

Can we save ourselves from climate change?

AN EXCLUSIVE INTERVIEW WITH MICHAEL OPPENHEIMER



Browning

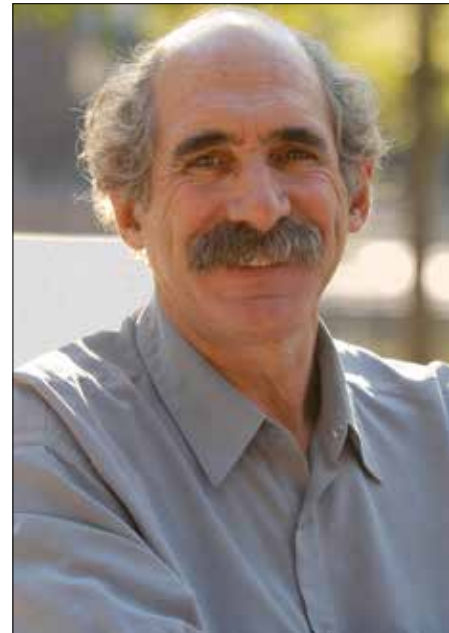
Writer and journalist Dominique Browning met recently with Princeton professor and respected climate scientist, Dr. Michael Oppenheimer, to get his latest views on the science and politics of climate change. With global emissions still rising, can a climate scientist still have hope for the future?

I went to see Dr. Michael Oppenheimer with some trepidation, expecting that I would have to pick myself up off the floor after our interview. After all, if anyone understands the true nature of our changing climate, and the impact of greenhouse gas pollution on our way of life, it is a scientist whose lifelong passion has been the study of atmospheric gases.

I wanted to know how scientists really talk to each other, when the rest of us aren't in the room. Are they saying we're cooked? I figured I would be pretty depressed at the end of our hour together.

"Well, I suppose that depends on whether your mother dropped you on your head when you were three years old," Oppenheimer said, laughing. "I'm an optimist."

I left Dr. Oppenheimer's office feeling hopeful, yet my sense of urgency was renewed: this is a life-altering problem. I am inspired to keep up the pressure on our president, on our legislators, and on our business innovators and leaders, to address the critical problem of climate change, giving it the priority it demands.



Dr. Michael Oppenheimer



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Dr. Oppenheimer, how is climate change different from any other problem we've ever had to face?

Pollution problems are simple. Stop putting out the pollution—stop the offending activity—and the problem goes away.

Greenhouse gas pollution is not like any other pollution problem we have ever experienced in one key way. It might be irreversible. And we cannot ever forget this. Greenhouse gases remain in the atmosphere for decades, even centuries, after they are released.

So we are gambling with humanity, aren't we?

There is a strong, scientific case for urgency in stopping greenhouse gas pollution. And it is this: we don't really know how bad things will become. As scientists, we create windows by doing the best we can to produce scenarios of danger. That's where the 2 degree warming target we're all talking about comes from. But we really don't want to let climate change get that far either—because too many unknowable things kick in.

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In NYC we are talking about how to manage sea level rise of as much as five feet over the 21st century. But if we get to the point where the Greenland and West Antarctic ice sheets are melting completely, even disappearing, we are talking about a 30 to 40 ft. sea level rise over subsequent centuries. No coastal city will be able to handle that.

Is there anything in our collective “tool kit”—as a democracy—that has prepared us for dealing with a problem as calamitous as climate change?

We’ve always lived in a cloud of uncertainty about the world around us—and about what we know about risk. Just because you live with it, doesn’t mean you let it go. We have the power to make things happen.

Things do look terrible. But, we’ve been here before. We have been in terrible predicaments, as a human race.

From the time I was born until I was forty, we lived under a cloud of fear that the world would be destroyed in a nuclear holocaust. It was a tense, hostile time in this country. Students on campuses were being tear-gassed. And we were demonstrating for peace! Everyone was worried that we were all going to be blown up by the Russians. I can’t tell you how much that affected my life—all of our lives.

Between 1945 and 1986 we built up a lot of infrastructure to make sure we would not blow each other up with weapons of mass destruction. It took years. And a great deal of hard work. But we did it. We more or less fixed that terrible mess, one that looked like it would kill us all.

We cannot expect climate treaties to happen overnight.



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How concerned should we be about passing specific thresholds of carbon emissions in the atmosphere?

Going from say, 390 parts per million [referring to concentration of carbon dioxide in the atmosphere] to 400 doesn't change the climate in any notable way, particularly in the near

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term. It's more a point above which the risks clearly escalate over time, rather than a sharp threshold.

Taking the longer perspective, some of the changes we've seen already, which as recently as the mid-1990s were not expected to occur so soon or at all, include: rapid shrinkage at the margins of the ice sheets in Greenland

and Antarctica contributing to an acceleration of sea level rise, more intense heavy precipitation events, and large reductions in the Arctic summer sea ice pack.

