MONA

Charles Ross's Spectrum Chamber was recently installed at Mona as part of the extension to our museum, called Pharos. Mona curator Jarrod Rawlins spoke to Ross, who was in Hobart to oversee the completion of the artwork.

Jarrod Rawlins:

A group of artists of your generation, mainly from North America, made a clear and present break in sculpture that ended up becoming known as land art. For me, it's one of the most significant moments in art history, and I don't think that is broadly recognised.

Charles Ross:

I was around those guys, but I actually wasn't part of the land art movement. My draw to New Mexico was I wanted to build a naked-eye observatory, a sculpture to observe the stars, and it had the best seeing conditions. And I needed a place where the sky was dark and that was isolated. But all those people were friends of mine. So it was easy to do, yeah.

JR:You were looking for a vast space, one unencumbered by cities?

CR:Vast, dark space. And it was available. Everything about going to the west, of course, was there was land that you could get hold of to do these large pieces.

JR:Your background is in science. Is that what led you to be looking to build an observatory?

CR:No, actually, my work with light led me to building an observatory. I started out in physics at Penn State University, and then I went to California, and started in physics at Berkeley, then I quickly switched to mathematics. I had to make up two units of liberal arts because of my transfer, and I fought it mightily. I did not want to have anything to do with liberal arts.

JR:Why?

CR:I wasn't interested in it. And my advisor said, 'Well, you've got to do this. So why don't you take a sculpture course? We don't care what grade you get. We just have to check off two credits for liberal arts.'

JR:So, just get some clay and make something.

CR:Yeah [laughs]. 'You can think about mathematics, and you can mess around with the clay and nobody really cares, and nobody ever fails art, so that'll take care of it.' One month later they called me in and said, 'What happened to you?' Because my grades in mathematics just plummeted. And I said, 'Sculpture.' It just took me over. I became totally involved.

JR:Wow.

CR:So they said to me, 'What do you want to do about it?' And I said, 'Well, let's graduate in mathematics, and then I'd like to roll over into the Masters degree program in sculpture. But I don't want to take any of the requirements. I just want to go in the studio and work.'

So they had a meeting with the sculpture and art departments, and they agreed. And there I was. Full speed ahead. I had a friend who was the teaching assistant and had all the keys to the sculpture department, so I worked 24 hours a day. He'd let me in at night and over long weekends and things, we'd take in beds and keep working. And that launched my art career. Then I was doing big welded steel sculpture [and] assemblages. Sort of like early Mark di Suvero. Pieces of ship that we dragged out of the bay, wrecked metal. It was torn off railings and things and put together in big combined sculptures, sometimes using random techniques I gleaned from John Cage.

Then in 1965, while I was making this kind of work, I dreamed the engineering drawings for a large prism, and I was so involved in what I was doing, I didn't pay attention to them. But they stayed like a gauze in front of my vision for an entire day. I thought, well, any dream that lasts this long, I should really write down. So I stopped and I made the drawings for it, and built the first prism. And that just took me headlong into working with light.

Originally the prisms were about capturing and assembling views of the room, because they would capture different views and put them together in this object. That's where it started. And then rapidly, a ray of sun from a window hit one, and the spectrum fell on the floor and I moved right into making large spectrum pieces. And that led to the Solar Burns, which led to Star Axis.

The Solar Burns required me to understand the geometry [of the apparent movement] of the stars. There were some mysterious things happening. There's a spiral that comes out of the Solar Burns, and that was so mysterious that I took it to the head of the Hayden Planetarium, and he said, 'I have no idea what this is or why this is coming out of your work, except that in the back of my mind, I remember some weird equations for some strange spiral. And I think the naval observatory has this.'

So I called the naval observatory and they got right back to me. I sent them a photo of it and they said, 'We have a set of weird equations that came from calibrating a sundial. We wanted to see how accurate a sundial could keep time. And it spun out these equations for a double spiral. We didn't know what these were so we threw them in a drawer. And you just sent us a photograph of them.' [Laughs] And then I was in astronomy.

JR:Then you were hooked.

