RioTinto

Transcript

Things You Can’t Live Without

S2 Episode 3 – Edward Burtynsky on using one camera tripod across 50 countries and 30 years

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Dr Anna Ploszajski:
Hello and welcome to Things You Can't Live Without, the podcast where I, materials scientist Dr Anna Ploszajski, ask a special guest to tell us the one thing that they can't live without. We also interrogate a host of experts to find out how these items are made, where their components come from, and how the future of those items is being planned for.

In this episode, I'm joined by world-renowned photographic artist, Edward Burtynsky. Very warm welcome, Edward.

Edward Burtynsky:
Great to be here.

Anna: [00:30]
Also joining us is Jonathon McCarthy, Chief Decarbonisation Officer at Rio Tinto. Welcome, Jonathon.

Jonathon McCarthy:
Thanks, Anna.

Anna:
So Ed, tell us what is the one thing that you can't live without?

Ed: [04:45]

Well, my knee jerk reaction was going to be my computer, my iPhone, but I think that's kind of too standard an answer. So I went to, it's a carbon fibre tripod that I've had for, gosh, over 30 years. It's something that has been on every shoot and every country and every place that I've poked my nose into. There's no camera that I have that's done that. So it is the enduring piece of equipment that has followed me around the world.

Anna:

That's been your faithful friend and more well-travelled than me, it sounds like. That's very impressive.

Ed:
Fifty countries, I think.

Anna:
Oh my goodness. Wow. Jonathon, were you surprised to hear that I didn't choose a camera as a

piece of equipment?

Jonathon:

I was actually surprised to hear that 30 years. I mean, it's just, it's phenomenal endurance. When I thought about this, I was thinking, well, aluminium is light. It's easy to replace. You know, it's a bit less fragile, perhaps, but maybe all of those things are not true. 30 years, 50 countries.

It's a stunning life for that piece of equipment, if I'm honest.

Anna:
So in this episode, in our conversation together, we're going to be talking about energy as a central theme and how Edward's tripod has enabled him to document the human impact on our planet. And we're also going to learn about some projects that are underway to decarbonise our energy in the future.

Anna: [02:00]
Let's dive a bit further into your item. Can you describe that your tripod for our listeners and tell us what actually is it that makes it so useful to you?

Ed:
So it gives me about a height of about seven feet. So if I'm at the very top of the tripod, I have to go find a milk crate or some block or something that I can step onto to actually get the view through the camera. So it's got just that little bit more elevation that is beyond me and that height is very important. And then, you know, the other thing that I found is that you're working fast and when you lock it, you don't want it to slide because I might have a camera, a 30, 40, 50 thousand dollar camera on there. I work with large formats.

So the reason why when you get in front of one of my prints. You know, I've always wanted to be like two viewings of that print, two ways to experience it. One, the whole picture and kind of as you go up to it and where is this place or what is this place? Literally all my pictures need a tripod. I don't shoot from the hip. I don't shoot with a 35 or your iPhone. You just walk around. You can take pictures. No, I have to actually stop, open up my tripod and put the camera on top. So it is like a key to every picture I've taken.

Anna:
Wow. That's so interesting. So your trusty tripod really does have to be trusted.

Ed:
Yeah. And at the time when I bought it, it was a big reach for me because carbon fibre was just hitting the market up until then. They're all made of aluminium with steel bushings. And by the time they designed this one, it was half the weight. The carbon fibre itself was like almost impossible to break. It actually was broken once. A porter that was pushing the gear through a door in a hotel, but the tripod bag was sticking out, and I just saw pounding the cart, and it actually cracked the central post, which I just replaced the central post. Even on that shoot, I was able to use some Krazy Glue and put the central post back together until I got a new one. So never been put down by this tripod and never failed me once.

Anna: [04:15]
Ed, you have an epic body of work from decades long career. You've captured industrial landscapes across the globe, which focus on the impact of human industry on the planet. Because this is an audio medium. I wonder if you can describe for our listeners, the style of your work.

Ed:
Even as a student, I was starting to look at a subject for my camera that wasn't a standard landscape. I wanted to do something unusual. I wanted to do something that was very different. And I also was in love with painting. I wanted to bring in ideas from the world of art, abstract

expressionism, and even some of the early German romantics of the painters, and then incorporate that into my photography so that my photographs had a sense of the painterly in them. I started thinking instead of just pure landscapes, I should actually possibly consider the human altered landscape and feeling that we are in a population growth. So in almost every decade of my life, we've added almost not quite a billion, but just under a billion people. So it has been this spectacular population explosion.

