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David Wallace-Wells: 'We are on the brink of total catastrophe'

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IN JULY 2017 David Wallace-Wells, an American journalist and deputy editor of New York magazine, published a cover story about what climate change could wreak-'famine, economic collapse, a sun that cooks us'. It went on to become the most-read story of the magazine, ever, reaching, and scaring, millions of readers. Wallace- Wells' recent book The Uninhabitable Earth: A story of the future (Allen Lane; pages 310; Rs799) fleshes out those same ideas, with the force of a sledgehammer, and the might of scientific evidence. His opening sentence, 'It is worse, much worse, than you think,' warns a reader that to reckon with climate change is to acknowledge the damage that we've done, and perils that await us. Excerpts:

Why do you think certain political parties and ideologies, the world over, find concern over climate change an 'elite' concern? How do you respond to that accusation?

For a long time, an economic conventional wisdom held that action on climate change would be expensive- both in the sense of requiring upfront investment and in the sense of foregoing some amount of economic growth. That conventional wisdom has been reversed in recent years, with economists now in virtually unanimous agreement that fast action on climate will be much better for us than slow.

But it is a powerful idea, and when those with the least face an apparent choice between immediate economic gains and a vaguer sense of environmental health down the road, the impulse will tend to be towards the economic gains, no matter the cost impost on the future of the planet. Thankfully, the terms of that bargain have shifted dramatically, but for a long time it did seem that the world's wealthy were asking the world's poor to develop more slowly for the sake of their own well-being (and despite having benefited enormously from the burning of fossil fuels themselves).

The Uninhabitable Earth arose from an article, which was published in July 2017. What were some of the discoveries/new research that you found the most startling in the time that the article ran and the book was published?

There are almost too many to name- the new research is absolutely eye-opening, and it arrives almost daily. But to name a few... One recent paper suggested by 2100, with unabated emissions, certain parts of the world could be hit by six climate-driven natural disasters at once. Another suggested that some of the biggest cities in South Asia and the Middle East could become dangerously hot by 2050-so hot that just walking around outside in summer meant encountering a risk of heatstroke, perhaps lethal. One study of the impact of climate change on economics suggested that unabated warming could produce \$600 trillion in climate damages by 2100-double all the wealth that exists in the world today.

No matter how horrified you are by what climate change promises, the scale of those impacts reflect human power over the climate; that is, to me, a hopeful message, says David Wallace-Wells

You had a child during the course of writing this book. What kind of world do you see her inheriting?

I don't think I know-in fact, I don't think anyone knows. That is because the main driver of our climate future is human action-what we do, now and in the decades ahead. We can choose our future, by choosing how much carbon to put into the atmosphere. And that will always be the case, that the climate of the next decade will always be determined by the emissions of the previous one. Ultimately that is, to me, a hopeful message: that no matter how horrified you are by what climate change promises, the scale of those impacts reflect human power over the climate. If we get to 3 degrees, or 4 degrees, it will be because of what we do-because

we have chosen to. Which means, we can choose not to.

You write, 'Climate change isn't something happening here or there, but everywhere, and all at once. And unless we choose to halt it, it will never stop.' Your book stays clear of sermonising and pop solutions, but how do we stop climate change?

It's very simple: quickly and dramatically bring our carbon emissions down to zero. Then, ideally, deploy some negative-emissions tools to take some carbon out of the air, cutting the concentration to something like 350 parts per million-the level scientists consider climatologically 'safe'. Currently, we're at about 411 ppm, and growing fast. The last time there was that much carbon in the atmosphere, the planet was four or five degrees Celsius warmer, and there were palm trees in the Arctic.

What are the futures you see for India and China? What can these countries do differently?

Even the near-term outlook for India, in particular, is quite scary. As soon as 2050, several of the country's most populous cities could be unlivably hot in summer-you couldn't walk around outside at that time of year, and certainly couldn't work outside, without incurring a risk of heatstroke and possibly heat death. River flooding promises to be dramatic, as well, and both forces suggest a quite significant reshuffling of the Indian population-with some leaving the country and others merely moving within in. By the end of the century, if we continue on a trajectory of unabated warming, it is estimated by some of the best economists in the world that climate change would have entirely wiped out the very possibility of economic growth in the country-so that the very best India could hope for, in any given year, was zero per cent growth.

In China, the story is a bit different, mostly because the country has a different geography. In fact, while the impacts visited upon India in the twenty-first century are estimated to be four times bigger than the country's share of global emissions, China is in the reverse position: expected to have a share of emissions four times bigger than its share of climate impacts. Unfortunately, this suggests a problematic set of incentives, whereby China would benefit, relatively speaking, from more burning of fossil fuels, since the impacts would mostly be felt by others around the world. But my hope - I think it has to be all our hope - is that all the nations of the world disregard that narrow way of thinking, focused on nationalistic self-interest, and take some more aggressive collective action to deal with the problem.

Midway through the book you address the reader. How come?

The spirit of the narration is very much to pull the reader by the collar and try to impress upon them just how big a story climate change is-and not just any story, but one in which we are all operating as protagonists, capable of writing new endings.

I'm 36 years old, and my lifetime contains almost the entire story of climate change: when I was born, the climate was basically stable, and 36 years later, we are on the brink of catastrophe, says David Wallace-Wells

Currently what are the main problems with storytelling around climate change?

In writing my book, I thought of three major problems.

The first was that it misrepresented the speed of change. We've been led to believe that climate change is very slow, the legacy of several centuries and with the most intense impacts arriving perhaps a century or more from now. In fact, half of all emissions produced by the burning of fossil fuels in all of human history have been produced in just the last thirty years, and-in the form of unprecedented heat waves, flooding, extreme weather and incredible wildfires-we are now seeing those impacts in real time. I'm 36 years old, and my lifetime contains almost the entire story of climate change: when I was born, the climate was basically stable, and just 36 years later, we are on the brink of total catastrophe. We have only about that much time, now, to avoid some of the worst outcomes.