CR:I was hooked. And I started drawing the astronomical alignments in the pyramids, [inspired by] Peter Tompkins' early work, later published in Secrets of the Great Pyramid. It was about all the math involved in aligning the pyramids with the stars.

I looked at these equations and alignments, and I started making drawings. They immediately took me to precession and what happens when you align yourself with the celestial pole—the Earth's axis directed out to the stars. This all happened really fast. I mean, the prisms were made in 1965, the first spectrum in 1968, the Solar Burns were made in 1969 or 1970. The drawings of the pyramid came in 1971.

JR:And you started Star Axis in 1971?

CR:Yeah.

JR:So this was all happening within a decade?

CR:Less. I looked at this pyramid and I thought, 'You can actually make a piece where you can walk through this geometry.' And that was the birth of Star Axis. Then I realised, as I studied more about precession, which is the Earth's axis moving in the stars, that you could actually see the 26,000-year cycle of precession framed in the sky. You could create an artwork that you could walk through and see all the past and future alignments of Polaris to the Earth's north celestial pole. And that's the basis of Star Axis.

JR:Star Axis—can you describe this?

Star Axis, Charles Ross, due to be completed in 2020
Image courtesy of the artist

CR:It's the geometry of the stars brought down into physical form, so that the star alignments become manifest in physical form and then you can walk through them and feel what that alignment is like. But the central alignment in Star Axis is precession, which is a 26,000-year cycle of the Earth changing its alignment to the stars.

Precession creates the change of ages, the fact that you go from the Age of Pisces to the Age of Aquarius—all of that is all generated out of this cycle. The Earth's axis wobbling… like a spinning top. That, over time, points to different regions of the sky. Right now, Earth's axis is perfectly aligned with our North Star, Polaris. After 2100, it'll start to move away from Polaris. As it moves away, Polaris will turn in larger and larger circles around the Earth's pole, because all the stars turn around the celestial pole, which is determined by extending the Earth's axis out into space. It's actually hard to do this in words. It's much easier to see it in an image, or walk through Star Axis.

JR:When you say that we walk through the star alignments, how do you explain that to someone who hasn't considered this? Because it's a pretty abstract idea.

CR:Right. The central core of Star Axis is the Star Tunnel, which holds a ten-storey high staircase. The total height of Star Axis is eleven storeys. The tunnel is perfectly aligned with the axis of the Earth, so that when you're walking up the stairs, it's as if you're actually walking up the axis of the Earth looking out at Polaris.

You're looking at an aperture at the top of the tunnel. And the view of the sky expands as you approach this aperture. You're seeing larger and larger circles of sky framed. Just like when you walk to a window, the landscape expands.

JR:So because of that, you start to feel like you're walking through it?

CR:At the bottom of the stairs you see a one-degree circle, which is the size of a dime held at arm's length. And that's the smallest size that Polaris turns in, which is now.

As the pole moves away from Polaris, and Polaris starts to turn in larger and larger circles, each one of those circles is framed in the tunnel from a particular stair. So you can stand on the stair that Cleopatra would have had to stand on to see Polaris turn in the rim of aperture.

JR:Awesome.

CR:And the scope. That was the great discovery in Star Axis. Polaris, our north star, pulses in the human visual field. The smallest circle that Polaris makes is the size of a dime held at arm's length, which is the smallest thing you'd normally pay attention to—like pebbles, ants and bugs. At the very top stair, you are looking through a circle that encompasses your entire field of vision—the circle Polaris turned in around 11,000 BC and the circle it will turn in around 15,000 AD. So Polaris, in a 26,000-year cycle, is cycling through the human visual field. When I discovered that this large expanse of time had a human scale, I thought, 'It's not good enough to know about it. I want to walk through it and see what that feels like.'

So Star Axis became a place to experience these star alignments as a whole-body experience. They become palpable as you walk through them. You're not just mentally connected, but also physically connected. That's pretty exciting, and I have to say at this point, in Star Axis, the axis of the Earth is palpable when you walk up the stairs. You actually feel it going through your body. This was a crapshoot. I mean, it's a very expensive piece. It's been under construction now for over forty years, but it's working out. All my guesses at the beginning are turning out to be manifest.