Knowing how enormous a problem this is, how do you get out of bed in the morning?

Some people—and some scientists—just take a bleak view of the world. I'm not one of them. I have seen amazing things happen in the course of my lifetime, things I never dreamed could happen.

People have a way of messing things up. But we also fix things. We clean up after ourselves—even though, sometimes, it seems as our ability to solve problems is not as good as our ability to create them.

I don't want to live in a world where I have to be worried all the time. I choose to remain optimistic.

How do you ground your optimism in reality? I mean, it can't just be a willful leap of faith, can it?

On climate change, I remain optimistic—with good reason. Actually, these days, I have three good reasons. And they all have to do with how unknowable the future is. Things happen that surprise us, things that we did not expect. They change the course of events.

1. We have a president who *finally* seems to want to build a legacy around addressing the climate problem. His administration's new fuel efficiency standards are a really big deal. And so are the new carbon pollution rules proposed by the EPA. He is sending powerful signals to the world, and to our own citizens, about his willingness to step up and be a leader in the fight against climate change. He is pulling us (although sometimes too quietly) into a new era in terms of energy. And what he proposes is doable.

2. Our ability to tap into reserves of shale gas was totally unpredicted. Natural gas can be a huge help—if we don't let the methane leak out during development and make the climate even worse. Methane is a potent greenhouse gas. That is why it is so critical that the gas developers are strongly regulated and carefully monitored. It has to be leakproof.

But we are seeing carbon emissions drop hugely because of all the natural gas coming online. That's good.

I don't buy the argument that natural gas development distracts us from investing in renewables. They can work hand in hand. It is not clear that there is a trade-off. Meanwhile, people want abundant and inexpensive energy—all over the world.

Technology will never cease to amaze—and surprise—us. Our energy systems are changing, radically. Utilities will be forced to become less centralized and to encourage distributed power.



We have big decisions to make about what the grid of the future will look like. Using energy more efficiently can be extremely helpful. And we should stop fighting every two years about renewable tax credits. It creates too much uncertainty and inefficiency.

3. China. The Chinese have already driven down the price of solar energy to levels we wouldn't have dreamed of ten years ago. They've made solar into a big buy. Germany's political decision to rely so heavily on renewables—50% by 2020—was made much easier by the Chinese ability to get a market going. The Chinese government knows that it will have a revolution on its hands if it continues to pollute the air and poison people. So it will make big changes, quickly.

Is climate change a problem that is too big for a democracy to handle? I'm sure the alternatives are worse: a dictator global government on environment. But we need some sort of global agreement—and that seems so difficult to achieve; we can't even get consensus on what to do in this country.

My father was into politics. My mother was into nature. I see those two strands throughout my life. One of the most interesting things about my life's work has been exploring a big question: How do you turn scientific consensus into a political mandate?

Right now, I am teaching a course on International Treaties at the NYU Law School. We're exploring how countries come together to make strong, binding treaties. What are the key elements? How do countries build trust, and how do they build institutions that are capable of supporting treaties?





The United States isn't the only player here anymore. It isn't even the most important player. And right now, we have factions within our own government that don't even want governments, much less treaties. We seem unable to set political partisanship aside, even in the face of a terrible—global—problem. So our own infrastructure isn't functioning properly.

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Of course, if we could get China, the United States, and the European Union in a room and agree to stop greenhouse gas pollution quickly, the problem would be solved. Unfortunately, that is not going to happen anytime soon. But if I could choose my solution, it would be great to have a climate treaty among key nations.

How do you talk about climate peril with your own children? How do you educate them, without terrifying them?

I try not to take my work home with me every night. But I don't have to talk about climate change at the dinner table for my children to know all about it. My daughter is 23 and my son is 15. I don't have to indoctrinate them, even if I wanted to. Climate change is in the air now. It is embedded in the culture they are growing up in. It is mentioned in movies, on television, by celebrities. Young people aren't deniers. Youth is always the answer. To paraphrase Max Planck, intellectual progress is made one funeral at a time.

It will take a long time to shed a generation of deniers. Back to getting out of bed in the morning: where does hope come from?

Look, we're used to living with messes. Everybody is—every day. Things feel like a mess in so many parts of our lives, but if you struggle, you can make them better.

People don't give up. We find better ways to get things done. Paralysis is ridiculous. It isn't the human story. It isn't what we do. We need luck. And we need hard work.

What do you see as the biggest, most alarming problem as you think about how we tackle climate change?

The biggest problem? We don't really know how close to disaster we are. There is a potential for a very bad outcome no matter what we do. You have to let this motivate you—and not paralyze you.

If a problem looks too daunting, people are paralyzed. It is better to talk about solutions that extract creative thinking. It is better to keep flexibility in our system—and in a democracy, that can happen, beautifully, when it is working.

There is no one solution to climate change. There will be many. We don't even know now where all the solutions are going to come from.

“A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.” —Max Planck

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