I wanted to go into something that people never expected to have an aesthetic quality to it, like a mine, or a quarry, or a factory even. So I was trying to find a portal into those worlds that invoked what I would hope is a sense of wonder, and a sense of where is this, and this is something very unfamiliar to me. And that's what the industrial landscape has become, very unfamiliar. We don't go to the big mine sites, we don't go to the big quarries, we don't go to the big factories where our cars come out of. So to me, it was my camera was able to enter that space. And because I wasn't entering it politically or as an environmentalist, but as an artist, you know, a lot of shoulders went down in terms of industry.

They said, okay, come on. And I want to see what you're going to do with my, with my industry, whether it's, you know, oil refineries or oil fields or factories in China or anything like that. I was able to talk my way onto those places and into those places because of my approach.

Anna: [06:15]
What are some of your standout experiences in going to those places?

Ed:
I would say the one that this is like now 25 years ago, but the one that floored me was going to the breaking of the largest vessels created by humans, which is oil tankers on the shores of Bangladesh. And then it would take a half a year, four or five months to break a ship like that. And all they had was a cutting torch. That was the most sophisticated tool they had. The rest of it was a pry bars and shovels and winches that they built from all the anchor mechanisms and the cables from these ships. But that was otherworldly. It was like stepping back in time. It was almost as if I was looking at the beginning of the industrial revolution through Dickens eyes, the satanic mills and the, and where life and environment were not even considerations in industry.

The first day I went there, there were two burning pyres and that was two workers that were killed from a cable that snapped and just bifurcated the two of them because they were in the way of the cable. And when you have a two-inch-thick metal cable snap, by pulling a big chunk of your ship in, you don't want to be anywhere near that cable. Apparently, at the time, there were, like, about 700 casualties a year, not to mention all the loss of eyes and arms and fingers and all that. And they have no safety gear, no cutting glasses, no, no gloves. They're working in flip flops.

Jonathon: [07:45]
The Dickens reference and the sort of two different worlds. I grew up in heavy industry, 500-ton excavators, all this amazing equipment. And I was traveling up the west coast of India, 20 years ago and there's these two ships on the beach and people doing exactly that. It was a really big moment for me, the amount of impact you can have without all of this heavy machinery just being able to do things by hand. I just couldn't believe it. How much those groups of men got done over the course of a day with literally a cutting torch and, you know, a pair of pliers and a rope.

Anna:
And Ed, what was the standout image that you captured from that experience?

Ed:
There's one I got that I thought was a portrait and it was an inside of an oil tanker. So you can just see the black oil almost as a patina on the wall with all the big pipes. So this is where oil would normally be sitting in a big oil tanker and I just put this young, he looked like he was 14, 15-year-old worker who had a kind of dignity to him. And he had this vest, this kind of golden vest he was wearing. I kind of saw him and standing there and I got everybody else to move out of the way.

Like I don't do a lot of portraits, but that one's still, I think. It resonates through time and it still tells an incredible story. And then this guy with nothing more than a shovel and mud on his bare feet, in a scrapyard. It's a telling picture.

Anna: [09:00]
It's another world. Yeah. Actually, if listeners want to see some of your photos for themselves, Edward, they can go to the link in the show notes, and that will take them to your website and they can see the images there. Jonathon, when you first saw Ed's work, what was your impression as somebody who's maybe a bit more familiar with big industry than most of us?

Jonathon:
I must admit, like, I've always found that wonder with industry. I grew up in industrial towns. I chose to come back to industry for my job. But when I looked at it, when I see the work, there's this feeling of sadness that I think a lot of people would have. The human impact and that evoking of sadness is probably the one thing that captures me of, how can we keep doing this? And also, perhaps for yourself, you've got this beautiful ability to go and capture the moment, to go and capture those sorts of moments. Quarries, ship breakings, not always clean and beautiful sort of nature. How do you feel about going into that moment and capturing it? Because I think there is a sort of underlying sadness at times, that at least a lot of people would see there, even if that's not the intent.