JR:That must be reassuring. [Both laugh, with a hint of relief]

Star Axis, Charles Ross, due to be completed in 2020
Image courtesy of the artist

CR:Which is pretty exciting. But I just jumped off the precipice into the void. And, of course, it started out very simply.

JR:Well, it doesn't look very simple in the images I've seen.

CR:I get a lot of work from dreams. The prisms came from dreams. And then when we were starting to build the staircase, I started dreaming every night that I had to enter the Earth to reach the stars. 'You have to enter the Earth to reach the stars.' That dream repeated and repeated and repeated for about a month, and finally I said, 'Okay, we've got to move the tunnel inside the mountain.' So now the bottom half is in a horseshoe-like excavation inside the mesa.

JR:Did you ever feel that you weren't going to finish it? That you were going to walk away from it?

CR:There have been times when I wanted to burn the house down so that I'd never be tempted to come back. But I've developed a lot of work out of Star Axis. The exploded spectrum drawings of quantum behaviour, for example, and the human-sized Solar Burns. My scientific background gave me the language to look at certain things. So I was able to call up scientists and astronomers and talk to them about things that were unfolding in my work. What I discovered along the way is that you can get anyone in the world to talk to you if you know exactly what your question is. If you don't know what your question is, no-one wants to talk you.

JR:Because they have to come up with the question.

CR:But if you have a really specific question, you can normally get almost anyone to answer the phone. I learned that in mathematics. Mathematics is such a huge field that no-one knows the field. So when I was studying it, we were always in touch with other people, asking, 'This just showed up in the work I'm doing. What the hell is it?' And the same kind of thing happened along the way with Star Axis. We spent about eight years working on the big horseshoe excavation. I wanted to carve it in solid sandstone. We drilled three pilot holes. They were all solid sandstone. We started excavating and discovered that it was all broken rock. I'd drilled the sample cores in the only three places where the mountain was solid.

JR:Really!

CR:But my take on that is, 'Okay, the mountain wants it to be here,' you know? I mean, the feedback to me was, okay, it tricked me into it. This land really wants this project here. So that was reassuring. But somewhere toward the end of that eight years, I was leaning against the trailer that we have as headquarters, and I said out loud to the sky, 'Surely there's something we can do here that takes less than eight years to accomplish?' And the next morning I woke up and a little voice in my head said, 'Why don't you paint with dynamite? That'll be quick.'

JR:It will be. It'll be instant.

CR:And the exploded drawings came out of that. I was already experienced with dynamite because I helped the blasting crew set the dynamite charges for Star Axis.

JR:Which relates back to my question of understanding the data.

CR:My scientific background helps me understand the data. To understand the alignments I need to know about and quickly move through all of that. And what I don't know, it's easy for me to call an astronomer to ask about what I don't know. But for the artwork, I'm not really interested in manifesting the data—I'm interested in manifesting the experience. I want to know what these alignments feel like. I don't want to know what they are. It's easy to know what they are. But what do they feel like? What's it like to stand in the alignment? That's the goal.

JR:I read your work exists at the crossroads of science and mysticism. And I was wondering what happens at this crossroad. What do you make of that?

CR:It's even better than that. Science stands at the boundary of metaphysics at this point in time. Quantum mechanics—no-one understands that.

JR:Good to know. [Sigh of relief]

CR:It's a totally mysterious thing. Richard Feynman used to start his graduate class by saying, 'At the end of this year, no-one is going to understand what I am talking about, including me. But I will be sorely disappointed if somebody in this class doesn't make me obsolete and prove me to be wrong.' So that's really it, science approaching art.

JR:I think sometimes we use the term 'mysticism' to identify something that we don't know about, or can't pin down. And we use science to reinforce that what we know is absolute, when I think neither of those things are true.

CR:I would use 'metaphysics' instead of 'mysticism'. I mean, think of how quantum mechanics is totally mysterious. Black holes… all the stuff that's happening at the edge of the universe. I think ultimately, they're reaching a point where it's not going to be able to be explained in the normal, rational model that physics has, and physics is really bumping up against the boundary there.

