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MIKE LIVERMORE: Welcome to the *Free Range* podcast. I'm your host Mike Livermore. This episode is sponsored by the Program on Law Communities and the Environment at the University of Virginia School of Law.

With me today is Cara Daggett, a professor of political science at Virginia Tech. We're here to talk about her new book *The Birth of Energy-- Fossil Fuels, Thermodynamics, and the Politics of Work,* which was recently published by Duke University Press. Cara, Thanks for joining me today.

CARA DAGGETT: It's great to be here.

MIKE LIVERMORE: So the book is really fascinating. And it's a totally different perspective on energy politics than anything I've seen before. So it was really eye-opening and really interesting to read. But just to get us started, what drew you to this subject? Have you had a long standing interest in energy or history? How did this project come together for you?

CARA DAGGETT: No, I did not have a longstanding interest in energy, interestingly. I do have a background in science. I was a biochemistry major before moving into the social sciences and really an interest in social justice and global politics.

And the book started because I was actually thinking a lot about what carbon meant and how prominent it had become. Because for a biochemist or a scientist, carbon is life. It means all kinds of things.

But in politics, it was like a big, bad villain. And I was really interested in the history of that. Like, when and how did carbon come to mean that? And then asking that question, I sort of noticed how energy too is like that, where it's this big word and concept even beyond science.

It's a new age, word, or feeling. It's a poet's word. But in politics, it means fuel. It's got a very specific-- like, when you say energy politics, you know you're not talking about, like, gravity.

MIKE LIVERMORE: Right.

CARA DAGGETT: So I really wanted to how that came to be. When did energy start meaning fuel? And I really didn't where that question was going to take me, which is always exciting when you do any kind of historical project.

MIKE LIVERMORE: Yeah, I bet it was an interesting ride. I mean, one of the things that just struck me in reading the book at some point was it recalled a memory when I was in high school physics, actually. And we had a little section in thermodynamics.

And at some point, the idea of work, the concept of work as it's used, in that context came up. And I just thought that was the funniest thing at the time, that the word "work" was in physics because work just seemed like such a human endeavor, something that you do in your life or whatever, has all this-- I wouldn't have said social meeting at the time. It's just something that people do, not something that atoms or molecules do.

And so I just found that so peculiar and interesting that the word "work" was to be found in physics. Anyway, it sounds like even though the book talks quite a bit about work and the social meaning of that and how it intersects with the kinds of work in thermodynamics, it sounds like you came to that in your exploration of this other ideas around carbon and energy.

CARA DAGGETT: Yes, absolutely. I didn't know when I started that it would be a book about work. But like you said, once I started looking, really, with looking at the history of science, even though, like you, I had my memories of high school and college physics, I didn't really have a strong history of science background at that time. And so I never learned the history of the science of energy.

And so I was a little surprised to see how recent energy is in terms of physics and also that it was very much a fossil fuel knowledge, in the sense that we get the laws of thermodynamics come out of people who are interested in figuring out steam engines, coal-fired engines in the 19th century. And as part of that, we get the emergence of the field of engineering and definitions of terms, like work, very much corresponding to this new idea of energy.

So that's exciting because here we have a problem of energy, which is really connected to industrialization. And then we have a history that tells us that this knowledge we have came out of industrialization.

Sometimes when I teach students thinking about the politics of science and technology, we're so told in popular culture that science is kind of a fact. And to question it is to say it's-- it's either true or not. It's black and white.

And so it's not to say-- to say there's a history there and there's a set of interests is not to say that these things aren't true or useful in certain contexts but more to notice that we come to this knowledge. And the way we frame it and the stories we tell about it and the metaphors and terms that we use do have all, like you said, these human meanings and values that then it becomes a murky terrain because all science uses metaphor and language to try to explain itself.

And so when we start talking about work then or power-- power is another term that has a definition in science. But also, clearly, actually, I don't think it has a very good definition ever on purpose in politics. So it's important to think about what these words mean and whether we bring-- what values get brought into the discussion. And then if we think, oh, this is just a matter of science and technology, therefore there are no values, we're missing that there are lots of ways of thinking about energy that get left out of the picture. We're kind of importing these values.

MIKE LIVERMORE: [INAUDIBLE] without thinking about them. So this is a bit of a sidetrack. And I want to get back to the core arguments of the book in a second. But this just puts me in mind of the signs that we'll see around town that will say the phrase "science is real," along with other things. And my politics are, I typically agree with most of the statements that are on those things.

CARA DAGGETT: [LAUGHING] Yeah.

MIKE LIVERMORE: But I often will cringe a little bit at the "science is real" stuff. I wonder what is your take on this? Is it OK in some context? Because obviously people use it to mean, hey, pay attention to public health scientists who tell you to wear a mask or get vaccinated. But at the same time it's a little uncomfortable if you have a view that science is embedded in social processes and all that kind of stuff.