Ed: [10:15]
Well, I wouldn't say it's not the intent. I hail from Canada, right from a very young age my father was an outdoors person, so fishing and, and hiking, all part of my growing up. And so I was very kind of connected to nature. But when you're out there and you're in this kind of pristine world where this is what the planet intended before humans, this is what it looks like before we come along and rearrange it. And there's a lot of that untouched unspoiled land in in Canada and I got to see it firsthand. And so when I looked started looking at what we as humans do and I got to work in the mines. And I got to see big open pit mines and I said people don't realize the scale at which we operate so we only kind of cast our thoughts forward and we completely forget about the fact that we still live in a material world and the reason we can talk on a computer or on a phone is because of copper and aluminium and all the other things that we need in the plastics and the silicon and all the things that we need to be able to do that.

So for me it was that ability to, you know, take that as a kind of loss, a lament of a loss of nature to our success. The common thing through all of it is there is a bit of a sadness because, you know, there's a price being exacted on biodiversity, on the planet, on atmosphere and all that. I think by the time you go from one end of my book to the other, or through my films, or through the multimedia pieces that I've done, you know, I think it's clear that what I'm hoping that you do take away from it is that there's reason for concern.

That we are at a kind of unprecedented moment in time where humans can actually change the trajectory of a planet. And this is probably the first time that a single species on the planet can flip it into an ice age, or completely send it off course for where it was naturally going.

Jonathon: [12:15]
And I think, Ed, it's a great capture of how I feel. Because the sadness sits there, but I worked in industry but just minutes or hours away from beautiful parts of Northern Australia. I worked in the Canadian Rockies, and I was in the Gobi Desert, and you don't have to step very far to be in a pretty untouched wilderness once you get out of industry in the Gobi Desert. And I had this moment there, and I really thought hard about staying in industry. Can you be part of this machine that keeps on rolling and doing this? I stepped away from industry for a couple of years and thought hard about that. Tried to sort of re-skill myself, do some other things, but sort of drawn back to, and Ed said it earlier, this is humans and it's what we do, and this is the moment.
And I actually thought, you know what, what if I can come back in and play my role in at least shaping how we do that just a little bit in the right direction. And so, I'm very, very lucky my current job has big scope and impact to sort of turn that ship just a little bit. But the sadness is sort of

overcome by at least a little bit of, I don't know if the word's hope, or a little bit of agency. But probably a desire to sort of embrace that, be part of it, try and move things in the right direction. And I think, pleasingly, we're starting to get that investment in technology. We're starting to get that awareness. Things are starting to come together very different than even when I started my career 20 years ago. But it's going to be a very long road. It's multi-generational, it's not for this decade.

Anna: [13:30]
For sure.

Ed, when I look at your work, there's learning in looking at these images, you learn where stuff comes from. You don't often see that. So, yeah, thank you for that rollercoaster of emotions that I feel when I see your work. Because it isn't, it's not as black and white just as this is horrifying, or this is beautiful. It's all of it.

Ed:
You know, we're storytellers and we can tell stories through images, through films, through words. And we have soft power, so it's not incumbent on us that we're going to change the world. But what we can do is shape consciousness. And shaping consciousness is the beginning of change. So there is a kind of ability that I think artists can also have in terms of telling the stories and reconnecting us to these places where our existence, and often times people will come after me and say, Oh, you're aestheticising disaster, and I'm saying, well, if you think that that's what I'm doing, then you're going to wake up in the morning and you're going to turn on the lamp beside you, which is electricity that probably travels through copper lines from a big nuclear power station that is massive in scale with tons of concrete and copper.

And then you're going to go over and turn on your metal faucet which is made out of steel through copper pipes. Need I go on? I mean, you, for the moment you go, you get up, you are engaged with a world that comes from materials. So if you think you've moved past it, you haven't. It's there every second of the day.

Jonathon: [15:15]
There's a global mining CEO for the last decade famously would get on stage and just simply say. Everything in your life was either grown or mined as a precursor, and you just have to accept that, and now we work together on how we want that to look. But that's where all the things in your life came from.

Ed:
Yeah, and when I had this show in London, I was often brought to those questions as well, but I would say, well, if you want to really understand what's threatening, in particular biodiversity, but also adding to the carbon footprint, if you look at all the mining in the world, it's of arable land. It's less than 1%.