JR:Speaking of physics then, the sun is an important medium.

CR:Yeah.

JR:A collaborator.

CR:Collaborator, that's a good word.

JR:You couldn't have picked a more unpredictable collaborator, or uncontrollable collaborator. You seem to have worked this collaboration to your advantage, and I'm guessing that's not mysticism, that's science.

CR:It's art. My interest is looking into light, just looking into the subject of light and trying to see what is there. Because I was very aware, very quickly, through the prisms, that there's just layer after layer after layer in this field of awareness that we have named light. The fact you live inside the sun—the solar atmosphere actually includes the Earth and all of that—and that light mediates everything that goes on in our lives. I mean, all the vegetables you eat, everything is generated by light. All your vision, everything you see. And it's such an oceanic subject that I just wanted to dive in and see what was in there.

That unfolded in a kind of step-by-step, rational way, curiously enough. I made prisms, spectrum artworks, and then after I'd explored the spectrum I thought, 'I need to do something that's the opposite of this. What's the opposite of the spectrum? Prisms are spreading the light. We'll focus the light with a lens to a single point of power. That's the opposite.' Then I started making Solar Burns.

I'll burn every day to see what happens. What does the sun draw every day? You can understand what it draws day by day, but what does it draw every day if you collect the whole year en masse and then take a look at it as a complete piece? That was the original Year of Solar Burns art installation.

JR:I spent way too much time when I was a kid burning ants with a magnifying glass.

CR:[Laugh] See, I never did that as a kid, and I never played with a prism either. I had to grow up before I found any of those things.

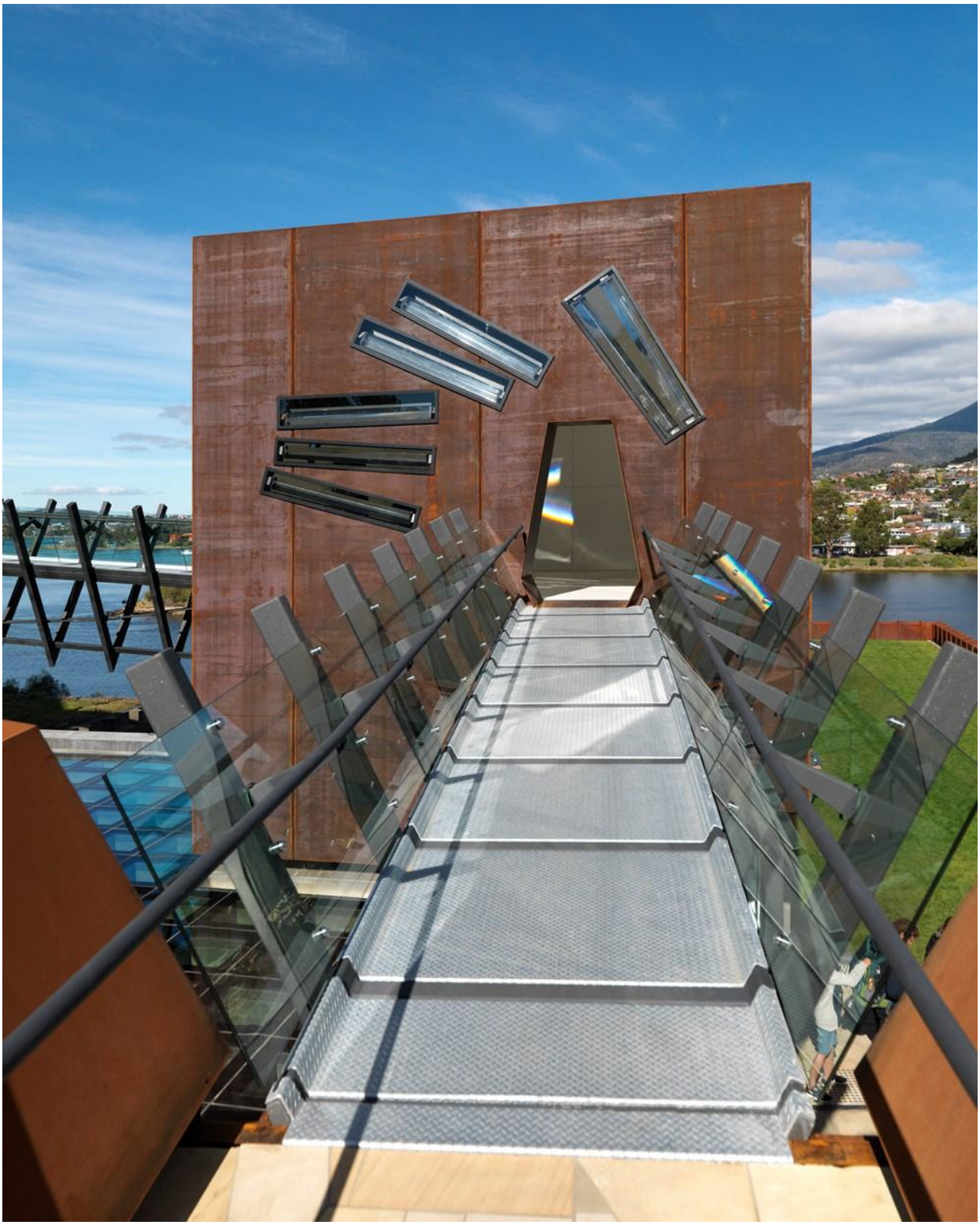
JR:I would start fires with a magnifying glass.

