[Music]

James Balog: I'm really acutely aware the older I get, how much we all stand on the shoulders of other people and how much we are a manifestation of currents that have been flowing in culture, in humanity, and science for a very long time, going back to the ancient Greeks, to the Egyptians, to who knows what? But we stand on many other shoulders, and we are not the atomic particles and individuals that we Americans like to think we are. One of those people whose shoulders we stand on, in this case, right here tonight is Charles Keeling, Ralph's father, who started that amazing carbon dioxide study on Mauna Loa.

I'm going to add somebody else whose shoulders we stand on. My dear friend Jane Goodall, who passed away last fall. We were at a dinner at a mutual friend's house, and there was a snake in a terrarium, and she insisted on bringing the snake out and wrapping it around her, and that's what that little picture was. These two are perfect examples of what I'm talking about, about standing on the shoulders. They taught us to see and to think and understand differently. Because of those insights, culture advances, science advances.

Now, I've been a working professional photographer for 45 years, and one of the great, unbelievable aspects of my life is that it's taken me into all different settings and getting to know people in places that I never imagined I would be connected to. This little time-lapse clip shows you some of the costumes I've had to wear in order to function in my work, so watch carefully. I start out as an ordinary guy. Then I get into my climbing gear. Volcano gear, arctic gear. [Laughter]

It's been an amazing life. Lots of wonderful things. I initially wanted to make these beautiful, elegant, celebratory nature pictures, and this is just a small smattering of them, and I'm going to move through this stuff fairly quickly because we've got other things to speak about. But I love the natural environment ever since I was a little boy. Working as a photographer has taken me to all wonderful places above ground and below ground.

This is in a cenote in Mexico, volcano in Iceland. But as I'll say in this trailer, as I advanced in my understanding of the natural environment, by the way, I have a master's degree in geomorphology, the study of how the Earth's surface is formed. But I moved away from professional science when I was in my mid-20s and decided I was going to be an environmental outdoor photographer. A lot of that started with adventure photography, skiing, and rock climbing and climbing big mountains in Alaska, things like that.

But as my understanding of the world advanced, I realized that there were a whole lot of other things going on and that I wanted to turn my camera to those issues. This trailer from our film, The Human Element, gives you a quick smattering of what I've been thinking about. The film came out in 2018, but it in a way encapsulates 35 years worth of visual discovery.

MALE_1: The state of California is resorting to drastic measures tonight.

MALE_2: The most severe conditions.

James Balog: When I became a photographer, I wanted to celebrate the elegance and beauty of nature. But I soon realized there was a more complex story going on in the world, about the collision between people and nature. I felt a great sense of urgency to bear witness to that. We need to get out of here because the water is rising around us. As you can see, the water's just tearing it to pieces. Front Range is still under an Ozone action alert.

FEMALE_1: The majority of our kids are struggling with air.

MALE_3: In the United States, we have a fire problem.

FEMALE_2: The fire was huge and spread really fast.

MALE_4: These are wildfires we have no control over.

James Balog: Little tornado right there. We depend on the stability of the fundamental forces of the world. Earth.

MALE_5: When you work in the mine, coal becomes part of the air.

FEMALE_3: You're most definitely afraid of the air that you're breathing in.

James Balog: Water.

MALE_6: Water and the ocean tangia. We're joined, we're connected.

James Balog: Fire.

MALE_7: Disrespect it and maybe live a little longer.

James Balog: The fifth element, people. An imbalance of one element leads to an imbalance in another. People are the only elements that can choose to restore balance.

MALE_5: Good things come to people who hustle.

James Balog: That gives me hope.

MALE_6: We need the help, and we need it pretty quick.

FEMALE_4: We're one storm away from becoming a part of history.

James Balog: Our deeds are leaving their imprint in the fabric of time. What I want to do is bring this story to life. All those fire scenes were shot in California. This book, which came out a few years ago, 2021, is an encapsulation of a lot of my life's work and a lot of what you saw in the film. Here in California, we know all about earthquakes. This is the San Andreas Fault, and we're familiar with the fact that the plates of the Earth's surface are moving. They make these faults, and they make earthquakes and they build volcanoes and so forth.

