

The Great Simplification

Nate Hagens (00:00:02):

You're listening to The Great Simplification with Nate Hagens, that's me. On this show, we try to explore and simplify what's happening with energy, the economy, the environment, and our society. Together with scientists, experts, and leaders, this show is about understanding the bird's-eye view of how everything fits together, where we go from here, and what we can do about it as a society and as individuals.

(00:00:33):

Joining me today is Kim Stanley Robinson, a very well-known science-fiction author. I've long thought that we need to better communicate science to the general public, but in a way that uses art and literature to be able to change the mental landscapes of an individual human mind. Stan has been publishing science-fiction novels for almost 40 years now. He's a leading figure in climate-fiction writing. Stan incorporates strong influences of ecological, cultural, and political themes, and features scientists as the heroes in his work. Many of you have heard or read his most recent novel, Ministry for the Future, which has been highly praised for the illumination of possible near-term climate impacts, and how imagining such an issue might change our responses to what we face.

(00:01:33):

How can we incorporate fiction into our set of tools to bring more people into awareness of the pressing system dynamics that underpin global human events? This was a very interesting conversation. I hope you enjoy it. Please welcome Kim Stanley Robinson. Hello, Stan.

Kim Stanley Robinson (00:02:07):

Hey there, Nate.

Nate Hagens (00:02:08):

Great to see you.

Kim Stanley Robinson (00:02:09):

Yes, good to see you, too.

Nate Hagens (00:02:11):

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So let's dive right into it. I've long known of your name because I've read some of your books long ago, but you've been thrust into a broader spotlight because of our cultural awareness of climate change and your recent very popular book, *Ministry for the Future*, which took a view in the future of accelerating climate damage to society. You've long been an environmentalist. How did you decide that fiction writing was the way that you wanted to get involved and contribute to these issues?

Kim Stanley Robinson (00:02:50):

Well, for me, the fiction writing came first. So the environmentalism came later. I was a reader as a kid. I grew up in a suburbia in Southern California. I was a beach kid. I did love the beach with all my heart, but I didn't think of it as anything but getting out of suburbia into something more fun. And then I was an English major. I loved all literature, but the novel takes precedence in my reading life and in the world at large these days when it comes to literature, maybe not compared to screenplays. Anyway, I got into science fiction because it seemed like the best way of conveying the way my reality felt, which was Southern California turning from orange groves into city extremely rapidly. And so science fiction struck a chord with me, and I wrote it.

(00:03:48):

That's my start. And then I started going to the Sierra Nevada when I was a undergraduate in college. And that mountain consciousness was pretty all encompassing. It reoriented my lowland life to be always thinking about the mountains, my love of the mountains. What did that mean? What were the threats involved? And I began to notice that California in general as what you could seriously call a terraformed space. The waters distributed by unnatural means, it's a irrigated landscape, it's now urban, but also ag. It made me pay attention.

(00:04:33):

And then by that time, the environmental movement was really an active thing in the world, pointing out the dangers that even preceded our awareness of climate change. And then climate change was just the... How can you say it? The exponential growth of an environmental consciousness. And it began to invade my science fiction. Anytime I set a story in the next hundred years or two, or almost anywhere, the climate and the environment were prominent players in the story. So that's how it came about for me.

Nate Hagens (00:05:12):

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And what's been your experience? Have you found your works, your books to be effective in educating or swaying people?

Kim Stanley Robinson (00:05:22):

No, not until *The Ministry for the Future*. I can say that my books were considered, "Oh, well, that's Stan. He's our Boy Scout, he's our out in nature guy." Science-fiction community likes to be ecumenical and welcoming to all kinds of viewpoints. And in the great world of the science-fiction community, it's a melting pot where no matter what your politics or your interests, you can be taken in with open arms. So that was the attitude towards me, and in the larger world, I had my readers. And truthfully, I mean to be more serious about it, as time passed, it became obvious that I was a leading proponent of climate fiction, which was near-future science fiction, paying attention to the overdetermining reality of climate change.

(00:06:21):

So in other words, all near-future science fiction had to turn into climate fiction to be at all realistic or relevant. And so it wasn't just *The Ministry for the Future* itself from zero to 60, but in a growing sense of where I was in the cultural conversation. And *New York 2140* was a big step in that way with its sea-level rise and its climate finance. *Ministry* still nevertheless has joined the... or how can I say it? It's blown up my life, but it's joined the world conversation in a way that none of my books ever had before.

Nate Hagens (00:07:04):

So I wonder if you had written that exact-same book 20 years ago, if it would've been equally well-written, if it would've been far less well-received, just because the public awareness of climate still wasn't the way it is now. Where we have events and things that people recognize are out of the normal.

Kim Stanley Robinson (00:07:25):

I think that's almost certainly true, yes. And we have a small thought experiment that shows how true it is. I published *Forty Signs of Rain* in I think 2004, and I want to say that *Forty Signs of Rain* is not as good a novel as *Ministry for the Future*. It's confined to Washington, D.C., to the National Science Foundation. It's an attempt to go local, but because the local was Washington, D.C. that was its supposed international

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aspect, capital of the world and all that. But National Science Foundation is not a powerful agency. It was a bit of a joke on my part. I struggled to convey Washington, D.C. and the federal bureaucracy in a novel, and my struggles were, I think, evident on the page.

(00:08:16):

But it was also 2004, and this was just an odd thing to be interested in then. And I must say Al Gore's, *An Inconvenient Truth* came out almost the same week as my novel, and it did have an impact. So that was partly Al Gore, partly movie, partly a better demonstration of the severity of the problem than my novel. Nevertheless, if the book I'd put out then had been *Ministry*, it wouldn't have gotten the same attention that it got in 2020.

Nate Hagens (00:08:46):

Just a brief personal question, did you win writing awards in your high-school English classes? And were you always going home and writing short stories and stuff, or is this something that evolved into a passion and skill over time?

Kim Stanley Robinson (00:09:02):

In high school I loved Shakespeare, and poetry, and detective novels. And there weren't any prizes to be had except for one, my English teacher, Mrs. Catherine Lee, a sweetheart, a complete Anglophile. An elderly woman who seemed of a previous age to us, because I'm talking the late '60s here, and she probably had her looks and her mind formed in the 1930s. So she's probably was quite a bit younger than I am now, but we considered her to be ancient. But she was lovely. She paid attention. She liked it that I liked literature. We were like the two literature lovers in the entirety of Orange County as far as we could tell. And so she was fond of me.

Nate Hagens (00:09:49):

It's amazing how high-school memories like that are imprinted on our amygdala. My high-school English teacher, Rita Mack, I specifically can see the pen writing, "Blah, boring." in red ink on some of my papers.

Kim Stanley Robinson (00:10:07):

Yeah, yeah, yeah.

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Nate Hagens (00:10:08):

So more broadly with writing, and fiction, et cetera, how important do you think art is broadly speaking versus science in our current kind of poly-crisis situation?

Kim Stanley Robinson (00:10:23):

It's a good question and a hard one. And I'm not good at answering it because I'm inside my own bubble looking out into the world from a particular perspective. I'd say it's the sciences that are making all the stuff that keep us alive, and telling us how the world works, and this is a science-dominated world or science-created world. But then science at its straightest, where it's really being honest with itself and with everything else... And notice I'm personifying it... is modest in this way. It says, "We're learning about the world. We're creating some power over the world. We're not going to tell you what to do with it, that's the job of everybody else." And so they give over.