CR:It's kind of magical, isn't it?

JR:It was fascinating.

CR:It's mysterious. This, put through here, starts a fire? What the hell is that? You know, very surprising. You know, very magical. It's still magical to me. Now I'm making human-sized Solar Burns. We just burned one for the equinox, and got a really great one.

JR:I want to talk about the prisms. I want you to describe what's happening inside that room [the Spectrum Chamber artwork at Mona].



Spectrum Chamber, 2018, Charles Ross

CR:Each of my large Solar Spectrum works is an array of prisms that are organised in such a way that they orchestrate a kind of changing light symphony, for lack of a better word. Music of light. At the same time, they create the spectrum. For me, light is palpable, it's a physical

material. It has physical presence. The spectrums are blocks of colour on the wall being propelled across the space by the turning of the Earth. If you stand in a large spectrum you can feel different sensations from the light of different colours.

To develop the spectrum artworks I build a machine that I can put a model on, and we run it through a year's worth of sunlight. I look at how the light behaves through every hour of every day throughout an entire year for any place on the planet. I set the machine up for the location, and then set up the alignment of the model up for north, south, east and west. I take one prism at a time, cut a little hole in the model, and start playing with it. The first prism takes about a month to get in place, then the second one takes a few days, and then they get placed faster and faster. It's hands-on discovery.

JR:So the first one is the keystone.

CR:The first one tells me how light behaves in that specific place in this specific structure. It's the latitude, it's the structure, it's the orientation of the structure north-south. So I build a piece, and it feels like I'm actually discovering the work that belongs in this space for this location. What I'm doing is I'm trying to find out what the artwork is. It's almost like the piece is already there. It's up to me to discover it. That's the process for me. I keep going at it until there is nothing more to learn.

Each prism is placed to create spectrum for a specific number of hours in a day, for a specific period or season. Some of the prisms here [at Mona] are active for three or four months, and some work for about eight months. No single prism can be active through the whole year, because the sun moves through a greater angle in the sky from solstice to solstice that the prism can accept to project spectrum. After that it starts projecting white light.

JR:It is beautiful.

CR:At a certain time of year they'll switch over. The interesting thing is I can see in the model all of the primary spectrum and how it evolves, and then there's a secondary thing that happens where the edges of the prisms project secondary spectrum sometimes. And then there's a third level of spectrum that only appears once the piece is installed—little pieces of spectrum that are reflected off the ends of the prisms and things like that, which are just impossible to model.

JR:You can't predict them?

CR:Not at all. And so they're always a surprise. And they're great fun for me, because they're something I didn't know.