That whole process is known as plate tectonics. Let me have a show of hands. How many people know that term? Come on. Good. Well, what you may not know is Jim's new word human tectonics. My idea here for some years has been that people, as I said in the trailer, are a force of nature, and we are manipulating the world, changing the world in not quite the same way as plate tectonics, but in a comparable way and altering the world as we know it.

How many people know this word? Show of hands. That's pretty good. Well, the notion is here, that's a science word that denotes our period of geologic time. This is a relatively new term came out about 25 years ago, and the idea is that this epoch of time is characterized by profound human alteration of nature. The name Anthropocene has been given to our time. I want to carry us through a photographic journey that has lasted for four decades or more, looking at these different intersections of people and nature, human tectonics and natural tectonics and the Anthropocene, starting with endangered wildlife.

I got this wild notion in the late 1980s that I wanted to alter the visual context in which you saw animals so that you understood their alienation from habitat and at the same time, you got a sense of their rare sculptural beauty, the intensity of their psyches, in a way you don't necessarily get in normal wildlife photography. Florida panther was almost extinct when I shot this picture, and now they've come back to some degree because people are paying attention.

I'm not going to narrate all these pictures. That mandrill assumed that pose all on his own. I think there's probably somebody here who's sitting about like that. Over there. Very humanoid. It's a long story, but that's an expression of the Hindu God Ganesh, and I had no idea that it was when I made that picture. It took me about five years to understand what was in that image. We went all the way to China to photograph this ultimate charismatic megafauna, a panda, which was used as a circus animal basically in Shanghai.

We project a lot of meaning, extract a lot of meaning from these animals. Polar bear. With this focus, this emphasis on the singularity of the animals, I was thinking, you know, there's trees that are singular, special characters, organisms. I should do portraits of these trees. I discovered that a directory is kept in Washington, DC of America's largest trees, a whole catalogue of 720 trees. People have gone out all around the country measuring the trees according to a certain standard and style, and they nominate their favorite tree to be the Champion Tree, as it's known of its species.

This happened to be a champion Texas live oak in the whole country of Texas. This is in a backyard in Palm Beach, Champion buttonwood, the largest buttonwood in the country. Already you can see I'm breaking the picture up into multiple frames because I can't encompass these trees in one frame. Olympic Peninsula, an entire forest that was cut down. But the loggers, when they got there in Washington State, they decided, let's leave this one amazing tree. That turned out to be the national champion.

But all the rest of those trees are Douglas fir regrowth that are repopulating a clear cut forest. There's a lot of pictures in this series that go all over the place. We've shot in Key West, we've shot in New England, we've worked in Arizona, a lot of pictures in the Pacific Northwest. California was one of my favorite places because believe it or not, the tallest trees in the world are here, the oldest tree in the world, and the largest living organism. They all live in California.

The oldest trees are bristlecone pine in the deserts, by Bishop. The tallest trees are the coast redwoods up in Humboldt County and Mendocino County, and the largest trees are Sequoia, and they're in the lower part of the western side of the Sierra Nevada. Here I am. I'm thinking about, I really need to make a picture of one of these giant trees or a bunch of these giant trees. How am I going to do that? Well, photographers are ground based organisms, basically.

I was really bored with the ground based picture of a redwood or a Sequoia. You're going to stand there at the bottom of the tree, look up at a cylinder of wood going into the sky, whoopty-doo. Everybody shot that picture. With my multiple frame idea and my rock climbing background, I decided I should somehow get up in the forest and look at the trees from up in the forest, moving on a multi frame perspective. These cheesy little illustrations are going to show you how I did a picture you're going to see here in a minute.

Imagine that tree on the left is the tree I'm trying to photograph, and the tree on the right is a conveniently situated support tree for our engineering. What we do is we shoot a rope up over the top of the tree we want to photograph. Lots of times the tree is too big to actually shoot an arrow all the way up and pull ropes up, so you only get it partway up the tree, and then you have to climb the rest of the tree. But once you get a rope fixed up there, somebody climbs up the rope, shoots another rope over to the support tree. Then somebody else has the gripping job of sliding out on that traverse rope that's now tied between the two treetops, and he drops another rope down to the ground.