CARA DAGGETT: Yeah. Well, science is real. But also--

MIKE LIVERMORE: What does that mean though, right?

CARA DAGGETT: Right. But I think the answer is that it's very murky and contextual. Meaning that, the way we as humans come to knowledge or find things out is a social process. And it requires institutions and authority and respect for those institutions that make meaning in certain cultural contexts.

And again, that's not to say that all truth is relative and there is no way of understanding which truth claims might have more weight. It's just to say, I think it's a problem when we fall into, again, this black and white way of thinking about it. Like, there's just truth and not truth. Because-- and I think we'll probably get to this in the book-- I'm really interested in how capitalism and these political economic processes are part of science.

And what that means is that these institutions do have political interests. And it doesn't mean that they're necessarily true or false. But it means that when we don't acknowledge socially what's happening in terms of who's funding certain projects and which interests are being valued over others, then I think we lose a lot of that trust. We lose some public trust. Because there's a sense-- for example, with pharmaceutical companies, they're not always doing things for the public good.

And so I don't think there's room in a black and white conversation to acknowledge that there might be really good reasons for a lack of public trust in pharmaceutical companies. And that doesn't mean that they can't also make a vaccine that is life-saving and important.

But I live in Appalachia, not too far from you. And I've talked to someone who's from this area, from a small town in this area, who was saying, you know, a lot of people around me are very suspicious about the vaccine. And these are the same people who have been affected by the opioid crisis and have watched drug companies purposefully seek out to make people addicted in their communities, and watched the government in some cases turn a blind eye to that and allow it. And so this is the same community then, where to understand that history and all the things that are going on there is a much bigger and more complicated story.

And so I really cringe a bit when it's like, oh, it's just ignorance. Or, oh, people just need to say science is real. Because that doesn't get into the harder questions of who's funding-- the corporate funding of university research. And it's a whole-- So I would like to do things like increase public literacy in science. And I want people to believe in climate change. And I want people to be vaccinated.

And I think in order to do that, we have to think about how we have institutions that seek truth in a way that earns the trust of the public. That was a lot. I'm sorry.

MIKE LIVERMORE: Yeah. No, that's great.

CARA DAGGETT: I've been thinking a lot about that lately.

MIKE LIVERMORE: Yeah. No, it's super helpful and, I think, on a lot of our minds these days. The orientation of the book is towards thermodynamics. And one of the-- I mean, at least the main organizing principle of the book. And again, I had never really thought about the political context around physics just more generally. Of course, that's actually not really true, because you do think about things like the way that the military industrial complex, so to speak, gets really interested in physics around the World War II and the Cold War. And obviously there's a big story there. But I had never really thought of it in the context of thermodynamics.

And one of the things that helped me-- kind of an entry point into the book for me-- was, at some point you make a kind of comparison to evolution. And then it just kind of clicked and I thought, well, of course. We've thought a lot about evolution as a scientific discipline, but also as it interacts with society. It just has such clear consequences for those religious debates and social Darwinism and eugenics. And all this stuff gets entangled in evolution. And that clicked, that thermodynamics could be something-- could be akin to that, maybe at a different scale or in different ways. But that there's this possibility between what I think of as slippage between scientific concepts and moral political discourse and also, of course, the social-political context behind knowledge production and scientific inquiry.

So I guess the question that comes out of that is, as you were working through this project, did the analogy-- and then ultimately you draw together the ways that thermodynamics and evolution kind of operated in tandem in certain respects. But just broadly this literature and the way that we think about evolution as a kind of cross, trans-science kind of thing, did that affect your thinking about thermodynamics and the possibility of these kind of trans-science interactions there as well?

CARA DAGGETT: Yeah. So definitely. That's like you, I hadn't really thought how could physics-- how might I see its effect-- I mean, there was clearly a lot of language that was circulating, like energy and work, that had these different meanings. And there were practices. So in particular engineers, I think, are another clear way to see how these concepts travel. Because the field of engineering in the late 19th century really coalesces, and engineers become important managers at mines and factories. So that's another lens.

But the one that I was more familiar with was the history of science as it fed into empire in the period, and in general what Michel Foucault has called biopolitics, or the way that life is governed in modern, liberal societies. And that is almost predominantly about the life sciences, obviously. It's more easy to see how scientific knowledge about life can then be used or be important to politicians and managers who are trying to govern life. Everything from counting population to nutrition to reproductive health, so on and so forth. So there's an enormous literature, not just about the human life sciences but also ecology, life more broadly, even beyond the human, including evolution. Evolution is probably the king of those.