JR:Exactly what is happening when the white light hits the prism? How does it make this colour spectrum?

CR:White light enters the prism and the light of different colours travels through a medium in a slightly different way, so it spreads them out. One bends more than the other. One wavelength bends more than the other when it goes through the prism, and all the colours are in the white light.

JR:So white light's condensed, and you're separating it?

CR:Pulling it out, yeah.

JR:That's where the magic happens. Do you like rainbows?

CR:I do. But I like the spectrum better, because to me it's more solid.

JR:What's the difference?

CR:It has a physical presence. Rainbows are pretty ephemeral.

Spectrum Chamber, 2018, Charles Ross

JR:When I'm looking at a rainbow, or I'm standing inside the Spectrum Chamber, what is the difference between those two things?

CR:You're seeing the raw spectrum projected on a surface, moving across it. And with a rainbow, you're seeing it bounced around in particles of water. And they disperse it in a slightly different way. You know, the colours are much softer in a rainbow because of the way they're rolling around in the water.

JR:Can you describe what will happen in different weather events, during different lighting events?

CR:You will get spectrum from a full moon. The colours will be shifted slightly. To me they're shifted slightly to the green, but it's actually really hard to understand how they're shifted. Cloudy days, of course, not much is happening. If the sun comes out even through a hazy sky and there's a little bit of light, you get very soft pastel. In this case ephemeral pieces of colour drift in and out.

JR:So there's no ideal condition in which to go and experience this?

CR:Well, the ideal condition is the sun shining in some way, with clouds around. Overcast days, it's going to be a very beautifully proportioned white chamber.

JR:Absolutely.

CR:Hats off to Nonda [Katsalidis, Mona's principal architect]. You always see bits of colour through the prisms when you're looking out. That's there on the cloudiest of days. The other thing is at night, some of the prisms are going to pick up light—from the houses over on the surrounding hills or from around the museum.

JR:Is it all a science experiment?

CR:Oh, no, no, no. Not at all. As I was trying to explain, it's not scientific at all. We're not measuring anything. It's really about what it feels like to be with this light, and watching it change.

JR:That's what I'm trying to pin down, because with this kind of work people often say, 'Oh, that's science art.' And I'm not convinced that's actually a thing.

CR:No. If it was science art, you'd have a spotlight on a prism and you'd present a fixed spectrum up on the wall. I like the fact that mine move and evolve, not only through the day but through the seasons and through different times of year, and different light conditions.

But the prisms, of course, get you engaged with thinking about the larger environment of light itself, because they're connecting you to another dimension of light that isn't normally visible. Even my early prisms, which were used to see different views of the room, were showing you that your perception is only one thing. The prisms are seeing something else, because they're combining all kinds of perspectives.

It all comes from an exploration of light—forms and structures contained in light. Even the exploded drawings explore the behaviour of light at the quantum level.

JR:David has built a temple to light here. His focus has been on artists who work with or manipulate light in order to produce an experience or highlight a phenomenon. Do you see

your work more as a harnessing than a manipulation of light? Because there's not a lot of artificial light in your work. There's none.

CR:True. I don't see it as manipulating it at all. I see it as gathering different dimensions of light and creating something palpable from it.

JR:I'm often surprised when an artist knows exactly what it is they've got to say about their work, and why, and that it's absolute—that there is no other way of considering it. Do you have something certain that you want people to think about when inside this work?

CR:No. I just want them to walk into the Spectrum Chamber and enjoy it as a discovery, like it was for me when I first made the large prisms.

JR:So you're not teaching anybody anything. This is about feeling.

CR:I'm just providing a place for a very specific kind of experience, to be taken in from your own point of view, wherever you stand. I don't have anything to sell in that way.

JR:Good. That's refreshing.

CR:But you could always buy more prisms.

JR:Don't we have enough?