James Balog: That rope is where me, the knucklehead, goes to climb up the rope and photograph the tree in pieces as I propel back down to the ground. I did this for three years in redwoods and sequoias and photographed these trees, basically visually mapped them from the side in profile, no longer looking up the trunk, but looking at them sideways, trying to evoke their character. It was a complicated job. We had to invent a lot of gear to make this work. This was a day getting ready to go

up in a big oak tree. That stuff is heavy, by the way. This was me suspended out between two sequoias, and behind me is the sequoia that I'm about to show you.

This tree is known as Stag. It was named, weirdly enough, after a football coach, which doesn't make any sense at all. But that tree has that name, and I'm out there on the rope, spinning around for four hours trying to make these panoramic portraits of these different sections of the tree as I slide down the rope. Each one of those slices is a left-to-right or right-to-left or back-and-forth, back-and-forth, back-and-forth panorama, trying to make sure I don't miss anything as I go down. I go down the tree. This tree, by the way, is 28 feet in diameter. Huge tree. It's like this whole area in here would be the base of the trunk.

There's my rigger buddy Billy in orange, peering into a burn scar on the trunk. Then we put the whole tree together. We have a portrait of one of the world's stellar living organisms, fifth largest living organism in the world, seen in a way it's never been seen before. This picture has been collected in eight and 16 footprints in a whole bunch of museums, and it was on the cover of my tree book. I repeated this sort of thing over and over again with a lot of different trees to make their portraits. This particular assembly is 451 frames.

We did this long before Photoshop was any good and even longer before artificial intelligence came along. We had to hand-assemble this thing. It took a month to do it, to put that image together. You get the little figure in the top by buddy Billy again, giving you a sense of the scale of that massive creature. Carving: We humans do a lot of carving in the Anthropocene. We carve things out of mountains, and we throw away their tailings, and we use some things. This is in the Carrara Marble Quarry, where Michelangelo and Bernini got their marble to make fantastic things. The mountain back out there is absolutely ravaged. I mean, it just looks horrible, but they transformed that marble into something amazing.

There's a duality to a lot of things that happen in the Anthropocene. Viewed from one perspective, there are bad things; viewed from another perspective, that destruction creates something wonderful. A potash mine in the Utah desert. Tailings from a copper mine in Arizona and all the miners' houses, all the people who thrived from the jobs that were created in that mine. Then, of course, we have suburbia. We take over the landscape, but it provides shelter for so many people. That duality is hard for environmental philosophy to get its mind around, and I'll come back to that later on.

This is the border fence in southern Arizona, between Mexico and Arizona. We're always fencing and saying, this is mine, not yours, whether that's a barbed wire fence or a picket fence in a yard or a border fence; mine, not yours; very human behavior. Of course, we all have to breathe. I became really interested in how do you bring air, the stuff we breathe. How do you put that into a picture? Air is invisible. It's right here. It's all around us. It's weighing down on us, 14.7 pounds per square inch all the time.

But you can't see it. It's the world's worst photographic subject. But it's crucial if a photographer like me is going to try and bring the Anthropocene into visual life.I met a guy who was a physicist working for NOAA, who launched weather balloons into the sky several times a week. He said, "Jim, I've figured out how to put a 35-millimeter time-lapse camera on the bottom of my balloons, and I can send some of your cameras up to, like, 100,000 feet high. You want to try it?" So we did. Here's a little film clip from our experiment. This was at Rocky Flats at the base of the Rockies.

Give it the gas. Here it goes. I've always known in theory that the envelope of air that surrounds us is thin. Yet, in fact, when I look up at the sky, it seems infinite. Now I need you guys to walk away for me. I teamed up with a friend of mine to send a camera up above the atmosphere. That's an ordinary old bubble wrap. And experience how thin the air actually is. Two, three, go. Whoa, look at that. It

took only 25 minutes for that balloon to rise to what's basically the edge of the breathable atmosphere at 35,000 feet. How high is it?