(00:11:14):

Many scientists will just say, "Look, this is society's job, or this is the work for philosophy." And so there, the arts and humanities come in, "What do we do with our new powers? How do we get along with each other?" These are not scientific questions, these are humanities questions. And so the arts can come in to tell the story and to create a sense of meaning. And so that is important. It's vaguer, and it's also like a giant echo chamber that we're all inside where everybody's yammering all at once. So in other words, it's quite incoherent, but it is important.

Nate Hagens (00:11:58):

Well, I would argue that art is more important, but it has to be informed by the correct system science. And a lot of our, like you said, everyone is yammering in the same chamber. A core message in Ministry of the Future is that civilization has to trust in science. But I wonder what version of science, because economic, which in my opinion is not a science, is overlaid on top of climate science and gives, in my opinion, quite inappropriate roadmaps of the future. And in fact, there are no integrated-assessment models that show a decline in growth from today to the year 2100. What do you think of that?

Kim Stanley Robinson (00:12:42):

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Well, I'm with you on that. I think economics is a quantified ethics or a power politics disguised as a science. So it's an instrument of power to run some numbers and say, "We'll do this because of these reasons, because it makes economic sense." I would divide it, it is a social science and it uses scientific tools. It could be more useful than it is. If you think of it as being something like geometry where there are theorems, but the theorems are decided based on axioms. Then economics needs to go back to the axioms. What are we doing it for? If it's for human welfare and also the welfare of the rest of the biosphere over the long haul, then those axioms would drive the economic calculations, and we would get different rubrics than profit, or shareholder value, which are ridiculous rubrics. Or gross domestic product, ridiculous.

(00:13:43):

And even this word you used, growth, when it's used in economics, its meanings are peculiar, and various, and unhelpful. We need the poorest people on the planet to live at adequacy, so that's some kind of growth. We don't need the richest people on the planet to get richer, which they have consistently since the 1980s, but especially during the pandemic. Where something like 70% of the quantitative-easing value created in the pandemic to keep the economy going was captured by the top 2% of wealthy people. I mean-

Nate Hagens (00:14:20):

Well, not only that. I often ask, "What is the carbon footprint of quantitative easing?" Something that people don't ask, that question.

Kim Stanley Robinson (00:14:29):

True. Well, this is an economics question that gets de-linked from physical-systems questions like you ask. And so economics is ridiculous in that sense also. It's not rating biosphere impacts. Those used to be negative externalities, they weren't even included at all. Now they're attempting to include them. But things like the discount rate, or the various wiggles that currently enacted, which is to say legal and powerful economic systems, they are still very poorly aligned to people and planet. So it is something that I talk about. And in fact, the discussion of it in Ministry for the Future is one of the reasons that the book has struck people's imagination. That economics could be changed, that it could be aimed better, that it could be recalibrated. And that it could be something like the carbon coin, which I would say is a kind of a symbol for power

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and money being redirected to the public good and to biosphere health. Well, people were encouraged by that. They were interested. They were thinking, "Oh, it's possible to change."

Nate Hagens (00:15:42):

That was one of my few criticisms, or not criticisms, but points of interest in Ministry. That you wrote about a pro-social, pro-environmental behavior that sequesters carbon would be rewarded with a carbon coin. But I wondered, in such a society, if you do things and you're rewarded with a carbon coin, then don't you in turn just go and spend it on other things that create or contain indirect carbon?

Kim Stanley Robinson (00:16:13):

Yes, I think that's valid, and it is a problem. I've been thinking about this since you've communicated with me before this and pondering it. And I guess I would say the book is a little cautious in that it tries to propose methods we could use right now that are not completely shocking. That they're legal, you could imagine them getting passed by central banks and legislatures. And so it's Keynesian. And so it's really that Keynesianism is not radical, nor is it particularly biosphere friendly. It is a standard economic system where the government actually stimulates the economy in times of distress, like a depression. And that stimulus is indeed what you're talking about. More carbon ultimately will be burned. If carbon burning is fundamental to the system working, then by keeping it healthy, you're burning more carbon, yes.

(00:17:22):

But the carbon coin, if it's adjusted right, then you bring down a ton of CO₂ from the atmosphere, hopefully the creation of the... What can I say? The needs and the wants, the necessities and the toys will be more clean-energy created than they were before. So the decarbonization effort would extend to decarbonizing our energy systems, our transport systems, all of those would receive carbon coins. And slowly but surely, even though you might have a quite active and productive society, and civilization, and economic system, it at least would be decarbonized. It wouldn't solve the other problems, and because there's no single solution here. And indeed my novel talks a lot about biosphere corridors, wildlife corridors.

(00:18:16):

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What now is being called the 30-by-30 plans, they weren't even quite being discussed when I wrote the book in 2019, and yet now they're the law of the land because of this Montreal treaty and because of the ocean treaty. Well, this is astonishing, rapid progress on that front. And that's different than economics, that's land use. It has an economic aspect to it, but again, it's part of a... It's not exactly decarbonization, except it does draw down carbon if you leave wild land alone. But it's more having to do with biosphere health than having the wild animals not go extinct. So it is a big project.

Nate Hagens (00:18:54):

So let me extend that a little bit. I would argue that decarbonization, the way it's being promoted now is going to lead to a rematerialization, especially in the global south. And negative impacts on global ecologies in the countries where there's going to be massive copper, and lithium, and cobalt mining, et cetera. So I wonder if you extend the metaphor of the carbon coin in your book to be an ecology coin. Things that are not only optimized for climate, but that are optimized for biosphere health writ large, much wider boundary. I mean and part of the problem here is we're trying to optimize so many variables at once. But what do you think about that, to extend it to a broader ecology coin?

Kim Stanley Robinson (00:19:52):

Well, I've certainly heard about this since my book came out in ways that are super interesting. There are people who are studying the fact that you can tell what's alive in a biome, in a watershed by taking a water sample out of its streams and testing for DNA. And those tests have gotten so good and fine-tuned that you can tell everything that is alive in that watershed. And then you give credit for it.

Nate Hagens (00:20:23):

Wait, you can just do a DNA test and it shows the species that live in that watershed?

Kim Stanley Robinson (00:20:28):

Yes, this is-

Nate Hagens (00:20:28):

I didn't know that.

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Kim Stanley Robinson (00:20:29):

Well, it's the ETH, the Swiss Federal Institute of Technology is doing some work on this. And I can put you in contact with the people who are both studying that, and also, could that be turned into a form of credit for the people living in that watershed? So this would be what you were describing, a kind of biosphere coin that you would get remunerated or you would get... Instead of destroying your watershed, extracting things, and selling it for profit in the old economy, you would begin to be able to make your living by taking care of your watershed and keeping a whole lot of creatures alive in it. Which you can prove they're alive by this water test of the DNA. Well, it's new and interesting.

Nate Hagens (00:21:12):

I'm totally in favor long-term of something like that. And all these discussions, I think there's two questions. Where do we want to go, and what's sustainable, and how do we get there from here? And those are two different questions. But if we could have people making a living by doing things that are healthy for the ecology, isn't that a much better use of a Keynesian stimulus than just supporting people to buy flat-screen TVs, and take junket trips, or whatever it is? Just the consumption as usual. That's the cultural shift that I think could happen, would be a fantasy to happen, but I'm hopeful for in coming decades.

Kim Stanley Robinson (00:21:55):

Seems to me that what you're talking about is also... that it's not economic, but is more experiential, or philosophical, or even a religious sensibility. In other words, what's life for? And many of us, and the way that you live your life - to a certain extent, the way I live my life, although I'm a very conventional suburban guy still. But it's more interesting to do things than it is to watch things being done. And this of course is a stab to the heart of our current cultural imaginary of social media and watching things on screens. A whole generational problem of your smartphone, your laptop screen, your big wall TV, watching things. And that other people do them and you watch them, this is so sapping of human spirit, it's so passive and observational. It's like a half-life, it's like a Philip K. Dick half-life.