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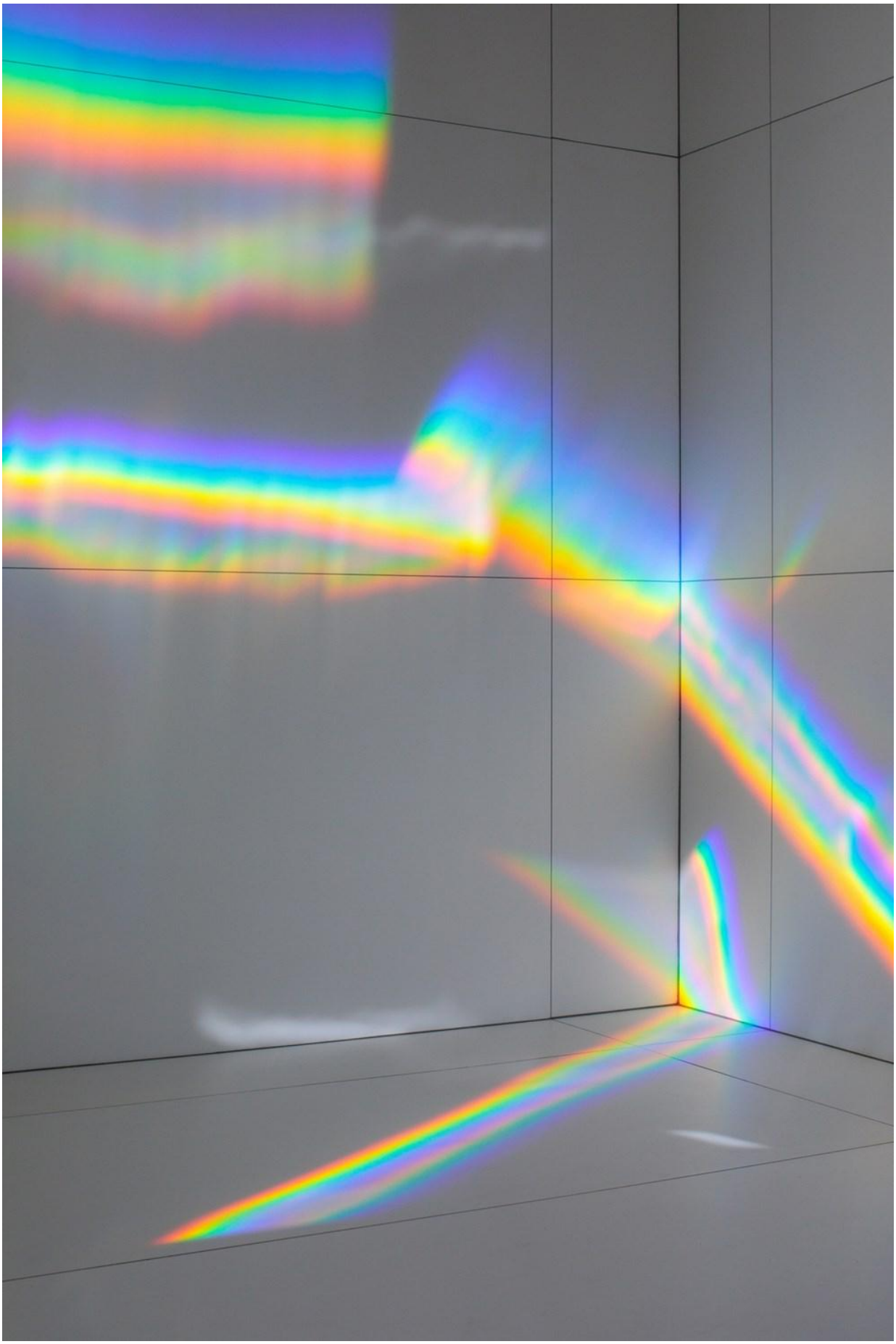

Spectrum Chamber, 2018, Charles Ross

CR:And Solar Burns, yes. And explosion drawings, for that matter, if you want to take a dive into quantum light behaviour. They're always fun for me. Then you'd have the whole picture.

JR:I like the Solar Burns and the Solar Spectrums—it's like the burn works are such physical objects, whereas the spectrums are not. You have to be standing there and it might go.

CR:Yeah. It might go, it might come back. If you live with a large spectrum, you rapidly become aware of the fact that the spectrum moves twice as fast as the sun. So you're amplifying the motion of the sun every day if you're living with a spectrum prism.