Patrick Cullis: It's 61,000 feet.

James Balog: Wow. Just a few minutes later, it was up at 70,000 feet, staring out into the blackness of space.

Patrick Cullis: Ninety-nine thousand feet. There's the parachute.

James Balog: Oh, there's the camera.

Patrick Cullis: It's amazing. Cameras are in perfect condition.

James Balog: Look at that continental divide. Fantastic. In less than half an hour, my balloon had floated up into what was essentially outer space. I found it incredible that our layer of air is so thin. For the first time in my life, I understood how finite and precious the air is.

James Balog: There was the key shot from the series. That's Denver down in the bottom of the frame. The picture is from 70,000 feet, and like the guy said in the movie, the camera was staring out into the blackness of space. Now, I'm too much of a renegade to have ever been an astronaut. If I had ever been able to work computers the way those guys do, it would have been a miracle. I would never be an astronaut, but this gave me a chance to have an astronaut-like view of the atmosphere. We've seen all this from the space pictures, the shuttle and so forth, that thin lens of atmosphere. But for me, as a ground-based human being, to realize that if I let my eyes float up for half an hour, I was out of the breathable atmosphere, I was out of this blue dome or thing over our heads, and I was in space, that to me was magic. That was phenomenal.

Contemplate this: On average, we breathe 16 breaths a minute. You can read the numbers as well as I can. I don't have to read this. That comes out to a lot of breaths per day, breaths per year, breaths in a lifetime. All human breaths in a year. What that brings me to, after all of this ruminating about air and atmosphere and so on, is that we humans are part of the Earth's lung; we're not separate from it. All this carbon dioxide exchange that Charles Keeling was measuring, that's all part of the living, breathing atmosphere that creates life in this world.

But of course, we burn a lot of stuff and dump it into that air. One of those things is obviously oil. I shot this at the Deepwater Horizon Gulf oil spill in 2010. Coal. This is in Mermansk, Russia. This was from a coal mine where they were loading this stuff up to ship. I think that China was never clear on that. It got me to thinking, this is the only PowerPoint political talk here, but it struck me that our politics are tangled up in ecology in a big way. If you combine toxic ideology and competition for resources, what do you wind up with? You wind up with wars. I think we all know about the wars that are going on in the world that are a product of this kind of equation. Coal.

Sorry, I popped on that. Am I okay? Coal seam in Pennsylvania. I'm talking about these things, these uses of fossil fuels, not as someone who's standing outside the fossil fuel system. I got here on an airplane. I got here in a car. I got here from my home base in Colorado on an airplane, and I drove up this hill in a car. We burn fossil fuels. I have a particular acceptance of that relationship between the prosperity of my life and the use of those fossil fuels through my grandfather, Michael, who I never knew because he was killed in a coal mine collapse before I was born. But he mined coal underground for 45 years on his knees with a shovel, digging coal out of a vein so that the furnaces of the Pittsburgh steel industry and prosperous brownstones in New York City could have good, clean coal to burn.

We're all in this system together. There's nobody that's pure, clean, and holy. The Anthropocene says

that we're all wrapped up in this. This picture, which we call Norman Rockwell, summarizes two key parts of the Anthropocene. One is burning fossil fuels, i.e., coal in a coal-fired power plant on the right, and agriculture. We alter the surface of the Earth to grow crops, raise livestock. The other thing that happens, as you well know here in California, is forest fires happen, and we spent a lot of time, four years, actually, chasing wildfires from the Canadian Arctic down through this part of the country. It's incredibly exciting work. It's as exciting as anything I've done on the Greenland ice sheet. It's very, very complex science, and it has tremendous impact on human health and on the health of the forests.

This fire almost burned down my house, but it got to 160 other houses back in, I think it was 2013. Firefighters get killed all the time in the line of duty. This was a young man with a wife and two girls, and he was a bulldozer driver, and he had cut a fire line around somebody's house up on the side of the mountain, and as he was coming down the dirt road from the house, the bulldozer rolled down into a ravine, and he died. But these people work unbelievably hard. They deserve to get paid ten times what they get paid. It's dangerous work, bad for their lungs. She was 19-years-old and was absolutely tough as nails. She worked harder than any of the guys on the crew. Her favorite off season activity, she said, was lifting weights.