And so I started looking and reading some of this literature and noticing that energy or conceptualizations about work and even directly metaphors that are coming from thermodynamics, ideas about entropy, for example, or the tendency for energy to dissipate, efficiency, which is very tightly connected to energy. But these are really prominent in ecology in a lot of evolutionary thinking, not just scientific but political. But it's not like people studying or doing experiments that lead to thermodynamics are as directly involved as, for example, someone studying forestry or tropical health. So in a sense it's kind of like you have to approach the texts thinking about energy in order to see that a lot of those assumptions

are there. And I think that's a little bit one of the main points of the book, is that energy has this capacious set of meanings around it. It feels like this universal thing. But it does have this really particular history that's connected to northern European industrialization and empire, and the interests of those people. So the interest in maximizing work, minimizing waste, more efficiency, and really expanding industrialization and profit-making. So there is lots of other ways of thinking about energy, even within physics, that don't often come into our political conversations around fuel.

MIKE LIVERMORE: Mm-hm. Yeah. So there's a paragraph in the book that, I think, gets at some of the points that you're making right there. I had kind of triple-underlined it as something that I thought kind of encapsulated-- it felt for me, in any case, that it encapsulated a good amount of very interesting stuff. So I thought I'd actually just read it out. Presumably it's a paragraph, so I won't run afoul of any copyright violations. And then maybe we could unpack it a little bit, because it's very dense. So would that be OK?

CARA DAGGETT: OK. Yeah.

MIKE LIVERMORE: Yeah. So this is on page 111.

"It's worth clarifying that I'm not arguing that thermodynamics is false, but rather that the energy-work connection cannot claim to be a reflection of the whole truth of energy, much less of the cosmos. This is never more obvious than when compared with the multiple interpretations made possible by the new biological sciences. In other words, thermodynamics does not simply describe a pre-existing thing called energy, but rather invents energy as a unit of accounting and work and waste, thereby offering new governance strategies that were particularly useful to Victorian industry. While energy comes to inhabit the same universal realm as matter, what counts is more or less useful forms of energy or as useful energy transformations, is not given in advance by nature but is open to political contestation. The valorization of productive, waged work as the highest mode of energy transformation represents a happy marriage of physics, Protestant sensibilities, and the European demand for scientific knowledge, with which to address the multifaceted crises of labor resistance in the metropolis and the colonies."

OK. So there's a lot in there. But that's why I underlined it, because I thought it was quite a bit and it might be worth unpacking. So maybe I'll just turn it over to you to start doing some of that unpacking. Because I think it really does encapsulate a lot of the argument that you make.

CARA DAGGETT: Oh, yeah. Thank you. Yeah. So one of the points in that paragraph was this idea that energy doesn't exist, it's invented. And I have this great quote elsewhere from Richard Feynman, who is a famous physicist of the 20th century, and he had these lectures at Caltech that are still really influential. And he says, energy isn't a thing. It's not something out there. And really energy is a set of mathematical calculations.

So what I mean by inventing energy is that, it's a way of describing transformation in the cosmos, and a word that helps to understand these increasingly complicated math equations about what is happening when things change in the cosmos. And frankly, you can get pretty quickly into very weird theoretical physics around energy.

And so, for example, a lot of the most useful ways of thinking about and monitoring energy make the most sense in a closed system. And that's a system where energy isn't entering and leaving. But there are no known closed systems. So that's just one-- we kind of assume-- sometimes we sort of mathematically assume a closed system of the Earth, but of course the Earth is not a closed system. That's the whole point. It's getting sun.

MIKE LIVERMORE: That'd be bad news. That'd be bad news if the Earth was a closed system.

CARA DAGGETT: Yeah. [LAUGHS] So what that's trying to say is, there's this vast complexity. And with math and with scientific tools, we're trying to understand better what's happening, especially across change. And so energy becomes the way to name this observation, that there's something that we can say that is conserved across change. But the way that we could say energy is conserved-- ultimately what that meant is we had to kind of multiply what energy was-- like, all the different forms of energy. So at first the math didn't even really work. There were these kind of ancient conservation laws, this notion that there probably is some sort of conservation working, before there was even really solid experimental evidence for that.

MIKE LIVERMORE: Like, this is old school. When you talk about the ancient conservation laws, you mean going back to the Greeks and the very early philosophers thinking about what is the nature of the universe and that kind of stuff.

CARA DAGGETT: Right. Yeah. And I think a lot of that sensibility-- so one of my favorite stories was that these scientists of energy in the 19th century, I think, still had this feeling that conservation must be true, because Joule, for example, in the experiments-- things still didn't add up satisfactorily, no matter how much he tried to measure them. And partly now we can say, well, he didn't about all these other kinds of energy that were getting, quote unquote, "lost."

But those stories are interesting because what they tell us is, no matter how hard the math seems and how hard physics seems, these still are human-invented categories to try to explain something that's very complex. And so again that term, energy, and this invention that humans have is really useful and helpful and true in a lot of ways.

