you know, now, today, it of course has, you know, nobody would have any expectation otherwise. I mean, you look at now just, you know, one, obviously, shining example, but SpaceX. You know, they're ability to now launch the Falcon Heavy, you know, return all three boosters, two of them landing successfully and simultaneously back at the launch site. And what this portends for the near future in space, you know, the cost of access to orbit - Which has been both extraordinarily high from a dollar standpoint and extraordinarily risky from a safety standpoint. Those two very important issues, cost and safety, are coming down radically. You know, when something's expensive and dangerous, it's understandably rare. But if you could make it a lot cheaper and a lot more safe, then a lot more activity goes on in that subject area. And, you know, while it used to be that people thinking, you know, "Wouldn't be great if I had a satellite to put into orbit to, you know, monitor my farm?" You know, thirty years ago, people would go like, "Good luck. There's millions and millions of dollars you're gonna have to spend to do that." You know, now people can look at this and go, "Wait a minute. I could either fly my own CubeSat or buy commercial data sets. Or, you know, just encourage somebody else to go do it." The... the turnaround time, and the cost, and the reliability are changing profoundly. And so, space- the space-related markets are shifting dramatically away from slow, expensive, risky, government run operations. Which, by the way, got us really far. I'm not knocking what they've done. They've did a great job. But the baton is being passed to this faster, leaner, meaner commercial era, for which there is already some, you know, outstanding examples of wealth being generated, of value being generated, and I believe the pace of that is only going to increase significantly now.

**Chad:**

Which we've seen in countless other industries. I mean, the government leads when there's not a market, and as the market starts to develop then private sector comes in and starts to do things more efficiently. And better, faster, cheaper. Okay. Now, back to the theme of this episode. Can you tell us how you came to own this rover and lander, and how exactly that gives you claim to land on the Moon?

**Richard:**

[laughs] Yeah. Well, it was back in the '90s, again, that just after the fall of the Soviet Union, it was actually a space lawyer in our, you know, one of our extended... [laughs] friends and family. A guy named Art Dula was travelling around now the former Soviet Union, and was seeing how all these companies of the Russian space history were not really struggling to just keep the lights on and the doors open, and be maintained at all as- that were, you know, just months before leading the world in many areas of space. And he actually suggested it then. He said, you know, "You have all this extra excess material that a lot of people in the West would probably really enjoy having access to. So, you know, why don't we work with Sotheby's and let's help, you know, help bring in some cash here to you guys that you really need." And so, at this... Sotheby's auction came up space memorabilia that were coming out of Russia at the time, and as an American collector, you know, almost everything on the pages were new. Because most of this stuff had never, you know, very little of it had ever come out of the Soviet Union. And in particular, was this one object, Lunakhod 2, the second Russian lander that had landed and roved across the surface of the Moon. Obviously, it was not of much use to them anymore, and they thought it had some value. They had, you know, priced it- they expected it to sell for something like ten thousand dollars or so. And I looked at that and went, "I think that's worth a lot more than twelve thousand dollars." But there's obviously no way to know how much it could be worth, because as I sat- you know, I started doing some research and realized, you know, there has never been an object that has been anywhere off the surface of the Earth that has been sold. So there's no private owner of any object off the surface of the Earth, especially not on another celestial body. And... and so I thought, "Wow. That's a fun story. Just as a baseline." And so, it's actually the first time- Well, I've purchased quite a few things at auctions now through the years. This is the first and last auction I participated with live. And the reason why I say last, is because I also realized how easy it is for me to get caught up in the moment with, you know, much of what's- of what's happening. You know, that auction went live, and again, I had really no idea where how high this value might go. But what I ultimately paid was sixty-eight thousand five hundred dollars to become the world's only private owner of an object on a foreign celestial body. Which I, to this day, love saying. And... and with that, you know, it's funny that the first thing I received when I made that, you know, largest purchase I probably ever made in my life at that time, they sent me a photograph of the model of it, prior to going to into space, and a Visa receipt. And that was it. [laughs] And I was like, "Gee, guys. Could I get a few more objects? Like could you write me a bill of sale, could you give me a certificate of ownership? Things like this." And they went, "Okay. Yeah, we agree with all that." So, they eventually gave me, you know, more material to back it up. And Art Dula, the person who had arranged for all this in the first place, has actually been back to the place where this was built and operated in, and actually now brought out a lot of the other original data that actually came from Lunakhod to the Earth. The original transmissions, the actual images that were created at the laboratory as it was originally driving, and I have them here on the wall beside me. So, I have a lot more material now. But then immediately, what it made me think of was, you know, what is it exactly that I can claim? What does this - other than being able to make that fun little statement - what are the realities? This began to move me into the realities of questioning what does ownership of property that is not situated here on the Earth. What does that mean? What are someone's legal rights? How do you assert those legal rights? And I began to explore that legal question with, you know, some passion, you know, after making that purchase.