James Balog: On to ice. I've spent a huge part of my life, actually, since 2005. Believe it or not, that's 20 years I've been knocking around the glaciers of the world to look at ice as a manifestation of climate change. Now, long before I started working on this series which became known as the Extreme Ice Survey, I was out on glaciers in Alaska and the Himalaya and the Andes and all kinds of different places for the sake of mountaineering or photography. I became just enamored of these amazing landscapes.

Then I've started to hear back in the '90s about this thing called climate change. Even in spite of my science background, I thought, that may be a little bit of hyperbole. There's always some new eco crisis. It's the last of this and it's the last of that. Climate change is the big new thing. I don't know if it's real. Then I realized between about 1995 and 1998, every place I went, in Africa or Alaska or the Alps or whatever, everybody was saying the weather isn't like what it used to be. I thought, get over your skepticism, James and go study the science again.

I did and I realized, yes, climate change is definitely real. How am I going to photograph that? What do you do with climate? Climate is an accumulation of weather events over time, and you can't make a picture of weather events over time. I thought that the story might be in the ice, but I didn't know how to do it. I'm going to introduce you to the glory of some of these landscapes before I tell you how I eventually came to bring them alive. An iceberg in Greenland. This is out on the Greenland ice sheet.

When I was a little boy, about 10-years-old, I had this map of the world on the wall of my bedroom, and Greenland was just shown as this big ivory-colored blank. There was nothing on it. I always figured when I was a little boy, well, I guess it's just smooth ice out there. When I got to Greenland for the first time, I discovered that there's meltwater rivers and lakes all over the place. It's not all white. The ice melts, runs through the rivers, and drops down through these holes thousands of feet to the base of the ice sheet and then the meltwater runs out into the ocean.

It releases air bubbles, in this case, air that's somewhere on the order of 12,000-15,000 years old which we know from some fieldwork that somebody here at Scripps field some years back, Jeff Severinghaus, his field site was a couple miles away from where I shot this picture. That's fossil air from many millennia ago returning to the world now because the ice sheet is melting. The last fragment of a glacier on the summit of Mount Kilimanjaro at 19,000 feet. We spent a week up there. All these pieces of ice become sea level rise. My glaciers become your ocean out there as they melt.

This whole thing got kicked off with a New Yorker assignment. In 2005, they wanted me for part of the

story to go to Iceland and photograph a glacier. But they wanted a picture of a glacier that showed retreat. And I told my picture editor that's impossible. You can't send me there for five years to watch it retreat if it retreats. I eventually found glaciers where the termini looked like they were crumbling and fading away and that became the spread. That project turned into a major national geographic story a couple of years later.

While we were editing the pictures for this story; I had been on the road for six months photographing glaciers in all kinds of different places in the world, I realized, wait a minute. I go to let's say Bolivia and I'm making a single frame picture of a glacier, and that's it., that's all I get. I still can't show time. How do I show time? When we were finishing the editing of that geographic story, I had this brainstorm one morning over coffee and I thought, time lapse. We've got to do time lapse. We've got to do time lapse. Need to leave cameras at the sites and watch the world change in front of the camera eyes. That became the central part of this huge project called the Extreme Ice Survey. This gives you some little tiny sampling of what we did in order to make this happen.

Nikon cameras on the bottom right. They were set in housings that were made from Pelican cases that we would modify and put little windows in the side of the Pelicans, collect energy from the sun through solar panels, run that through batteries, install the cameras right by the glaciers, and let them shoot away every hour or half hour around the clock as long as it was daylight. A huge project. There were about four of us who were the central pillars of this thing, but lots of different people worked on this several of whom in this frame have passed away.

But over on the far right you see at the top my wife Suzanne, daughters Emily and Simone. They were crucial to this project because they helped sustain my anxiety and energy all through this effort. Here's what our cameras looked like installed at the Columbia Glacier in southern Alaska. These are all the locations where we put out cameras, 72 of them over the period of the project. Then we had about 60 other sites that we called repeat sites that were findable again by somebody going to the right place, setting up their camera in the right position, and making a picture of the same scene that somebody saw a year or two or three before.