(00:22:59):

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And many people live it, because they haven't figured out that even just taking a walk down the lane to the local store would be more interesting than what they were doing. Or throwing pebbles at a bottle on top of a fence top would be more interesting than these incredibly complicated computer games being played on a flat screen. The third dimension, bodily life in the real world, this is all more interesting than our artificial, created advertising culture. So when people will get that, how people will get that, whether that becomes a general sensibility, I don't know. To me, it's as obvious as walking outdoors. To other people, obviously not so much. So I don't know exactly how to make that turn. One thing I'll say is that my books are always about people doing stuff outdoors in the world, and maybe that's why my Washington, D.C. novel was such a trial for me and for its readers. There were too many meetings in offices.

Nate Hagens (00:23:58):

Didn't you write one of your recent books fully while you were outside? I think I heard that somewhere.

Kim Stanley Robinson (00:24:05):

Oh, that's true for my last book since I finished that D.C. trilogy, starting with Galileo's Dream, or even the last book of my D.C. trilogy. But for sure, Galileo's Dream and every book since. So that's about seven or eight books now I've written entirely outdoors. Now I'm in California, and in the winter I bundle up, in the summer I put a mister on. It can be cold, it can be hot. I have a tarp overhead, so the rain just falls around me when there is rain, and I work outdoors no matter what. Very stubbornly, because it turned my writing into a little outdoor adventure and it saved my brain. I was a burned-out case at that point, and now I'm very energized.

Nate Hagens (00:24:46):

That's awesome. So you're a very busy person, Stan. This podcast has been scheduled for four months. After we hang up later, are you going to go outside and write? Are you writing a novel now?

Kim Stanley Robinson (00:25:02):

I'm not writing a novel now, and I'm antsy and feeling unhappy about it. But The Ministry for the Future has eaten my life, and I'm currently like the cardboard cutout

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of the minister. I mean, I do a lot of events like this, and it's okay. I'm going to write a nonfiction book about Antarctica, so I'm quite excited about that, and-

Nate Hagens (00:25:25):

Have you been there?

Kim Stanley Robinson (00:25:26):

I have, I've been twice. So the first time was in 1995, and then I went again in 2016. I loved it. It was a big adventure. A little strand of memoir will be in this book, just like in my Sierra book where it was a big strand. But in my Sierra book, I've been going to the Sierras for 50 years, Antarctica I've only gone twice, so that strand will be small. But there'll be history, geology, and a little bit more about this future plan of slowing the glaciers down so that we save sea level.

Nate Hagens (00:26:00):

So in Ministry, you incorporate chapters from mostly unspecified, non-human, non-living perspectives. Why did you decide to incorporate these different perspectives, and what was your thought process while writing them and trying to get into the mindset of these creatures or entities?

Kim Stanley Robinson (00:26:21):

Well, thank you for that. I really enjoyed doing Ministry as a kind of a miscellany. An anthology of different styles, and genres, and modes, and character types. So this is actor-network theory out of Bruno Latour, that our lives include very important contributions by creatures that aren't human. The animals in your life, the microbiota inside your gut, these are actors in your mentation and your life. And to write about that is a thing that literature ought to be doing, that it hasn't done enough of because it's somewhat of a new perception. So I was thoroughly enjoying that.

(00:27:05):

And Anglo-Saxon literature can fit into one thick volume, all that we have left of it, and about a third of that volume is riddles. So I enjoyed having riddles of, "Oh, well, I am the thing that is always in control, but I never do anything." And so these riddle modes were fun for me. I also very much enjoyed the eyewitness account, which I began to understand is a new genre of its own that is not like fiction proper. The

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eyewitness account, you're usually being interviewed, it's like 10 years later. You don't dramatize the scene, you go really fast and you judge what happened. What it meant to you and your life, what it meant to the world. So the eyewitness account is interesting, and there are bundles of them.

(00:27:51):

There are books of all the things that women saw on their way on the Oregon Trail, or all of the things that happened in Germany in April of 1945, or the French Revolution, et cetera, et cetera. It's a mode of history. And when I realized I could do that for my future in Ministry, it freed me up. And so it's not just a photon, or a carbon atom, or the Sun that I have speaking in the first person. It's also individual humans that you never learn their name, they never come back again, but they tell you something interesting that they saw and did. And that for me was the key that turned the lock. I was happy.

Nate Hagens (00:28:32):

So Stan, I recently did a podcast with climate-modeling expert, Erica Thompson. Where we discussed the idea that models in general can go way beyond computer programmings, including the form of novels. So do you feel like the books that you write are a sort of mental model of the potential futures that you see that allow a human, even if they don't know the science or haven't taken a science course, it helps them construct a mental model?

Kim Stanley Robinson (00:29:08):

Yes, absolutely. I often compare it to modeling exercises, but then what you would want is to take the whole spread of science-fiction stories and say each one is one, run through from the initial conditions to a different outcome like in any modeling exercise. Scenarios, it's good to compare them to scenario building. And the thing I would say that the novel brings to it that the others don't have, and there are things the others have that novels don't. But what novels bring, some people call thick texture. And I think it's also just a time involvement and a generous giving of time on the part of the reader, who has to imagine those sentences on the page into some kind of internal lived experience. That takes effort, that takes hours. And when you're done, you feel like you've lived it. If the novel has worked well, you feel like you've been there, done that. It's a time travel, it's telepathy, it's quite a magical thing, but it's all

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in the reader's head. And so it's a modeling exercise with some heft to it, because you've been there for a while and you've lived it.

Nate Hagens (00:30:21):

So you've often spoken about narratives, especially speculative fiction as a powerful tool to envision positive change in the world. However, and despite its transformative intentions, a lot of cli-fi, climate fiction so far has been dystopian. And there has been science showing that dystopia tends to reinforce the resignation to negative events, climate, catastrophe, et cetera. What are your thoughts on that?

Kim Stanley Robinson (00:30:58):

I think that's right, and I think it's a really serious problem. I have become anti-dystopian. As a utopian science-fiction writer, I've always had to acknowledge that these are two sides of a coin. Utopia, dystopia, things could get better, things could get worse, it's dialectical. They both have their value in imagining. They're like the modeling exercises we just talked about, and you'd need negative models to convince you, "Don't go that way." So dystopia has always had its uses, and famously, 1984 is a classic case of people saying they didn't want to go to the land of Big Brother and false information, which maybe we've ended up at anyway. But back to dystopias, they are now a kind of a comfort food. People read them or watch them on TV in order to feel superior. Like, "Well, things may be bad for me, but at least they're not that bad."

Nate Hagens (00:31:56):

Oh.

Kim Stanley Robinson (00:31:56):

And so you come away from them comforted.

Nate Hagens (00:31:59):

Is that why the evening news at 6:00 PM, they always lead with all these bad things happening in the world? And my mom is obsessed with watching the 6:00 news, and it's all terrible?

Kim Stanley Robinson (00:32:08):

Yeah.

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Nate Hagens (00:32:09):

Because people... it makes them feel better about their current situation?

Kim Stanley Robinson (00:32:13):

Yes, I worry about that, but also if it bleeds, it leads. When it's TV news, you need something that you can look at. So it can't be facts, it can't be a report, it has to be visual, and you have to have been able to capture it at that moment. So it's always the aftermath of a crime, red lights, police tape, and a reporter outside going, "Oh, how horrible. Look how horrible this is." And it's simply a desire for visible drama, something that they can get on tape within the day of when it happened, or else it isn't news. So they're struck by a structural problem of you can't get visible evidence of the important things that happened that day. So they're stuck with trivia.