If you look at like in agriculture in America, it's 30%. So all of the wetlands that have been drained and turned into farmlands, all the prairies that have converted to wheat fields, all the forests that have been turned into farm fields on and on and on. If we're looking at what do, what have we as humans done to reshape the planet more than anything else? It is agriculture. It is growing enough food for 8 billion and growing population and so comparatively speaking agriculture has, is doing more damage to water and biodiversity actually than mining is.

Anna: [16:15]
Absolutely. You mentioned earlier that your trusty tripod is made of carbon fibre and that back when you first bought it that was quite a sort of futuristic material or very expensive material. These kind of composite materials are a lovely family of materials. I find them quite optimistic they're all about kind of making the best of their components and bringing those together and creating something new that hasn't been made before and things that want to be lighter and stronger and stiffer tends to be composites because you don't often find those properties in materials that you

get on their own. Jonathon, in your role as chief decarbonization officer, do composites play a big part? I'm thinking lightweight, strong?

Jonathon: [17:00]
You know what Anna, not yet. And so what, yeah, why is that? When we look at the portfolio and things like energy efficiency, which is absolutely the best possible way of improving the footprint of the planet. Efficiency is great because you're just using less of what you needed. You don't have to produce it differently. You don't need an extra solar farm or an extra wind farm or an extra something. You just need less. So when we look for efficient projects, that's the starting point, but there's plenty of improvement, but we're not at the low hanging fruit stage on efficiency. Composites aren't at the point of really revolutionizing these big energy value chains that take bauxite into alumina into aluminium or that take iron ore into steel into sort of finished steel products. They're huge energy intensive value chains and so it's not so much about the efficiency on the boundaries of how do we get there. Composites will have their moment if they can actually replace things like steel. Imagine a building that could go up and be reliable and safe and do its job having a tenth of the steel that we use today, that will be a big change.

Anna:
That's so interesting. It reminds me, you know, in cycling they used to talk about marginal gains, lowering the weight of your bike by a tiny amount that would get you an extra 0.1 second. That kind of was brought back by composites and that was the very final way to optimally optimise your, in this case, bicycle. Is it kind of like a similar analogy maybe?

Jonathon: [18:30]
It's a super analogy and I'll stretch the analogy because it is helpful. If you go to Copenhagen, you go to New York, you go somewhere and look around at all the bicycles, not many of them are going to be $70,000 carbon fibre Tour de France bicycles. And so it's almost the same as having this conversation and saying, why can't an architect come up with a skyscraper that uses this cool new composite alloy that takes a fifth of the materials out. And the answer is, probably it can be done. But of course, that's for one building. We're not at the point where we're going to do that 30,000 times. And so of course, even at the pointy end of material science where we could break that, it's almost exactly like the bike analogy. The marginal gains at the pointy end of professional anything have to reach mass market proliferation.

Anna:
Yeah, that's an awesome answer. Thank you.

Ed, your work started in the late 1970s and throughout your working life, energy has changed drastically over the last few decades. I'm really interested, because you have this unique view of, of that period. What are your reflections on capturing literally energy landscapes across such an interesting period of transformation. Can you tell us about what you've seen and how it's changed?

Ed: [20:00]
The challenges of the, you know, energy challenge in that we're still burning over 10 billion tons of coal every year and we're burning 100 million barrels of oil per day and not to mention natural gas. So what we're doing is clearly unsustainable. And the direction that we're heading into, and Jonathon is actually a foot soldier in that world, and we need lots of them to kind of make the conversion, but it is a paradigm shift. And it's interesting that I've actually been able to kind of understand a paradigm shift in a very visceral way as a photographer where when I began my work it was all analogue.

So I was using film that was from plastics, from oil, with silver from mines, silver mines, gelatins from farming. And then the digital camera comes along and now light is captured in ones and zeros. And then once it's captured, now you can send it to a printer, and it can recreate that, or you can send it to your friend on your phone, or whatever.

So all of a sudden the whole paradigm shifts. And I'm saying the same thing is happening with fossil fuels. That we need to go from a consumables to a durables. And when I started thinking about that, the whole idea of mining became really important because the best estimate is that we started mining copper as a species about 5,000 BC. So, let's say for about 7,000 years we've been mining copper. And if you look at all that's been mined from the beginning of time till now, the best estimate is something like 750 million tons of copper. The amount that we're going to need to get to net zero is that again in the next 20 years. And if you look at any material iron copper lithium to get to net zero is a durables play. We're moving from a consumables energy paradigm to a durables paradigm.