But it's also-- what I was noticing, because it comes about among a certain group of people who are really interested in making steam engines efficient, and already have a commitment to a certain faith-- this is Anglo-Protestantism-- and already have a commitment to a work ethic because of their culture, and already have a set of commercial interests, and already have an allegiance to a certain nation with its own imperial interests, that this observation about energy becomes a way to say, aha. This helps us understand what we already think is valuable, which is hard work and minimizing waste.

But that's not what every culture, for example-- even if we just think about humans, it's not what every human culture has thought about change, and has thought about this thing that we might call energy. And it's certainly not what every culture has thought about work. And so what happens then is the science lends this kind of justification or natural truth to the pursuit of work, which is a certain culture. And there's nothing about the world that says, this is the right way to treat energy, fuel, or to do work. But I think in public conversations about energy there's this underlying-- there's a way that physics gives a kind of stamp to what is ultimately a Western culture of work.

MIKE LIVERMORE: Hm. So maybe we could-- just to make this somewhat more concrete, is to think of some specific examples maybe that you come across in the book where some of the concepts here-- and I think that for me, in my mind, there's four that strike me as having this-- I'm going to call it a slippage. I'm not sure that's the right word-- between the scientific and the social, assuming we could even disentangle those two things.

But in any case, if we think of the concept of work in physics versus work as a broader social thing that we talk about and have politics about. So there's work. There's waste, that you've mentioned. There's efficiency, and then there's the concept of energy. Which again, sounds like-- to be energetic. That is a compliment, right? When Donald Trump said that Jeb Bush was low-energy, that was an insult.

And maybe we can even take that one, because it's kind of funny. Is there anything about thermodynamics in there? So you could say, well, is he recruiting something that comes with historical leverage or historical meaning when he calls Jeb Bush low-energy? Or can we just say, that's divorce. That's too tenuous of a connection to say that somehow he's drawing from the same well as these Scottish Presbyterian steam engineers, and that these are just kind of unrelated to each other.

CARA DAGGETT: I think it's both. And the way you said it at the end, I think, is the best way to say it. Which is not that Trump's statement is coming from thermodynamics, but that Trump's statement and the 19th century engineers were drawing from a similar well. And because that 19th century engineering then became so dominant,

I do think those are related in the broader sense of privileging dynamism, and the kind of pro-work sentiment-- which is not just on the right in American politics-- is certainly connected to thermodynamics, but also to fossil fuels. So I wrote a different article about the connection on the far-right between masculinity, fossil fuels, and authoritarianism. And so in particular I do think there is a connection between this notion of virility and what it means to be a man, and a certain culture of work that is all very tightly connected to fossil fuels.

And I think that's helpful in understanding this support of fossil fuels even when it might not make economic sense for certain people. Because we're prone to read it only from an economic perspective. And I think that is centrally important to understanding the trillions of dollars at stake in keeping in the fossil fuel industry. But there is this broader public support for fossil fuels and fossil-fueled lifestyles that needs to be explained in a way that goes beyond just kind of economic rationality.

MIKE LIVERMORE: Yeah. Again, there's so many different ways to go with this conversation.

CARA DAGGETT: But I'll give you another example, if you're asking for specifics.

MIKE LIVERMORE: Yeah. Yeah. That'd be great.

CARA DAGGETT: And this one is more among proponents of green transition. So in the 19th century I came across this description of a waterfall as wasteful. Like, when the waterfall is going over and not being captured and put to work by human ingenuity, there's something wasteful about that. So that's an example.

But I see a lot of that language, especially in describing deserts, and particularly in North Africa, like around development of solar farms as kind of these places on Earth that are receiving this sunshine and it's kind of otherwise going to, quote unquote, "waste." Because all this energy that could be captured is just falling uselessly. So there's this tendency there to think about energy as this project for humans that we need to capture as much as possible and put it to work.

MIKE LIVERMORE: Yeah. That's fascinating. That's a great example. And again, kind of the idea being that they're drawing from the same well here, that Donald Trump refers to Jeb Bush as low-energy, and the green tech folks are talking about photons falling on the desert and not being captured by photovoltaic cells as waste. And this is, I think, part of your project, is that these are deeply interconnected discourses that have a long history at the intersection of society and science.

CARA DAGGETT: Right. Yeah.

MIKE LIVERMORE: So I have some questions for you about the interaction of the concept of work and some of these concepts in general in your study. And something that I'm interested in, which is economics and the way that economics is used to think about environmental law and policy. And part of the argument from the book is that the science of thermodynamics and some of this discourse is very influential in structuring the growth of neoclassical economics and some of the models that are used.

And we get statistics out of some of this engineering and thinking about things like temperature as a macroscopic phenomenon that describes lots of microscopic behavior that we can't keep track of. And we can think about similar things happening in the economy, where we think about macroeconomic variables like interest rates representing actually the aggregation or the consequence of lots of individual human decision-making.