Nate Hagens (00:32:56):

So the nexus of art and science on environmental catastrophe and risk to the future is a really fine line, isn't it? Because we have to create mental models in people's minds about the science of what is possible, but not so dystopian that they just check out. There's got to be avenues for personal and cultural response.

Kim Stanley Robinson (00:33:22):

I think it's like what you say, and I call it a tightrope walk. You have to convince people to walk the tightrope with you of not falling off on either side. If you point out the danger that we're in, which is severe and existential. Breaking planetary boundaries, causing a runaway-hothouse Earth, this is a mass-extinction event. This is as bad as it could get. So on the other hand, the powers of people, of society, of science, in theory, if we got our act together, a kind of a golden age. Certainly we have the tools and capacities to solve these problems and get into a good space.

(00:34:08):

And so that's the other side of the tightrope falling off, is to say, "Oh, well, it's going to be okay." What gets called cruel optimism, where you just shrug and say, "Look, the experts will take care of this. I'm living my life. I don't need to worry about this." And indeed, you don't need to worry either way. If the world is going to hell in a handbasket, then there's nothing you can do about it. If the world is headed towards utopia, then you don't need to do anything about it. So the tightrope walk is very

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narrow. It really is a tightrope that you have to stay balanced on it and say, "The situation is dangerous. There are things we can do and must do." And that's the line you have to hold to.

Nate Hagens (00:34:49):

In your book *Ministry for the Future*, one of the beginning premises was that millions of people in the subcontinent of India died because of higher wet bulb, a combination of temperature and humidity. How much of that wet-bulb-India framing was science fiction, and how much of it is what you, Kim Stanley Robinson actually believe about the future?

Kim Stanley Robinson (00:35:15):

Well, I'm terrified that it could happen. That is one of the main reasons I wrote *Ministry for the Future*, was reading about the wet-bulb-35 limit of human endurance, which I read about in about 2017. And it wasn't that it was a new fact, it was that the scientific and medical communities had combined. People in the climate community had been saying temperatures could get this high, and people in the medical community were pointing out that would kill a person if you weren't in air conditioning. Because we need to sweat off excess heat as bodily creatures, and that works in dry heat. In wet heat, it works far less well, and at wet-bulb 35, which is, as you said, an index of heat and humidity in combination, then you die within several hours. Whether or not you are in the shade or not, whether you have a fan on you or not, because sweating stops working at wet-bulb 35 in a way that you overheat internally. And hyperthermia will kill you just as fast as hypothermia.

(00:36:17):

This was news to me, and when I read it, I thought, "The idea that humans could adapt to anything is a false one." And this was a thought that was out there in the culture that, "Oh, humans are so adaptable, we'll just adapt to higher temperatures. Why are people so worried?" This is the view of what was called for a while, the ecomodernists. That essentially, "We're adaptable, we can solve any problems. Quit worrying so much about the carbon burn, and a global average-temperature rise of four degrees Celsius, big deal." Well, that turned out to be wrong. That's flatly wrong. And they don't say that anymore, and that's partly because of *Ministry for the Future*. I just put it out there that the real news is that will kill us, and vast swaths of the

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world, including the American Southeast and the Midwest. I know where you live, that one of the hottest wet-bulb temperatures ever recorded was right outside Chicago in the early 1990s. And it was one of those flukes that happened. But it goes to show that anywhere where you get-

Nate Hagens (00:37:24):

Because it was so humid?

Kim Stanley Robinson (00:37:26):

Yeah, it was humid heat. It was like wet-bulb 32 or even wet-bulb 34 for a couple hours. And well, a functioning electricity system will allow you to get shelter in air conditioning. You can save your life. But when the grid goes down and you don't have air conditioning, then you'd be doomed. And that's why I put it in India. That's a place that's going to be very susceptible to these temperatures. It's got a weaker power grid that fails often. And that combination was what I wanted to indicate could be deadly soon. And so this is a real fear that I think a lot of people have if they're paying attention. It's - we are having heat waves. People are dying in them.

(00:38:15):

I was in a wet-bulb 31 in India last April, and I was interested because of having written my book. Maybe interest is too weak of a word, I was highly apprehensive. And it turned out it was no worse than a day in Washington, D.C. Washington, D.C. during a hot summer's day, steamy heat, it will cook you up quickly. And this day was no worse than that because it wasn't wet-bulb 35, but we could get to that soon. So this is a case of starting with dystopia, of starting a novel with something happening so horrible that it gets the world's attention. What I'm hoping is that since we know it can happen, we'll act before we have the disaster.

Nate Hagens (00:39:03):

Yeah, I have a lot of thoughts on that, but that would be a whole other podcast. Because I think there's a systems challenge that we have, and climate is but one of the risks that we face. And it's downstream of our culture, optimizing for profits, tethered to energy, tethered to carbon. And so I personally don't think we will see 4C unless something radical happens, but I think 2C is pretty baked in the cake, and that's

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going to be bad enough. But we're going to have many other dystopian aspects to our future than just climate.

(00:39:43):

So let me ask you a hard question maybe, which I'm really interested to see how you'll respond. Is science fiction, not just your writing, but science fiction writ large, inherently techno optimistic? Colonizing space and these things to me seem energy and ecology blind from a biophysical perspective. So I suppose books about an Earth-Trek future where humans are using 80% less material throughput, and it's a tougher material existence, but perhaps greater spiritual pursuits. That sort of book wouldn't actually be in the sci-fi genre, it would be in something else. But do you have any thoughts on that?

Kim Stanley Robinson (00:40:31):

No, that would be a science fiction story, and it's a good one. I'm going to make a simple cut and say, science fiction is any story you set in the future. So UN demographers, stock forecasters, everybody that pitches their story into the future and says, "This is going to happen." They don't know that, the future is unknowable. So they're doing a science-fiction story, often it's disguised as nonfiction, or as futurology, or business prediction. It's often a scam, because anybody who claims to know what the future is bringing is making a false claim. So you have to be suspicious of it. And one thing science fiction does, it says, "Look, this is a fiction. I'm making this up, but it's interesting anyway." And so if you put a story out like yours, this is a good... It's a form of utopian science fiction. Things could be better for these reasons, and that's the kind of science fiction I write all the time.

(00:41:30):

I would agree with you, the dream of space, I've written about this often. And I talk about the solar system as our planetary neighborhood, and actually amenable to human visitation in person. Which would be more or less interesting, depending. Not that interesting, like going to Antarctica. Useful, interesting, but not transformative. The dream of going to the stars is a fantasy, a false dream, it's impossible. I wrote about this in *Aurora*, made myself very unpopular with the people who write space fiction. Because I said, "Look, it's a great story space like Middle-earth is a great story space, but it's not real. We're not going there. It's too far away. Humans co-evolve with Earth. We are stuck with Earth. That is not a bad thing, that is just part of being part

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of a planet. Well, planetary consciousness is very important. And you no more should complain about that than you would complain that you don't live on the inside of the Sun, or you're not an angel, or you're not an ant or something. You're a human on Planet Earth and you're a planetary creature."

(00:42:36):

There's an interesting side case to be made that Mars, if we were to be in a good balance with Earth biosphere and a stable civilization, Mars could become an interesting scientific station, blah, blah. That's a separate and side issue, a kind of a random case. You can't say the same thing about Venus, for instance, or the surface of Jupiter. But Mars, you could land on it, you could live on it. You could set up a little space station there, big deal.