**Chad:**

And so, there is the outer space treaty, which came about in the heat of the... of the space race in the late '60s. And that is sort of the guiding principle here in property ownership in space. It says things like, pretty generally, that no nation can own property in space. And so, the US or Russia, or the Soviet Union, couldn't lay claim to landing on the Moon and plant a flag. But there's not really a lot of direction there in terms of private ownership. So, when you make the claim that you are the world's only owner of a piece of the Moon, you're doing that based on an interpretation of the rules, right? There's no rule that says if you own something, that's yours. It is a clever interpretation- Well, the first practical interpretation of those rules.

**Richard:**

Yeah. Exactly right. And so, I've actually had a lawyer, space lawyer, attributed by the name of Pamela Meredith, who I had, you know, create a memo for me to study, you know, what is the legal precedence that would be used with this sort of claim. And what it seems to be- What are the easy things to assert, and what would be difficult things to assert that, you know, would require, you know, debate or registration? And where might I register? Where could I register such a claim? And here's sort of the... the way the argument is made, and kind of where it goes from easy to be becoming harder. Virtually no one would disagree that I don't own the object that I bought. I mean, that was owned- it actually, was not originally owned by the Russian government. It was actually owned by the institution that built it, and paid for it, and operated it. That's technically who I bought it from as it came out of the Soviet Union. They obviously believe they own it, and they transferred it to me. Sotheby's believed that they owned it at the time to transfer it. So, you know, no one would argue that I own the object. And the object actually includes two parts. There's the lander that physically landed on the Moon, and then there's a rover which drove off of the lander and drove forty kilometers to its eventual spot, forty kilometers away that it still sits at today. And as you mentioned, the ratified... lunar or outer space treaty talks about how no government will lay claim to property it. So clearly, Russia- Neither Russia nor the United States can make claims on the physical territory of the Moon. Interestingly, there was another treaty that was pushed through the United Nations, but that was not ratified. And that treaty tried to ban private ownership and corporate ownership of territory on foreign celestial bodies. And interestingly, is the United States and China and Russia, the three spacefaring countries at the time, all three declined to support it, and so it died. And one of the reasons they gave for declining it was specifically because they felt that private and corporate access rights would be important to eventual development of things in outer space, which is why they did not ratify that second treaty. And so, that first of all, supports the general idea of ownership also. But more importantly, there are two areas of law that I think are interesting. One is the ownership or control of spots, even in geosynchronous orbit, where there is no physical place to be, it's a mathematically describable spot that the United Nations grants control of. And they do that- the way that works, if you... like let's suppose you want to put up a geosynchronous satellite in a particular orbit over a particular country, so you can do your television broadcasts. The way that operates on an international basis, is the first person there to go and use it, gets it. And you can have it as long as you are still using it. But if your geosynchronous satellite, you know, loses all of its fuel and falls out of orbit or, you know, begins to meander, then you no longer can sustain that claim. That claim then becomes removed, and somebody else can now, whoever's first person to get back there again, can make a new claim of that same territory. But let me put that thought in your hat, while we also talk about one more... more terrestrial-related