And I think there's some interesting mapping there, but also some ways that there's differences that might be-- I think I would be interested in exploring with you. So one is-- if there was anything you wanted to say right up front about the way that this discourse around thermodynamics and the discourses that it facilitated, then interacted with the field of economics.

CARA DAGGETT: Yeah. So I really learned a lot from a scholar named Philip Murawski. I'm not sure if you're familiar with his work, but he wrote this wonderful book about the science of energy as a major precursor or foundation of knowledge for neoclassical economics. And so that is what I drew heavily upon myself in thinking about it. And I didn't have a chance in the book to kind of take that history forward into the 20th century, but things do change with the rise of systems theory, the understanding of information in relation to energy. So you can see a continuing way that there's a relationship between how we think about systems and energy, and how it flows through systems, and how we think about economics.

MIKE LIVERMORE: Yeah. So the things that struck me as-- where there was a mapping that was just kind of screaming out is these ideas, again, about energy waste and work, which just we have in both fields. Right?

CARA DAGGETT: Yeah.

MIKE LIVERMORE: All those things exist. We have work in economics, obviously, the concepts of efficiency, maximization. Waste is not, maybe, so much of a formal concept in economics. But I do think that it is an important kind of background norm that helps justify efficiency as a concept. That's what we like about efficiency, is that it avoids waste.

I do think there's an interesting distinction that I would like to hear your thoughts on, which is work, actually. So in a standard-- I'll just say, welfare economic framework, which is the normative side of economics. Work is usually thought of as disutility. Right? In some sense, it's a bad thing.

People have a choice between labor and leisure. People would prefer to choose leisure, but they can choose labor, but we have to compensate them. The reason that people choose labor is that we have to compensate them. So the reason we have to compensate people is because they would prefer to do leisure rather than labor.

And so in a kind of very stripped down and basic economic model, we just think of labor as a kind of a necessary evil, something to actually be minimized, other things being equal. And there are critics of that view that argue that it doesn't capture everything about work that is valuable. Actually, that would be the main line of criticism, would be that work serves a social function, that people get psychological value from working. They socialize with people they might not otherwise socialize with. There's a whole kind of theory about, as I'm sure you're familiar with much of it, just about the value of work.

And that is in tension with the way that economic models treat work. And I'm just curious about what your thoughts are on that. Do you think that the economists are on to something? Because, on the other hand, in the thermodynamic context we think of work as valorized and a great thing. I mean, not in thermodynamics strictly, but in the kind of discourses around it that are normative, work is good and we want to maximize work. That's how we minimize waste.

Whereas in, again, in a fairly stripped-down basic economic model at least, you would want to minimize work, other things being equal. It's consumption that you want to maximize, actually, which is why economists like things like technological change, because it reduces the amount of human labor that's needed for a given amount of consumption. Yeah. So in any case, I'm curious if you have any thoughts on this.

CARA DAGGETT: I have a lot of thoughts on that. [LAUGHING] That is really interesting, though, this tension within economics between is work good or not. And one of the puzzles socially is, why even people who are wealthy and could afford to or have the choice to, historically over the last several decades in the US are working more and more and more and more.

MIKE LIVERMORE: Yeah.

CARA DAGGETT: But this underlying question-- I think what you laid out as a welfare economic view is still very historically situated in a wage-labor modern capitalist system, where work means selling your labor as a commodity to someone.

MIKE LIVERMORE: I think that's right. Just, the only little interjection that I would offer there is, I think that they would-- that's the standard and that's the paradigm. I think that they would accept-- I mean, a fair welfare economist would gladly say, oh yeah. No. Like, if you work around the house and you build a shed in your backyard, that's absolutely work and you enjoy the consumption value for it even if you don't receive a wage.

CARA DAGGETT: Yeah. Yeah. But we're still within-- we're kind of trying to understand how humans think about work within a wage-labor system, whether they're earning a wage or not. We're still in a certain time and place at how we think about human activity and how we organize it. And so I think one of the books I draw on in the conclusion when I think about anti-work movements is really defining work that way as part of a wage-labor system, whether it's earning a wage or not.

And saying that we can think about purposeful activity in a broader sense as not being bad or something we always want to avoid. But maybe one of the-- I'm trying to think of what one of the-- I think one of the key differences there is the notion of utility. Because you could have purposeful activity. Purposeful is different than useful.

And so when we think about what's the meaning of the energy that we expend in the day, I think the question of utility is connected to our contemporary system that things that are useful are better, or that we think about utility as good. And I think the other thing I would say that differentiates our current way of organizing work around wage-labor from the many-- I mean, frankly, humans have lived in different systems for the bulk of our species' history.