Nate Hagens (00:43:03):

A few people could live on it.

Kim Stanley Robinson (00:43:05):

A few people, like Antarctica today. The best analogy for Mars is Antarctica, which we're there, and nobody cares.

Nate Hagens (00:43:15):

And to me it's very smart and famous people, Stephen Hawking, Elon Musk among them say, "We're screwing up Earth. Climate is going to be bad. We need to colonize outer space and head to Mars." And that makes just zero sense to me, because on the worst thermonuclear runaway-climate scenario, Earth is still going to be a paradise next to Mars. I mean-

Kim Stanley Robinson (00:43:43):

I agree with you completely. That is a case that has to be made. And the thing about people like Hawkings, the thing about people like Elon Musk is they're smart, they aren't that smart. They aren't wise, they aren't philosophers, and they're not ecologists. Very often physicists will assume that ecology is just physics in action, and that they've got it all sussed out because they know the rules of physics and they can do rocketry. But you can't do plant biology just knowing rocketry. It's more complex, it's more interconnected, it's a more-complex science. And many physicists will arrogantly say

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that, "Because I know the laws of physics, I know everything." But they don't know how a marsh works. They haven't studied biology enough to understand their own ignorance. So how smart are you if you don't know how ignorant you are?

Nate Hagens (00:44:36):

Homo sapiens, we have not yet lived up to our moniker. I think we've been more clever man than wise man, or let's hope-

Kim Stanley Robinson (00:44:46):

Yeah, Homo faber. Homo faber, humans, the makers, that's to me the best name. We do make things and it's a real skill.

Nate Hagens (00:45:00):

In your writing, you've often advocated for a rewilding of Earth. I assume you're aware of E.O. Wilson's notion of Half-Earth as one of the key solutions to the future. Is this possible? Are there any signs that we could eventually do this in coming decades?

Kim Stanley Robinson (00:45:23):

Yes, I think there is. I love E.O. Wilson and his Biophilia. He's a very important public intellectual and philosopher, recently deceased, but I honor his memory. And he will be remembered like Ben Franklin or William James as an important American thinker. And Half-Earth was crucial when it came out, but I thought it was quite utopian. And now we already have 30 by 30. All the nations on Earth have agreed to keep 30% of their lands wild by the year 2030. China forced that deal through, which is super interesting. And now we have the same thing for the oceans just completed after 10 years of negotiation. These are super-hopeful signs that are under reported in the news because people don't get it. Because they are indeed living inside their social media and their laptops.

(00:46:13):

So if you spent time outdoors, you would realize that if 30% of the Earth's surface was left to the wild creatures and they became healthy by that. And I'm told by the woman who runs the 30-by-30 program in California, which is a formal state program, that were at 24% and that everybody in that pursuit talks about 30 by 30, then 50 by 50, which would be the Half-Earth project by the year 2050. And yes, humans can indeed

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do their agriculture and compress into the cities, which young people want to anyway, you wouldn't have to force the issue. Organize our management of the landscapes in ways that don't mean pure wilderness like, "Humans never get to go here." That would be unusual in the extreme, but land use that opens up the land to the wild animals, and they get to live their lives unencumbered by us.

(00:47:08):

And then we live on the other 50% in ways that are intelligently managed in biosphere sense so we're helping also, even on the land that we're on. Well, this is the plan. It's maybe the most important part of the plan going forward, although you want to have a way to pay for it, et cetera.

Nate Hagens (00:47:31):

I hope that can happen. Even if it were to happen, though, it really isn't 30 or 50, because the 30 or 50 assumes that everything else in the biosphere is constant. And we know that the climate and other biogeochemical feedbacks are going to accelerate. So that 30% of ecosystem is what it supports today. 20, 30 years from now, climate will have an impact on it, obviously.

Kim Stanley Robinson (00:48:00):

Yeah, it's true. I think you're just pointing out realities here that everybody ought to know. For that reason, there were some wildlife ecologists and conservation biologists talking about making sure these corridors that we establish for the wild creatures have room for them to migrate northward in the Northern Hemisphere to get away from the heat. And you mentioned the inevitability almost of us creating a two-degree-Celsius rise in average temperature. That's looking very, very likely, as you know, that's why you said it. So I'm saying that means we're going to have to suck down a lot of CO₂ out of the atmosphere. That's going to be a project. Regenerative agriculture, reforestation, and even mechanical vacuum cleaners sucking it out of the air. Everything is going to have to be applied to get us back down to a, I don't know, 350 parts per million. It makes sense. I mean, there's a reason Bill McKibben chose it as the name of his organization. We could do it if we don't have a runaway that blows out our abilities to do it.

Nate Hagens (00:49:09):

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Well, we could do it. Stan, I don't think you've watched much of my material because you're so busy, and we just recently met. But one of my recent framings is, I call it Mordor or The Great Simplification. The Great Simplification is when we can no longer kick the can financially, and the amount of financial claims we've created crash down in a snapping rubber band to our biophysical reality, which means a smaller economy and smaller emissions going forward. On the other hand, if we are able to do more carbon-finance trickery and quantitative easing number nine or whatever will continue to grow the gross amount of energy that the world uses, which results in GDP.

(00:50:01):

But the net amount of energy that goes to hospitals, and science-fiction books, and Disneyland, and shopping centers, that is going to be more and more directed towards the energy-and-mining sector itself. They're going to need to use more to get the lower-quality resources, and the mechanical vacuum cleaners, and things like that that take care of our environmental waste. And so a much larger percentage of GDP will go to energy-and-environmental remediation. So in that scenario, the rest of the economy gets priced out a little bit. And so if we're going to get down to 350, if that were to be a cultural objective, which I am skeptical on, we would have to give up a lot of other things in order to make that the primary focus. Yes?

Kim Stanley Robinson (00:50:57):

Maybe. I take your point. It makes sense. I am interested in the people who are talking about things like regenerative agriculture that we could both grow our food and capture more carbon in the soil that we grow our food in. So we have more biosphere health, as much food, and more CO₂ sucked out of the atmosphere all at once. I'm always looking to these multiple goods where we need food, but we also need less CO₂ in the atmosphere, if we can do both at once, which is a technique. And agriculture is a science and a technique that people spend a whole lot of time studying. That right now in the fields of America, especially corn and soy, the carbon in the soil by weight is down to about 1%. And it could be that with some changes to agricultural methods, we could begin to draw it down. And it tops out pretty quickly. You can't get more than three or 4% of carbon by weight in the soil before you have topped out that soil. It's not an infinite bank, but it's so much soil, that we-

Nate Hagens (00:52:17):

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So just hypothetically, if we went from 1% carbon by weight in the soil to 3% globally, just hypothetically, what would that do to drawing down the carbon, roughly? Do you have any idea?

Kim Stanley Robinson (00:52:31):

Well, it's incredible, and yet it's apparently true that that's as much carbon as we've burned out into the atmosphere since the industrial revolution began.

Nate Hagens (00:52:43):

Really?

Kim Stanley Robinson (00:52:44):

So yes, it's an enormous sink. Now, I mean, I'm told this by people who are studying it. I am still a science-fiction writer, I'm a reporter, but I'm telling you there are people who say this.

Nate Hagens (00:52:57):

Well, I'm actually a lot more sanguine about regenerative agriculture than the mechanized vacuum cleaners.

Kim Stanley Robinson (00:53:06):

Yes, yes.

Nate Hagens (00:53:06):

So if you have any world expert on regenerative agriculture you could introduce me to, and I can take a deep dive on that publicly on a podcast, I would welcome that. What are your thoughts on-

Kim Stanley Robinson (00:53:20):

I can do that.