A huge effort; millions of dollars to do this. We lost track of what the accurate numbers were for the cost. This is nothing compared to what happens at Scripps. But for me in the photo world, $7 million was a huge amount of money to raise and spend. We wound up with an archive of 1.7 million frames and that archive of images of the changing glacial landscape is preserved in a lot of different places in the country right now. This really blew my mind when I put this together, especially that carbon dioxide measurement, the Keeling Curve.

We had 379 parts per million when I started the project in 2005 and then we have 429 right now. Nothing's been able to reverse the rise of that gas because we keep doing the same dumb things as a civilization. Let me play a trailer for you from our film Chasing Ice that gives you a taste of what goes on out in the field.

MALE_8: I'm on the phone with Jim on one of our regular check-ins. Jim, nothing's happening.

MALE_9: It's starting, Adam, I think. Adam, it's starting here. Look at that. Look at the whole thing.

James Balog: It all started in Iceland. I think I'm so certain to get wet, I'll take my boots off. I never imagined that you could see glaciers this big disappearing in such a short time. There's a powerful piece of history that's unfolding in these pictures and I have to go back. The initial goal was to put out 25 cameras for three years, shoot every hour as long as it was daylight that would show you how the landscape was changing. This is the way to travel, my friend.

MALE_8: Putting really delicate electronics in the harshest conditions on the planet. It's not the nicest environment for technology.

MALE_9: I do not want to go any lower than this. It's just bottomless. I'm going out here on this broken fin and I assume it won't collapse. Every once in a while you get to saying, what were you thinking? Maybe that office job wasn't so bad. This thing is loose. Rock.

James Balog: It's not working. All of that obsession means nothing if it doesn't work. Just be careful. Don't get too close to the edge.

MALE_8: It's terrifying.

James Balog: This knee has had two surgeries, and it really could use a third.

MALE_9: We go to that point where he can't anymore, and sometimes he's going further.

MALE_10: We have low oil pressure in Engine Number 2.

James Balog: This is big stuff happening right now. Onward. This is the memory of the landscape. That landscape is gone. It may never be seen again in the history of civilization, and it's stored right here. What did the cameras see? They taught me that glaciers are alive. They are living organisms. They don't have arteries, they don't have lungs, they don't have eyes, but they are in dynamic interaction with the air and the water around them. They are pulsing through their own quiet geologic lives. Here's a glacier right at the foot of Mt. Everest, just to give you a sense of a flowing glacier, how they move. This is the route that goes from the common base camp up to the South Pole. Lots of people have been killed in that ice falll as the ice moves.

Glaciers are rivers of ice that form when more snow falls in the winter than melts away in the summer. We turn time backwards. Now time forward. One of the Iceland glaciers. This is what I saw when I set the camera up in 2007. Watch this. This is geologic history happening right in front of your eyes. That's what was. The camera testifies to it. That's what it became. It's not hypothetical. It's not a computer model. It's not a graph, it's not a projection, it's real-world evidence. Switzerland. British Columbia, Canada. Another Canadian glacier.

Now to Greenland. Greenland and Antarctica holds more ice than any other place in the world. Greenland is losing about 275 billion tons of ice per year into the ocean as it slowly melts away and collapses. All that decanting of the ice into the ocean happens at these big walls of ice where the glaciers come in and break off the icebergs. Those places are called calving faces, those walls of ice. That helicopter starts to give you a little sense of scale about how big that calving face is, which in this case, it happens to be about 425 feet high above the ocean.

But you can't see the ocean because the icebergs down below the calving face are packed on top of the water so tightly, you actually could walk across the ocean on those bergs and never touch water. But here is a film clip that gives you a feeling for how gigantic that calving face and the outlet glacier is. The only way we could find to put scale out there was to ask our helicopter pilot to go fly out there.