JR:Do you live with one?

CR:Oh, absolutely. I've lived with them since I built the first one. It's always surprising, the day-to-day change—it speeds up and slows down. Around the time of the solstices, the sun is essentially at the same elevation for a few weeks, and so the spectrum is repeating itself each day, and then you notice as you start going into spring that it's changing a little bit each day. When you get to the equinoxes, it's changing every day. It's starting at a new place and landing at a new place.

JR:In a really obvious way?

CR:Yeah, in a really obvious way for a few weeks around the equinox. As you go from winter into spring, it's speeding up, changing. Then you go into summer and you see the change slowing down. Then finally it stops, repeats itself for a few weeks, and then the cycle starts again. That's just a reflection of the fact that the sun's elevation in the sky from winter to summer swings like a pendulum.

The sun hits its stopping point, the highest point in the sky, and then it starts to fall. It speeds up just like a pendulum does. So when you're going through the equinox, the changes are more and more, day to day, and it goes up toward the other solstice and it slows down and stops and turns direction and comes back down again. And that's palpable in the prisms, if you're living with them. You really experience that. You don't really see that in your daily life.

JR:Given the proximity of this to my office, I should make an effort.

CR:Yeah, you'll see a lot of change.

JR:I was recently watching the film, Troublemakers: The Story of Land Art, and when you see the layered stills of Star Axis, or Nancy Holt's art, these works are clearly seen through time lapse photography.

CR:Nancy Holt reminded me a couple of years ago—remember you were talking about the space program earlier—that Virginia Dwan, Robert Smithson, Nancy and I had watched one of the early space shots, moon shots, on television together. I think it was in my studio.

JR:I think some of the work coming out of North America during that period is so special and unique.

CR:Well, you know, it was more a discovery time. There was discovery everywhere in the arts—exploration and discovery, a laboratory in which to try out ideas.

JR:Do you see yourself as an explorer, in that sense?

CR:Yeah. I think all the artists were. Sol LeWitt, Carl Andre, Heizer Smithson. All of them, they were explorers.

JR:And I don't think it's just the cowboy-with-the-business-cards kind of explorer, but conceptually.

CR:Yeah, conceptually.

JR:And it doesn't feel like an aggressive rejection of something. 'Oh, we're really anti this, so we're going to go and do that.' It seems more a genuine exploration. You start at one point in physics, and then all of a sudden, you know, you're in your sculpture class.

CR:Yeah, exactly.

JR:You've got the keys to the studio at night. You know, this is explorer stuff. You haven't mapped it out.

CR:Well, nobody expected to sell anything in those days, you know. We were just doing it.

JR:Well, that's lucky, because it would be pretty hard to sell.

CR:Yeah. You were lucky if you sold something. Nobody even thought about it, actually.

JR:Well, that's the explorer attitude, isn't it? Not all explorers went to bring back the gold. Some were just exploring.

CR:I'd say everybody in the Dwan Gallery was. I mean, Arakawa was exploring language. Virginia [Dwan] was an incredible magnet for the explorers in art. Sol LeWitt introduced me to Virginia, and he said 'You should go see her because I think she has a collection of crystals.'

And so I went up to see her and I said, 'Sol thought I should pop in and meet you.' And she said, 'You're an artist?' I said, 'Yes.' She said, 'Oh my God, not another artist. The gallery is booked for four years. Go away!' And I said, 'But I make big prisms.' And she said, 'Oh, really? Can I come down tomorrow?' No kidding. And I was in the Dwan Gallery within a few months.

JR:Even with a four-year program.

CR:But if Sol hadn't told me, 'Mention crystals', who knows?

JR:I imagine you'd still be building a big staircase in New Mexico.

CR:Oh, yeah, I'd still be doing it all. But, you know, the life path of anybody is pretty… I mean, think of David [Walsh]. What an amazing life trajectory. Really.

JR:Yeah. I try not to think about his life path too often. It boggles my mind. I get too distracted trying to work it out.

CR: Exactly.