Nate Hagens (00:53:20):

Okay.

Kim Stanley Robinson (00:53:20):

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I've just run into those people. I am going to write that down.

Nate Hagens (00:53:23):

Okay, awesome. Thank you. What are your thoughts on geoengineering? Will we eventually be faced with the obvious, "Oh my God, look at what's happening with climate." and we'll have to try it? Are you morally against it? Are you hopeful of some of the science there, or what do you think?

Kim Stanley Robinson (00:53:43):

I think it might be a break-glass-in-case-of-emergency-type operation. I am not morally against it. We've already geoengineered this Earth to within an inch of its life, that's called climate change and biosphere collapse. Civilization has been geoengineering all along, right to the beginning of burning down Australia when humans first arrived there, et cetera. So it's an old practice. Now, if we needed to do it because people were dying all over the tropics because of wet-bulb 35 temperatures happening all the time, then this thing people talk about of casting dust into the atmosphere and imitating a Pinatubo-type volcanic eruption. Dropping worldwide temperatures for a degree or two for five years after which the dust falls back to the ground. I think the real issues there are governance issues. How do we decide to do it? How do we get public buy-in, and it doesn't look like some weird Dr. Strangelovean-type experiment with the Earth itself.

(00:54:48):

We've already been experimenting with the Earth itself in ridiculously bad ways, and a lot of times in ignorance of what we were doing. So this would be being done on purpose in full knowledge of what we were doing. I think we should study it. I think we should discuss the governance of it. There are also more, what can I say, less-alarming versions of geoengineering. For instance, if you slow down the glaciers in Antarctica, you can call that geoengineering, but there are no negative side effects that I know of. And then there are people talking about the whales. That when we killed off 95% of the whales on this planet, we wrecked the ocean's bio-pump, which is also a nice carbon-drawdown mechanism. And since you can't just replace whales, you can replace whale poop, which is a chemical formulation. A kind of living bio-excrement of whales dropped into the ocean, would create the same biospheric conditions that existed

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before we wrecked it. So this would also be geoengineering in a peculiar way and is being discussed.

(00:56:00):

So the topic is huge, and I don't want to go into all of the rabbit holes involved there. But I certainly think that it's something that people should be able to talk about it without a sense of shock and awe, or, "Oh my God, there are some things man was not meant to know." type mentality. I mean, we're far past that. We are in an emergency situation, and certain emergency gestures may become necessary that we don't get a runaway into hothouse Earth, which could happen.

Nate Hagens (00:56:30):

Do you ever get the sense, or just this deja vu weird sense, looking at the news, and looking around the world, that we are living a science-fiction-novel reality that none of you writers could've imagined 20 or 30 years ago. Every day there's just crazy stuff happening left, right, and center. And it's almost like The Twilight Zone. This is a real Twilight Zone meets reality TV, our lives.

Kim Stanley Robinson (00:57:02):

Well, yes. I've been saying this for about 25 years. We are in a science-fiction novel that we are all co-authoring together. And what I mean is the future is crashing us. That there's the great acceleration has accelerated yet again, and everything is happening faster than we can come to grips with. And that's what a science-fiction novel is trying to capture, is that feeling. So for sure. But what you would want, although Twilight Zone was a great show, you would want something more like, I don't know, Ursula K. Le Guin's *The Dispossessed*, which actually is very troubled and filled with revolutions and conflict. So it's not like you're going to dodge revolutions and conflict here, because we are in the midst of it. It's a very melodramatic science-fiction novel that we're caught in the middle of, and we just have to try to write it towards Utopia.

Nate Hagens (00:57:53):

I actually posted on Twitter a month ago that my entire life is filled with nonfiction, and I needed some fiction recommendations. And I had a thousand replies, and Ursula

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K. Le Guin's *Dispossessed* was among the most popular ones. So I just bought it, I have it outside. I've not read it.

Kim Stanley Robinson (00:58:14):

That's good. Oh, you'll enjoy it.

Nate Hagens (00:58:15):

So all those books behind you, are those all science-fiction books?

Kim Stanley Robinson (00:58:20):

No, this is a nonfiction shelf. This is accidental, but I have a full shelf of John Muir and then a full shelf of Californian nonfiction, and the top shelf is Antarctica, I see.

Nate Hagens (00:58:33):

Wow.

Kim Stanley Robinson (00:58:34):

A really long shelf of Antarctica. That might be the 90% of Antarctic literature right there, because it's not a-

Nate Hagens (00:58:41):

So just out of curiosity, how many hours a week do you spend reading?

Kim Stanley Robinson (00:58:47):

Oh, well, a lot. I read nonfiction by day and I treat it instrumentally. I almost strip my nonfiction to get what I need for my fiction. So I read nonfiction all day, but I'm writing also, I reckon it must add up to a couple, three hours of reading per day of nonfiction. And then every night when I go to bed, I read fiction for about a half hour or an hour, depends on how long I can stay awake. But I'm always reading a novel, and when I finish one, I start another one. And I love it. I love reading fiction. Reading nonfiction, I don't love.

Nate Hagens (00:59:27):

I agree.

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Kim Stanley Robinson (00:59:28):

But it's important. It's part of my work.

Nate Hagens (00:59:30):

It's good literary hygiene that you've described. Two hours of nonfiction, a half hour of fiction before bed.

Kim Stanley Robinson (00:59:37):

Yeah. Yeah. Oh, and I must say, read a novel when you go to bed and you'll be absorbed, you'll fall asleep in a different world. You'll live that life. It will be the best part of your day. Or let's put it this way, you'll look forward to it every day, "Oh, good. Now I get to dive into..." Right now I'm reading *The Ragged-Trousered Philanthropists*, a British working-class novel from about 1904. Very funky, very serious, very sad. Very intense working-class life when you were in the precariat. Precarity really means it when you're going to die if you lose your job, and your family, too. And then I'm also reading *Freddy the Pig and the Baseball Team from Mars*, a children's book that I read when I was a child. Obviously it had a big impact on me, since I still play softball and I still write about Mars. And then lighten the load. I usually just read one novel at a time, to tell you the truth. I think that's the best way, you join that world. But in this case, I'm lightening the load of *The Ragged-Trousered Philanthropists*.

Nate Hagens (01:00:41):

Well, lightening the load is part of the recipe to remain sane in these times. Because you and I, in the stories we're trying to share with society, this stuff can get toxic, reading and learning. Like you said a few years ago, you learned about wet-bulb 35. I just learned about that two years ago. And you just add these things, and the human physiology and our genome didn't evolve to handle this much toxic information about our world. So we need antidotes. I have dogs, and I live in a forest, but I also like fiction reading as well.

Kim Stanley Robinson (01:01:24):

Well, I think that... What I read about you before we got on this podcast, that you've figured it out. That you're living on the land, you're paying attention to a particular piece of land. And you've got other animals, companion species that you're taking care of and helping. And they're helping and teaching you things, too, you as an animal. If

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everybody had it figured out to that extent. And even you can live a life in an apartment in Manhattan that includes these things if you've got it figured out in the first place. So it's really a matter of understanding what we are, and then adapting, living your life to accommodate what we really are. Which is animals, and social primates, and all the things that we obviously are. The more you embrace that and live it, rather than sitting on your butt looking at screens all day every day, that will drive you mad. And so we live in a culture that's slightly mad.