piece of international law, which has to do with claiming, you know, deserted, unclaimed islands, you know, in the oceans. You know, if you and I, or you or I, were to discover an uncharted unclaimed, island, which occasionally still does happen. If you or I... if we, you know, threw a life preserver over the side of our boat, or even threw a flag off and stuck it in the beach, international law does not say you claim the whole island. You didn't make us- you didn't utilize the whole island. Even by beaching somewhere, you don't get to claim the island. What it does support, however, is that if I land on an island and I set up a farm, and I till the soil, and I put up a fence, and I, you know, make use of, you know, a few acres of that island, international law says I do and control that piece of the island that I have made use of. The rest of the island is still anybody's game. But if I'm really the person surveying and making use of, et cetera, that part of the island, then I get it. And so, here's how I put those two pieces of existing law together, vis-a-vis, my claim of lunar territory. The first thing to notice is that the Lunakhods are not space junk. Despite the fact of having no electrical power to roll around anymore, they have a very unusual set of mirrors on them that was- they were these mirrors happened to be built in France. And these have three mirrors, sets of three mirrors, at ninety-degree angles to each other. Such that, these mirrors will reflect directly back whatever shines at them. And so, for example, there are observatories all over the Earth, to this day, that shoot laser beams to Lunakhod that then they're reflected directly back at the observatory, which they can easily see with their telescopes. And that is used to get very precise Earth-Moon distance measurements. And that is done in order to detect the movement and wobble of the Moon. So, you know, when you hear people making assertions about the Moon is slowly drifting farther away from the Earth, and the porosity is slightly changing. Those sorts of measurements are done with the mirrors that are still on my Lunakhod, which is still actively in use on the Moon. Second piece of data is that my Lunakhod is... you know, has not just been there. It actually has actively modified the surface of the Moon. And if you look at the trackways, which I have here, you know, beside me on my wall. Not only did it literally till the soil with the forty-kilometer trackway that it rolled across, but they would periodically stop and dig little symbols into it. Like, for example, on a International Women's Day, they made a little figure eight symbol, that they then photographed from various angles, in the soil of the Moon in homage and in honor of International Women's Day. And so, they made these symbols, they drew these symbols on the surface of the Moon with the tracks of the Lunakhod. And then, finally, so... so to kind of build my claims. I think no one would doubt that I own the landers. Therefore, if I own those objects, I probably still own, and especially because they're still in use, there's little doubt that I own the dirt that is directly under the rover that I own that is still in use. Then the next level, you know, up, so to speak of claim, is the trackway that was tilled between the lander and the rover, and the, you know, obviously the shapes and symbols that it drew out, you know, on the surface of the Moon. And the final piece is that the camera onboard the Lunakhod are about six feet up. And throughout that forty-kilometer trackway, it was serving as far as you could see, to the port and starboard, of the moving rover as much as you can. So, there's a very well... surveyed area to the sides of this forty-kilometer trackway that are well photographed and documented by the Lunakhod. And so, I personally think that's the maximum, legitimate claim that I can make, is not to the whole Moon, but, you know, again, for sure the dirt under my rovers. I think also the trackway, and I can clearly make a good argument for the, you know, the survey area to the port and starboard that it was able to survey on its journey.

**Chad:**

I am convinced. Okay. So, you own this territory on the Moon. What can and can't you do with it? Can you sell it? Can you, well, I don't know what else you would do with it, remotely speaking.

**Richard:**

Well, I think I can do all those things. Yeah, well, you know, what's interesting is there are other people who have made claims to property on the Moon, but most of them are- have never been there with anything. They just kind use a telescope, look up at the Moon, and say, "I'm gonna sell that crater right there, just cause I'm gonna claim it's mine." But I think they have really no basis for their claim. Or at least none that seem to conform to the traditions of terrestrial law. I think my claims do, so I think that anything that would normally confer on the Earth, like mineral rights, usage rights, if somebody wanted to put up advertising, you know, I mean, I don't think there's any restriction I would feel as to how I use that territory on the Moon. And we've actually thought about, you know, using that for various fundraisers or for-profit activity. In fact, one of the other things that I've had... an agreement with the X Prize over, to help solidify mine and others, eventual, private claims on the Moon. Is if the Google Lunar X Prize flyers, you know- Well, what's interesting about the Google Lunar X Prize, which is, you know, a twenty-five million dollar prize to land a vehicle on the Moon itself, they also have had the idea of accuracy prizes. Meaning, you get a bonus if you land near a previously stated, pre-existing target. Like, it could be the Apollo 11 landing site. But as soon as that came up, NASA said, "Please, don't go to one of our sites. We're rather be able to get back there first ourselves, and save it or store whatever we want to, photograph it, you know, as a historical site before you guys go mess it up." And then Russia chimed in and said, "Same with us. Please, do not go mess up our sites." Well, that leaves exactly one other. Mine. And so, I went to the X Prize and said, "No, no, no. Actually, I would like somebody to come to my site." Because if they do, there's two things that immediately happen. If you send a private rover to the Moon, I believe those people will get the same rights like I just described I have. And so, if they land near me, not only would they have, you know, ownership of territory adjacent to mine, but if you rove onto my property, and or take picture of my property, we can now have an economic exchange which solidifies our mutual belief and the existence of direct commerce between our properties on the Moon. And so, for example, we could exchange, economically, activity, such as, you know, I could say, "I'll pay you a million dollars, if you land, you know, on or near my site, and therefore can send me photographs of, you know, my property. And similarly, if you rove onto my site, I can charge you access rights to come and make use of my territory." And so, by saying, you know, we'll agree to mutual payments to each other for this interaction on the surface of the Moon, we then also recognize each other's kind of property rights at the same time. And so, I think we can solidify some of these territorial rights by having, you know, off-world commerce.