So this is a relatively novel way of organizing activity-- is that activity, in other political economic systems, is very much embedded in social relations. And then it becomes hard to think about something in terms of, is it good or bad, or something an individual wants. Because whether I perform a certain activity that I might enjoy or not or feel neutral about, it might be so much a part of other kinship networks and community networks. And there are things that I might gain from that, not just in a pure, like, I'm giving something in exchange for something, but also in terms of affect and emotion and care and feelings of dignity and reputation.

So it's hard. In other words, when I hear work defined in a certain way like that, it's really hard for me to not think about it historically and understand that there's just other ways of organizing activity among humans, towards not just survival but flourishing.

MIKE LIVERMORE: Beyond the concept of work. Yeah. So in a sense we have this word, work, that has all of these different social meanings and even scientific meaning. And so in the field of economics, work-- there's the analogy at least to waged earning, to waged work, paid work. But again, it's from a normative perspective, at least, the idea would be to try to minimize it, that it's a bad thing. That it's disutility that you need to be compensated for.

In the kind of work ethic that you describe that has links to scientific [INAUDIBLE] thermodynamics, but also obviously deep cultural resonance and links, work is something to be maximized at some level. That the way we avoid waste is to go out and put everybody to productive use. And those are both historically contingent, of course. And then there are other ways-- I take part of what you were saying, is that work-- these concepts, we could say, describe our kind of contingent ways of describing something else, which is purposeful activity or stuff people do, I guess.

CARA DAGGETT: Life. Yeah.

MIKE LIVERMORE: Yeah, life, in a way. And that we could just talk about it in entirely different ways than that. And maybe there's something-- there's not something bad about either way of thinking about work, perhaps, from a work ethic way or from a work as disutility way in economics. But they're certainly incomplete.

And and we can think about the things that people do. Now, I guess, maybe the question-- sorry, I was a little bit rambling. But the question that would come out of that is, does it provide a useful lens to think about our society then? Right?

CARA DAGGETT: Yeah.

MIKE LIVERMORE: So, it's certainly true that the way we think about work is socially-contingent. I mean, what else would it possibly be, right? And these scientific and cultural concepts-- we inherit them and we put them to work, so to speak, in our own way of thinking about our lives. But, yeah. What might a social relations theory of human activity tell us about the world that we live in that would be illuminating, do you think, for example?

CARA DAGGETT: Yeah. That's such a great question. And I'm so happy to talk to an economist, or someone interested in these economic questions about work. Because I think it's fun to talk about. So thank you for your questions. Here's what's at stake. I think your question illuminated this for me.

What's at stake in these-- so the framework you laid out, of the work ethic that maximizes work and then a welfare economy where you want to minimize work-- I'll say two things. First, I think those are two sides of the same coin. Like, work is bad or work is good. And the one where you want to minimize work, you're still actually maximizing productivism. Because, as you said, it's a good thing when technology can do the work for us.

And so what's at stake is, in this current context, productivity is a good thing and we always want more of it. And we always want to be doing more things and expanding that. There's kind of this assumption that that's going to serve well-being, that that's the fountain of prosperity. But empirically, I don't think there's a lot of evidence for that. And specifically in energy consumption terms-- I mean, some of these metrics-- I don't know. I'm always suspicious of metrics because it collapses a complex world into a number.

But for people who have tried to measure things like well-being and happiness, and so on and so forth, there's a real plateau in terms of rising energy consumption and also in terms of income. I'm sure you're familiar with that, too, where happiness and well-being isn't just this linear relationship that goes up and up. And also we have the problem of inequality, and so on and so forth.

So what's at stake in trying to think about work differently is, I think, in other ways of arranging human activity, it wasn't an automatic, common sense assumption that more-- more productivity-- is always better. And so there's something about the way we're thinking about work, where underneath that is this assumption that the path to goodness is more of it. Whether robots are doing it or we are, or money is, or Bitcoins are, or someone is expanding something somewhere and that's a good thing. And so that's what's at stake for me. That's why I think it matters.

MIKE LIVERMORE: Right. Kind of the growth mindset.

CARA DAGGETT: Right. The growth mindset.

MIKE LIVERMORE: Yeah. People talk about that, and it feels like ecological economics and that kind of thing.

CARA DAGGETT: Yeah. And it's really a religion. Because there's so little empirical support for why that makes any sense.

MIKE LIVERMORE: Yeah.

CARA DAGGETT: So it's a bit mind boggling how that belief and faith in growth sort of persists.

MIKE LIVERMORE: Yeah. Absolutely. And one of the-- and it's so interesting to chat with you, too, because these are just ways of thinking. Some of the stuff that I just really have not considered before. So again, one of the things that I've sometimes will talk about is speaking of inequality. You know, what is the problem when you have really, really wealthy people, and you have other people who don't have very much, like in our world, in our society.

And one of the ways that I've explained this or described it-- and it comes out of the literature-- is that it's wasteful, actually. It's bad because it's wasteful. When Jeff Bezos uses just huge amounts of money to fly his rocket, those are resources that could have produced a lot of happiness in the world. He got a little happiness boost. I'm sure he enjoyed his trip.