Nate Hagens (01:02:27):

I agree. Thank you for that. I'm not sure I have it all figured out, and I do still need to read the equivalent of Freddie the Pig at night. So key question here, climate, and to a lesser extent, biodiversity, and PFAS, and endocrine disruptors, and all these other things are becoming more aware. And teenage humans are coming into learning about the world and learning all this stuff. And I've taught a college course for eight of the last 10 years. In my experience, there's a lot of scary material at the... I don't know how many tens of thousands of climate courses there are in high school and college, but worldwide.

(01:03:15):

And there's scary material, "This is what's happening in the climate. These are the scenarios. This is what's going to happen in the 21st century." But there's too narrow a solution set. Just at the end of the semester it's, "Well, we switch to renewables, you drive an EV, or we end capitalism." But do you think that we're approaching a time when there could be more systemic story and recommendations to young people that involves behavior change from within? Like being happy with social, natural, human capital rather than financial status? What are your thoughts on this? Are we approaching young people with the right message on all these systemic crises?

Kim Stanley Robinson (01:03:59):

I don't know. It's a good question. It speaks to what Raymond Williams called the structure of feeling. That a civilization has a structure of feeling that is cultural, it's not biological, and it changes over time at different historical moments. I think actually of the list that you made, ending capitalism, if young people are being talked to about that, that would be crucial. I don't think they are. They live in capitalist realism where they're going to be told, typically, "Nothing can ever change. This is the system, you

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have to plug into it. The system is unchangeable." And that's not true. The system is changeable and has to change, because biosphere reality is forcing change.

(01:04:44):

So they might be aware that change is coming fast, and it isn't planned, and it's going to be incomprehensible. I see a lot of climate dread, a lot of anxiety, young people. A sense that, "Well, we're doomed already. And no matter what we do, we're just on a downhill slide into chaos and disorder." Which is not an inaccurate assessment of the way things feel, for sure. And you can't change the feeling just by pushing a button or saying some magic words. You actually have to change the political economy that you're in to one that's more life positive. So ending capitalism would be one big... I mean, geez, when you say it, it's just so radical. I would say now, reforming capitalism extremely rapidly to getting to something that is more like cooperatives, that is post-capitalism in its first step, that would be a big step. And we aren't really there, but we're trembling on the brink.

(01:05:40):

I think also there was a world order working in the neoliberal times, say the 1990s, that isn't working anymore. Because it doesn't take into account the biosphere or what we really are as creatures, and yet there's now 8 billion of us. So the old system isn't working. The new system hasn't yet been invented. This is often talked about, the in-between. The interregnum between one system and the other, it feels frightening. Because despite me being a science-fiction writer, what I can say from that is you can't see the future. You can't predict the future. There's too many factors and it's changing too fast.

(01:06:16):

So I mean, there's reason for everybody to feel anxiety and climate dread. But what you can do and say to the young people is, "Solutions are out there. Let's make the solutions happen. Let's work together on the solutions. You'll be one little brick in a giant wall, but the wall is possible. We can build that wall. And you put your brick into place, and you'll be part of that historical wave, that movement, that change." I mean, this generation is tasked with a really heavy task to dodge a mass extinction event that previous generations started mostly by accident. Well, tough assignment. And people will be freaking out the entire time and even fighting against you the entire time. So it couldn't be weirder, harder. And all you can do is try to call out for solidarity, put your shoulder to the wheel, and fight the good fight anyway.

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Nate Hagens (01:07:12):

So do you ever speak to younger audiences? In addition to your activist message that you just described, what sort of advice do you give to teenage humans who are old enough to intellectually understand this stuff, but not yet sucked into the consumptive vortex of modern society? Do you have personal advice to young, teenage, early-20 humans?

Kim Stanley Robinson (01:07:39):

Yes. I talk to all the schools in Davis on a regular basis, because I have teacher friends who ask me to come by, and in Davis, it's easy. And then I talk to college students all over the world in literally the case. And they're young enough that they're forming their ideologies. They're figuring out their ways in life. They're thinking about what they're going to do with their lives, and they're very active and open-minded. That's the crowd to talk to, I think. And it's a privilege to talk to them. I try to learn from them and listen to them as much as I can. And what I just say to them is, "No matter what you're interested in... And you can follow your interests, follow your nose. 'I'm interested in art, I'm interested in engineering. I'm interested in plant biology or why bugs eat plants and why plants are protected from bugs.' Whatever you're interested in, it's a climate-change project now.

(01:08:33):

You can be anything, a sculptor, or an accountant, someone measuring things, and engineering for sure. Well, it's going to be climate-change work. There will be work for you that's good work." And here's how I try to encourage them. When I was in younger middle-age there was a joke, "The one who dies with the most toys wins." It was a bumper sticker. And it was making fun of and expressing the meaningless cynicism of middle-class American society circa 1990. It was an '80s thing, a '90s thing. People were worried, "The capitalist wheel of birth and death, you work all your life, then you die, nothing matters. I mean, what's the point here?" So this is what the bumper sticker was making a joke about, "Whoever dies with the most toys wins." obviously stupid, absurd, a lack of meaning. And this was the problem.

(01:09:36):

Well, now I can say to young people, "Your life has meaning. We are in a crisis. Everything you do can actually fight for the people of the future. It's a cause, and so life has meaning. It may be a rather scary and desperate meaning, but it's better than

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no meaning at all, which was the previous problem that's completely gone away." So sometimes I try to cheer them up, "You're lucky to have climate change, because otherwise you'd be in existential despair because capitalist reality is totally stupid, and you've got to get past that."

Nate Hagens (01:10:09):

Yeah, two comments there. First, I remember seeing that bumper sticker. I didn't know it was a joke. I thought people actually believed that. I didn't know. And secondly, yeah, I've heard this from a lot of my students and colleagues, we have a lack of meaning in our culture right now. The theology of past religions and then the theology of economic growth are waning, and what is it all for? What is our purpose? And what other purpose can there be, in my opinion, than the viability of the ecosystems on our planet for the long term? To me, it all comes back to that. And climate is a piece of that, but it's not the only piece.

Kim Stanley Robinson (01:10:58):

It's not the only piece. You're living in Wisconsin and it's a Wisconsin guy, Aldo Leopold, "What's good is what's good for the land." Well, this is a very powerful statement, very powerful. It's a philosophy, it's a religion. And when he said, "The land." I think he means all the living things that make up the land, of course. It's easily understood and it's incredibly powerful as an ethos, but also as a decider. You can say, "Well, what's good? I mean, you've got your opinion, I've got my opinion. You can't determine it." But what's good is what's good for the land, because that's what'll be passed on to the other animals and to the generations to come. So the Leopoldian land ethic, as it's called in ethics-and-philosophy classes, and ecology classes, this is a very, very high statement of how in a single phrase, you can make up a new religion that makes sense.

Nate Hagens (01:12:02):

I love that. In my job now, I'm nonideological because I'm trying to unite many different groups of humans towards a common path that's going to face all of us. So I'm apolitical, but if I do have an ideology, it's what you just said. It's that I deeply care about the ecosystems and other species. And irrespective of everything else that I write and speak about, at the end of the day, that is something that I have no shame to tell at the rooftops to any political group or age group. That's what really matters

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during our times right now. I'll just throw that back at you unintendedly, what do you care most about in the world? I mean, you're a very accomplished author and activist, but at the end of the day, I think I could probably guess, but I'll ask you anyways, because I ask all my guests, what do you care most about in the world, Stan?

Kim Stanley Robinson (01:13:09):

Well, I'm just like everybody else. The answers are immediate and instinctive. I care about my family, my friends, my community. I care about animals in a way that I didn't when I was younger. I just recently went to India for the first time, and what I noted immediately was they live their lives with animals still as part of daily town life in a way that's incredibly beautiful and inspiring. But maybe I'll turn it back. And I just want to say that an ideology is the imaginary relationship to the real situation, and therefore everybody has one and has to have one. If you don't have one, that would be a mental disability, quite severe. So we all have that imaginative relationship to the real conditions of existence, which is what an ideology is. So you have one, too.