James Balog: It disappears in this immensity of ice that's several miles wide as it flows from the interior of Greenland. Winter comes, the glacier advances. Summer comes, the glacier backs up. But then on one incredible day, we captured the largest calving event that's ever been put on film, when a huge piece of the calving face broke off. Now, of course, it's hard to get a sense for the scale of that thing, it's just a huge event. Those icebergs that were rolling up were 2,500 feet high, but here's the scale of it measured against some things you might know.

Now, to the analogy they love in Washington, or they used to. How many US Capitol buildings would it take to fill up that block of ice that broke off? This is not an abstraction, all these things, all this Anthropocene stuff, all the fires, all the melting ice, all the changing air, etc., it concerns our children and the children's children and on ad infinitum into the future. This is not an abstraction. Right now, in

our current time, the air quality is changing as a consequence of fires and fossil fuel pollution.

These kids that we photographed for the human element film, have to go to a special school because they need medicine for asthma five times a day. Asthma among young people has become an epidemic. My daughter, Emily, when she was only 11, which is a long time ago, holding a little chunk of ice that was vanishing into the ocean in Iceland. The sea levels that these girls will be engaging with when they're my age will be much higher than they are right now.

All this, it's incredible to me, all this comes out of a three pound brain inside these skulls. That brain in those skulls evolved from our primate ancestors. Here is symbolized by a chimpanzee, who happens to have a DNA that's almost identical to our own. Only a very small change in the DNA separates us from the apes. We invented all this stuff. What we've changed and altered, we can alter back if we have sufficient willpower.

I want to leave you with two things. The first one is I'd like to play a montage of the ice pictures by me. I'm going to celebrate ice with this love letter to the ice in this montage. Then I'd like to read some thoughts to you by way of closing. Here goes. I'd like to leave you with a few thoughts. I'm going to read something. That's not something I normally do, but I like to choose my words carefully, and not make any mistakes, and not miss something. Here goes. Bear with me for a couple of minutes.

The atmosphere is electric with change. Flames flicker, storms glower on the horizon. The future is molten with uncertainty. Is our time a tomb or a womb? How many angels of hope and devils of despair can dance on the head of the same pin? I confess to you that I no longer recognize the country where I was born. Our compass lays shattered on the heaving deck. Our course does not hold.

By what perversion of meaning has a corporation become a person? By what perversion of humanity are flesh and blood people defined as consumers? By what perversion of conscience is the natural environment of tomorrow robbed for private gain today? By what perversion of history has a vicious, violent, and corrupt authoritarianism taken over our national government and been given license to violate laws, ethics, and basic human morals? How do heart and mind, art and science, clarity and reason, find a voice when money and power can buy all the confusion they want?

On the cynical coastline of a country where the better angels seem comatose, who will speak for the truth, for the future, for what is right? Well, I think the answer is, you will. All of us in the room must speak for what's right. How do we go forward? Like so many people in these times, I can't help but teeter on a seesaw of optimism and pessimism, hope and despair about the future. Yet, I simply cannot subscribe to the environmental doomsaying that's become so fashionable.

I have taught myself to remain cautiously optimistic, eco-pragmatist, and believe me, that has taken some doing, given the tenor of this time. In fact, humanity always has and always will alter the Earth. In our Anthropocene Epoch, we will continue to somehow muddle along with more difficulty, more cost, and more pain, but I believe that survive, we will, provided that the worst instincts of artificial intelligence can be restrained.

Despair accomplishes nothing. Far better to take despair and turn it into fuel for positive action in whatever theater of activity your life exists. Where do I find hope in our times? I find hope in the fact that nature has been speaking to us through ever increasing extremes and that people are finally listening and paying attention. I find hope in the regenerative power of nature, hope in the inherent love all people have for blue sky, green leaves, and gleaming water. Hope in the love people have for their children, hope in the better angels of our technology, and hope in the eternal desire of humanity to survive.

Against the tyranny of denial and the oppression of indifference, we must prevail and continue to seek a better relationship between human nature and the rest of nature. We, the people have an

inalienable right, not just to life, liberty, and the pursuit of happiness, we have an inalienable right to clean water, clean air, and a stable atmosphere for ourselves and for all people in the years, and decades, and centuries to come. Thank you. [Applause]