So solar panels, fusion, even you can look at nuclear as durable, and wind turbines, and geothermal. And all of them are about building pieces of equipment that can convert natural energy into usable electrical energy. And that is really what we're moving towards to a sustainable world. So the idea of that we need our, that the future to be sustainable and for us to survive it, we have to remind our way to the future.

Anna: [22:30]
So how's the decarbonisation process going, Jonathon?

Jonathon:
Look, I want to start with a small anecdote because this one factoid just went through society in the last few years really strongly. And I think it helps to paint was if you take an electric vehicle and the example was a Tesla and you take the carbon footprint just to put it on the road on day one. So all of the emissions from my industry and the midstream industry for lithium processing just to get the lithium and the nickel and all the elements into that battery, you could drive an F150 pickup truck for like six years using petrol, using gasoline, before you had the same carbon footprint as just driving an EV off the lot.

And that's a fact. It wasn't sort of misinformation. It wasn't the fuel lobby trying to put that in. And it gives you a sense of the intensity of putting EVs or this new sort of durable world in play. And so I think the thing that I've been really grappling with if that's true, is this really the right way to go about it?

This is good in theory. It's good emotional people feel great about buying an EV, but actually we're adding to the footprint. No one's owning their cars sort of eight nine years to make that payback. And what I've started to realize in this job is we are turning that stat around. And two things have happened in a massive way. One, batteries have fundamentally shifted. And I don't think people have realized in the last four or five years, the efficiency and cost and the durability, it's totally different. We waited 30 years for this moment and people kept saying, Oh, batteries will be better. The last five years, batteries have shifted.

And so, all of a sudden, that equation that I just described cuts in half just purely on technology advancement of the good old lithium battery. No breakthrough into some new chemistry, no different sort of thing, no need for some new and very hard to find metals, just the same chemistry, brought down, cheaper, better.

And the other element is that we are finding ways to power industry with renewables. And so, for a long time, the other argument that sat in lockstep with this was, well, you can't run big industry off renewables, they're unreliable. The sun and the wind powered, it moves around, it's not there. And there was this really big push about six or seven years ago for net zero everything.
And in some ways the conversation has moved into that space where people are starting to say, well, net 90 sounds fine. That compromise moment of being maybe not net zero right now, because the technology is not quite there. That's at a macro Anna, like we are now. How's decarbonisation going? It's right at the moment where it's about to sort of be in the money on a global footprint basis. And it's actually making good business for companies like ours, which obviously helps you to reinvest really strongly.

Anna: [25:00]
That's so exciting. We're going to have to wrap up our conversation soon, but Ed, I really want to ask you before we do, where's your work going to take you next?

Ed:
I'm going to Australia on my big shoot next in May. It used to be a tin mine in the southwest, just below Perth. It's called Greenbushes. I don't know if you've ever heard of it or not. But what's interesting is it's now become the largest supplier of lithium in the world. And basically what they found is that in the crushing, in the tailings of the crushing of the rock and taking the tin out, one thing that they didn't bother with, but it was full of it, was lithium. So now what they're able to do is to go right in there and start to mine the tailings, which are already half the cost of crushing taken out. And now they can just take it and reprocess them for lithium.

Jonathon:
It holds a fascinating place in the world's lithium supply chain now. It is the benchmark, but that's not what it was built for.

Anna: [26:00]
Well, thank you both so much for this fascinating conversation. I think reflecting on it, one thing I've taken away is the importance of conversations between art and science and what both can tell the other what we can learn from observing and yeah, Ed your work really speaks to that and the kind of what we can learn from the material world, not just in the sciences.

Thank you so much to both of my guests this episode, photographic artist Edward Burtynsky and Rio Tinto's Chief Decarbonisation Officer, Jonathon McCarthy.

Ed:
My pleasure. Yeah, thank you.

Anna:
If you want to see more of Edward's photos for yourself, you can find a link to those in the show notes. And that brings us to the end of this episode.

You can listen to more episodes of Things You Can't Live Without wherever you get your podcasts. And don't forget to follow, rate and review us to make sure that you never miss an episode.