**Chad:**

This has been really enlightening, really fascinating stuff. I'm curious, from your perspective, how the laws have changed over time. And, I mean, we mentioned the Moon treaty and some attempted to change it. Has it changed over time, and how do you think they will change as more new entrants join the space economy?

**Richard:**

Well, I think one of the most fascinating aspects of space property law is just now being faced again, with companies that are now doing prospecting in outer space, including asteroid mining companies. And what's interesting about this is that, you know, this same subject will come up. You know, if you fly a- you know, if you send up a surveying satellite and find out, you know, that an asteroid has something valuable on it, then fly another expensive satellite up to go rendezvous it and maybe tag it, and fly yet another satellite up to go begin to extract resources off of that and bring it back to the Earth. You know, you would only undertake that incredibly expensive, long-duration activity if you felt that you had some legal ability to prevent somebody from jumping your claim and saying, "Oh, look. Now that you've found an asteroid full of gold, you know, I'm gonna go and steal it from you." And so, this issue has now come up as a really important one for companies founded, you know, exactly on this principle. And there's multiple companies like this already in the United States, and I expect there will be more coming internationally over time. And so, we have seen movement in US law. And so, really, just a year or so ago, the United States has its- now has on our own books, laws that will support claims of material under similar conditions that I've already described. Meaning, you know, if you're the first to go there and your making use of it, and you know where it is and, you know, you're still making progress and still in active utilization, then it's still yours. Just very much the same way as international law would seem to imply. We now have more specific regulation on that now in the United States. However, we don't have yet international regulation. That our international agreement that that would be the case. Now, the good news is, I think, that by default, all the law we do have internationally seems to echo the same sentiment, but for people investing, you know, hundreds of millions of dollars, you know, behind resource utilization or resource acquisition in space, this will obviously be very important. But I think it's coming. And I think it's a very exciting time, actually, for space law, specifically, in the area of property ownership.

**Chad:**

This is great. So, on the show, we like to say that there has never been a better time to get involved in space investing. And as someone who has grown up around space, and has been involved since the early days of the entrepreneurial space age, can you give us your personal perspective on that? Which areas are most exciting to you?

**Richard:**

Well, first of all, I profoundly agree with, or devoutly agree with the assertion that now is an incredibly exciting time in entrepreneurial space. You know, I think, literally, this last decade has been when it flipped. Or at least decade or two. You know, starting with the X Prize, people began to believe in it. But really starting with, you know, SpaceX, Blue Origin, and Planet, and, you know, numerous other startups these days, are proving that, you know, entrepreneurs with- you know, compared to government's modest funding, can meet and exceed the productivity of... you know, what governments have been doing for, you know, the last fifty years. In almost every talk I give about space, I describe that we are now in a new golden age of spaceflight led by this entrepreneurial activity, which is so radically reducing costs, radically increasing capabilities that I think is going to, you know, take industries that, you know, no one really thought would be plausible because of the expense, delays, and hazards associated with spaceflight. All those barriers are falling very rapidly and, you know, many new kinds of businesses are even yet to be discovered.

**Chad:**

Richard, this has been great. Thanks very much for your time.

**Richard:**

You are very welcome.

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