(01:14:10):

And that translates to a politics, which you have one, too. It can be ecumenical, it can be directed to a particular kind of point that tries to transcend stupid partisan divides in the current mediated American landscape, or older visions of left and right, et cetera, et cetera, et cetera. Sure. Those are deserved to be transcended in some kind of biophilia, some kind of a land ethic or, "We'll do this for the good of our land in the local area, all the creatures on it, including the humans." And that's a little vague. It's more like a religion than a politics, but it can go to a politics. Yeah, there we go. We are looking at Biophilia by Edward O. Wilson, Edward Wilson. A beautiful concept.

Nate Hagens (01:15:00):

Yeah, I have almost all his books. And I agree with what you said earlier.

Kim Stanley Robinson (01:15:04):

Yeah, me too.

Nate Hagens (01:15:10):

Well, oh yeah. Here, I have this book, The Superorganism by E. O. Wilson. I wrote an academic paper about The Superorganism, which I'll send to you. So in all of your

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travels, and your lectures to young people, and your work, what things have you noticed or experienced in the last couple years since Ministry came out that really give you hope and motivation about coming decades? Despite all the craziness in the Twilight Zone-esque sci-fi world we're living in?

Kim Stanley Robinson (01:15:47):

Well, it's a little technical, but it's true. I've been encouraged by the 30-by-30 movements and the COP 15, the biosphere treaty in Montreal that the Chinese hosted with the Canadians last year, astonishing. The Ocean Treaty just signed, astonishing. These are big victories. And even though they're just promises that nation states make to each other, in other words, they can be broken by other people later on. Those promises matter, because it's a putting forth of statements of intent, and that these things are important. I learned that there's a network for greening the financial system that is owned, and operated by, and joined by about 90 of the biggest central banks on Earth, including the super-big ones out of the G7 and the G20. Although central banks are trying to green the financial system such that there is an economy-

Nate Hagens (01:16:48):

That sounds like an oxymoron to me.

Kim Stanley Robinson (01:16:50):

Well, but that would be bad if it was an oxymoron. You want to correct that. The money needs to be spent, which is to say human labor needs to be expended, and you have to be able to make your living doing good biosphere work rather than bad biosphere work.

Nate Hagens (01:17:08):

Oh, so this gets back to the ecology coin we talked about earlier, something like that.

Kim Stanley Robinson (01:17:12):

Yeah, yeah, yeah, and you can look it up. The Network for Greening the Financial System has a website, it has a whitepaper with nine suggestions. They're pretty technical, like two of them I don't even understand. But what they're really saying is that money itself is a political act. And the fact that everybody believes in money, and you can go down and stick a piece of plastic into a slot, and then someone will give

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you a cup of coffee. So that kind of belief is very deep and cooperative, belief in money. If money itself was greened at the roots and is being made up at its very start by central banks, and this is fiat money. In other words, the US dollar being spent on green projects first, and then circulating in the general economy, that itself might drive a lot of restoration actions and might allow us to dodge the mass-extinction event.

Nate Hagens (01:18:13):

I will look into that. I think I at least partially agree with that, but with a big old asterisk, Stan. Which is as long as we have GDP as our global-cultural goal, we will burn more energy and consume more stuff. And if we get more efficient, we're just going to burn more. So if we have an overlay in there of where the money goes into something green first, I have to think about how that would work.

Kim Stanley Robinson (01:18:42):

No, I take your point, and both of the things you said are right. GDP is wrong. It is a rubric, an index, and a way of measuring human civilization that is flatly wrong and destructive. And so growth, which is usually shorthand for growth of GDP, that's a growth of destruction and is like a cancer. So Human Development Index, Gross National Happiness, this is a Bhutanese thing. Other indexes that rate the human economic efforts by a different set of standards, these are crucial. That's a crucial part of the work.

Nate Hagens (01:19:22):

So if you could wave a magic wand and there was no personal recourse to your actions, what is one thing that you would do to improve human and planetary futures? And as a science-fiction author, I imagine you have dozens of such ideas.

Kim Stanley Robinson (01:19:40):

I don't know. I mean, it sounds so instrumentalist or technical. And maybe I should put it at the level of the structure of feeling like you've been talking about, a different attitude towards life. I mean, some of it is absolutely simplistic. If people would spend more time outdoors, it would reorient their sense of reality in fundamental ways that changes the view of everything. We spend too much time indoors. We live in boxes looking at boxes. This is silly stuff, and it's distorting our sense of what's real and

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what's important. So I mean, that's a little simple. You could also go technical like I have been in most of this talk. If fiat money was created with a good green spending of it first off the bat, then many other things would be better. 30 by 30, if I could instantly say that 50% of the Earth and the ocean were left to the other animals, and that we concentrated our activities on 50% of the Earth and 50% of the oceans. If I could wave that magic wand.

(01:20:55):

And here's the thing, people are already waving it. The 30-by-30 thing is profound. When I first read the E.O. Wilson book Half-Earth, I thought, "Beautiful idea, will never happen." And here, 20 years later, it's happening. Well, I'm stunned. And now here, it's worth following for a second, why is that happening? I think everybody at the level of decision-making, and policy, and also all well-meaning citizens who understand that their lives depend on science. And when they're scared for their lives, they run to a scientist, which is to say their doctor.

(01:21:29):

They looked at the evidence, they've taken it in, they've realized we're in a biosphere emergency, and that civilization will crash if the biosphere crashes. And we've only got 10 or 15 years to cope with it, but it's better than having only one week to cope with it, which we couldn't do. And it's better than having 500 years to cope with it, because we wouldn't pay attention. So we're in an emergency and people are acting like it, but it's an actionable-emergency space. In other words, we've got this 10 or 15 years. And I think the good things are happening because there are so many people who actually know this now and that are doing something about it.

Nate Hagens (01:22:08):

So last, just personal question. You live in California, so that's different than Wisconsin, but how many hours a day do you actually spend outside, and how is that different from 10 or 15 years ago?

Kim Stanley Robinson (01:22:23):

Well, because I moved my writing life outdoors. And my recreational life, which is an hour of throwing Frisbee golf at a running pace with my friend, and going for a walk with my wife, I'm calculating here as I talk. And you can... Well, you can't see it in this

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morning light, my poor skin is taking a hit from all this outdoorsness. I should use sunscreen. I'm outdoors about eight hours a day.

Nate Hagens (01:22:50):

Awesome. And is that an increase from 15, 20 years ago?

Kim Stanley Robinson (01:22:55):

Yeah, but that's a simple structural change. I started writing outdoors rather than indoors, and so that's five hours a day.

Nate Hagens (01:23:02):

Yeah. Yeah. Awesome. Stan, this has been great. Thank you so much for your mental-neuronal connections that end up creating new mental imagery and connections in other humans. It's an art, and a skill, and a gift. And I hope you have a great next novel in mind, and we'll have another conversation.

Kim Stanley Robinson (01:23:28):

Well, thank you, Nate. It's been a pleasure. And I might not have another novel for a long time, but it's okay. I'm doing other things. I've had an awfully-long writing career, and so if I get a few years off to reorganize my poor brain, that's probably a good thing, too.

Nate Hagens (01:23:45):

Excellent.

Kim Stanley Robinson (01:23:45):

So I'll be having fun, yeah.

Nate Hagens (01:23:48):

Thanks, Stan.

(01:23:50):

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