But if you had taken that money and used it to fund schools or mosquito nets or clean water or basic health care or whatever, that the value in terms of human well-being would have been much increased. And so that's bad, in a sense, to live in a society that's so unequal. Because it actually leads to a waste of resources.

But now I wonder if I'm just taking normative ideas from that same well. I don't know if it's a poisoned well, but it's certainly a well that lots of people have drawn on, and for some unsavory purposes.

So I'm curious what you think of that-- recruiting that notion of waste for somethin-- I mean, am I not licensed to do that? Or it is it troubling? Or is it OK? I'm curious what your thoughts are.

CARA DAGGETT: Oh. I guess it depends. Because if we're talking about what's the purpose of using that argument-- we're trying to persuade a student from a certain background in the classroom. Maybe sometimes we need a lot of different persuading techniques.

So I wouldn't want to say, you should never use that example in the classroom. I don't know that I have a problem with that. But if we want to think about-- I think your question was about, is there some sort of underlying philosophy around waste and utility that that's dangerously skirting, then yes. I do think there's a few things that make me uncomfortable with it.

One of which is that it kind of erases that I think I'm used to coming at that argument from a perspective of unfairness and injustice. So not that the money should be distributed because it would do better, but that people are owed things that were taken from them, whether that's in terms of wage theft or theft from nature or dumping into nature for free or premised upon histories of, still, global North exploiting global South.

Jeff Bezos has all that wealth, in my mind-- that wealth is not earned in a way that, I think, socially or justice-wise is supportable. And so to me that's the stronger argument. Because then you don't get into what I call in the book an "accounting framework" for talking about justice. And I think that's a dangerous one, because people can always come back and say, well, what about all the charities he gives to? And isn't that great? And well, we gave money to [INAUDIBLE] over there, and it didn't do that much.

I mean, if you're talking about utility, it feels like we can then use math and come to these easier pictures of the world, but it's never easy. Whereas if you make a justice argument about that, the accumulation of that money is not only owed to people, but I like to think of it not only as historical harm-- like, that money was gained through unjust means, but also that those means are the motor for the continuation of those harms. Not just inequity in terms of wealth, but in terms of climate change.

I very much think the way Amazon operates and its constant expansion and accumulation and its pursuit of profit above all else is part of the problem that we have to fix in terms of climate change. So, yeah. I mean, again, I don't know what's going to persuade people more in certain contexts.

MIKE LIVERMORE: Yeah. Although that might not be the full question. I mean, I think that is a valid question, something we can ask about rhetoric and persuasiveness.

CARA DAGGETT: Right.

MIKE LIVERMORE: My tendency is to think that I, at least, am not well positioned to answer those kinds of questions. I'm at a law school. I can think about persuading judges. [LAUGHING] You know? Persuading regular folks-- that's just other departments. That's marketing. That's communications. You know?

And at some level, what I try to do is clean up my own way of talking so that I'm on good terms with myself, is what I shoot for, and to offer good arguments and that kind of thing. And maybe it'll be persuasive, maybe not. But I really-- and that's obviously very audience-specific. But I think that's a very tricky communications question, of political communications. And it's very pragmatic.

I mean, look. The reality is, sometimes really racist messaging is super-convincing. And that's just not a good reason-- [LAUGHS] not a sufficient reason to use it. It's hard to imagine a situation where it would be justified, no matter how persuasive it is.

And so I think that's more of the kind of question to ask, is it like that? Is it kind of a-- you're making recourse. Maybe it's persuasive, but it's kind of bad. I mean, I kind of want to move-- I think this takes us naturally to the kind of final part of your book where you talk about the post-work and the UBI. I think that stuff is really interesting. So I do want to get to that. But I would just maybe note the interesting question of the status of justice arguments and welfare are kind of arguments, and the relative persuasiveness is, I think, a very interesting question. Persuasiveness may be at a higher-order level than just, what do people, if you randomly select folks off the street, find persuasive.

But what are better kinds of arguments? I mean, I think that is an absolutely good set of questions we're not going to resolve today.

CARA DAGGETT: Yeah.

MIKE LIVERMORE: But that's a good set of questions.

CARA DAGGETT: And sometimes arguments can be like gateway drugs. [LAUGHS] Like, sometimes if people are trained to think in a certain way, and then you can introduce some doubt within that framework, it might-- sometimes I think of teaching as water on stone, where you might not be the person who persuades someone, but you might be the person who shows a new path, a new way. And then that student follows that path and hopefully learns critical thinking along the way about these kind of common sense feelings.

MIKE LIVERMORE: Yeah. Right. What I will often tell my students is, my goal is to confuse them.

CARA DAGGETT: Yes, exactly.

MIKE LIVERMORE: [LAUGHING] They never like that. They hate that. They're coming to you-- they want to learn something. They don't want to leave more confused than they enter. And I say, look, if you leave my class more confused than when you walked in, I'm completely happy. That's a great outcome, from my perspective.

CARA DAGGETT: Yes.

MIKE LIVERMORE: OK. Great. So maybe we could just spend a couple of minutes. I appreciate you taking the time to chat with me. I think that the modern debate on jobs and the environment and how work interacts with environmental protection-- you know, we've been talking very abstractly, but these are very much on-the-ground, grist of the mill of political discourse.

CARA DAGGETT: Yeah.

MIKE LIVERMORE: And both of us have actually entered this a little bit. So in the last chapter of your book, you talk a little bit about a post-work perspective and the value of adopting that, for building a political movement that could really be important in addressing climate change and have the kind of energy, so to speak-- the political energy-- that could overcome the bad-energy politics that we have right now that are leading to really nasty outcomes.

I'll just really quickly-- the way that I've intervened on this is, there was a big debate about jobs and the environment during the Obama administration, where every time the Obama administration did anything to protect the environment, they would get clobbered for job-killing regulations. I don't know if you remember the job-killing regulations.

CARA DAGGETT: Yep.

MIKE LIVERMORE: So the work that I did was basically to kind of show and argue that actually environmental regulations have very little net impact on employment. There's no reason to think that that's actually a lever. It was just a rhetorical device that was used. But actually the environmental regulation and jobs are mostly not linked together.

So we have just intervened in those somewhat different ways. But I want to hear, and I'm sure our listeners want to hear more about the post-work perspective, and what it could usefully add to the kind of politics these days.

CARA DAGGETT: Yeah. So, like you said, the job-killing regulations-- that is fossil fuel PR. And it is the central, and sometimes the only, plank in the defense of fossil fuels and the opposition to environmental regulation. And it's very effective. And it's still, like, jobs, jobs, jobs.

Even Biden's recent climate legislation was called the American Jobs Plan.

MIKE LIVERMORE: Absolutely. Yep.

CARA DAGGETT: So it's so important, work like yours, to show that these arguments about jobs are disconnected from the reality of what's happening to work in America. And so, for example, people losing their jobs in the coal industry is not something that President Trump is going to fix. He's not able to resuscitate the coal industry. And also the coal industry has moved on its own towards other ways of-- mountaintop coal removal, other kinds of things that require a different and less labor.

So where I'm going with the move to post-work is seeing-- and I guess this gets back a little bit to the idea of political persuasion and mobilization-- is that the debate about, oh, there'll be more green jobs, or it won't really hurt jobs-- I don't think gets to the heart of why the job PR is so effective. And it's so effective because it's set within the bigger context of the problem of work since, I mean, how far do you want to go back. But at least we can go back to the '70s when the last time that wages really kept track with productivity and wealth-- about then is when, ever since then if you account for inflation, wages have remained on average pretty flat.

MIKE LIVERMORE: Yeah, certainly for working-class people.

CARA DAGGETT: For working-class people. And so there's this bigger sense in working-class America or in America more generally, even among my students in this, our youngest generation, that the system is broken. And this idea of the American dream and the job and the picket fence and the house, is very out of reach for a lot of people. And so this job-killing message, whether it's true or not, it resonates because people feel like there is a problem with work.

And so where I would like to see the environmental movement go is, one, to recognize that the commitment to productivism is part of the problem. And then, two, to connect that to the way that our current system of work is hurting people. Because in environmental movements, things that connect to people's everyday lives and needs are often the most effective. And I think public health is the best example of that. When we connect the environment to children's asthma and people's health, it resonates. And people are very passionate about that. And that's understandable.

And I think work is another way where people don't need to be told that things are going in the wrong way. And I think there's a lot of opportunity there to connect these two things. And so to think about policies that aren't just expanding jobs, but to ask those kind of deeper questions about, is it true that in order to be worthy of a life of dignity you have to have a full-time wage-labor job?

And one example in terms of examples we give our students-- one example I give my students is, we venerate-- like, you have to work to be a good citizen. But people who own investments that pay them passive income, that's not doing work in the traditional sense. And yet that seems to be an OK access to citizenship and dignity.

So I think we need to start asking these questions about work that go deeper than that accounting framework of how many jobs is each kind of fuel providing us. Because that feels a bit like a dead-end to me, politically.

MIKE LIVERMORE: Yeah. Well, I completely agree with the last point for sure. The green jobs arguments, I think, are playing on the wrong terrain for good politics. And certainly a broader question about the role of work in our society and in our lives is desperately needed.

And thank you very much for your contribution in informing that important conversation. So thanks very much for taking the time to chat with me today. It was a really, super-interesting conversation, Cara.

CARA DAGGETT: Thank you. It was my pleasure.

[MUSIC PLAYING]