The second is that it misrepresented the scope of change. We heard so much about sea-level rise it was possible to think that if you lived anywhere but the coasts you'd be safe. But the more we learn about the impact of climate change on agricultural (grain yields perhaps 50 per cent lower by the end of the century), conflict (perhaps twice as much war), economic growth (a global GDP 20-30 per cent lower than it would be without climate change, an impact twice as deep as the Great Depression, and permanent)-you begin to see just how all-encompassing and inescapable this story is. It is everywhere already, though the impacts are being felt most intensely around the equator. But wherever you live, this force is likely to define your life in the coming century.

The third problem is that it misrepresented the severity of the issue. Scientists talked so much about two degrees of warming as the threshold of catastrophe that lay readers could be forgiven for thinking that was as bad as it could get. In fact, it is, practically speaking, more of a floor for warming than a ceiling. We are on track for a little more than four degrees by the end of the century, and there had been very little climate storytelling that painted a picture of anything in that range, between 2 and 4 degrees.

But each of these problems have dissipated a bit over the last year or so, as more and more scientists and climate writers have been speaking out in alarming tones-urging everyone to take seriously the science, including when it terrifies us.

You write about Amitav Ghosh's The Great Derangement. How do you see the relationship between fiction and climate change?

Climate change is the story of the 21st century, and yet we haven't yet seen much interesting or engaging fiction written about it-or, for that matter, much engaging pop culture of any kind produced. I think the reasons why that is the case are complicated-having to do with the scale of the story, the difficulty we have in seeing obvious heroes and obvious villains in it, and how we've been raised to see it as both a political story and, therefore, a kind of corny one. We've done better, I think, with stories that are almost-but-not-quite

about climate change, working sort of like parables for our relationship to the planet.

You talk of 'plastic panic' and 'bee death' as 'parables'. Can you expand on that?

Both stories seem to tell us something about our relationship to the planet and its habitability: the oceans filling up with plastic, the mass die-off of this immensely intelligent insect species. But neither actually has anything to do with climate change, which is by far the most important feature of our relationship to that planet and its future. Plastic pollution is unsightly, which is one reason it has generated so much attention, I think, but it will ultimately not much effect the livability of the planet-only its aesthetic qualities. And honeybees are dying off in large numbers in Europe and the United States because they've been turned into something like slave labourers, trucked around from industrial farm to industrial farm and forced to feast on plants sprayed with insecticides. The broader phenomenon of insect die-off (some estimates have been as high as 75 per cent) are much more worrying-but honeybee death is not a concern for the climate-concerned. And in both cases I worry, a little bit, they distract us from the overwhelming problem before us.

Even the near-term outlook for India, in particular, is quite scary. As soon as 2050, several of the country's most populous cities could be unlivably hot in summer, says David Wallace-Wells

Can you expand on the phenomenon of 'scientific reticence' when it comes to climate change?

For a long time, scientists were, I think, reluctant to speak of some of the scarier aspects of their findings (the name was given to the phenomenon by James Hansen, a climate hero). This was, I think, the result of a number of factors: as scientists, they were temperamentally inclined to be careful; they were trained to be more that way; in the US, especially, many did battle with the forces of climate denial and disinformation and found themselves anxious to never make a projection they felt could later be falsified or used against them; and they coalesced around a strategic conventional wisdom that hope and optimism were the best ways to mobilise the public.

But that conventional wisdom has begun to shift, which is, I think, for the good. If you look at the history of activism- not just on environmental issues, but including those movements-fear is often very useful in rallying action. And, in general, I don't think there is, or should be, any one way to tell the story of climate change-it is far too big a story to tell in any one way.

You write how change will happen not through 'dietary choices of individuals' but through 'policy changes'. But as conscientious citizens, is there a way to lead less hypocritical lives (other than ditching the plastic straw!)?

Of course, we can all eat less meat and use less electricity. In theory, many of us could choose to buy electric cars and fly less frequently, or not at all. Each of those actions would reduce the carbon footprints of individuals concerned about the future of the planet. But I'm not sure hypocrisy is as damning a charge as it is understood to be. By that I mean: politics is the way that we try to be better as a group than we are as individuals, and to the extent that we are trying to hold ourselves to standards collectively which we might not meet as individuals, I think it makes just as much sense to call that gap 'aspiration' as it does to call it 'hypocrisy'.

The point is even more clear to me on climate issues than in some other parts of our political culture, for this reason: we simply cannot make the necessary changes through individual action. We need policy. That's in part because large portions of our global footprint are produced by sectors-infrastructure, industry-that are simply beyond the power of citizens to even influence, let alone rebuild (as they need to be).

But the sectors that seem easier to address through individual action are just as thorny. Carbon emissions from air travel could shrink, at the margin, if many conscientious people flew less. But we don't need merely to lower our emissions, we need to eliminate them entirely. That can't happen through individual choices. It can only happen if we develop electric airplanes, which will require massive R&D funding, presumably much of it public investment, and probably also if it is required legislatively or through government regulation. The same math applies to diet. We can reduce our emissions from beef, a very little bit, if many people choose to eat less of it. But we don't just need to lower those emissions, we need to eliminate them. How can that happen except through public policy governing agricultural and land use practices? Small-scale studies show, for instance, that feeding cattle a little seaweed can virtually eliminate the methane emissions of cows-meaning virtually eliminate the carbon problem of beef. But we can't bring about that new practice ourselves; only public policy can.

Does the choice of qualifiers like 'possibly', 'perhaps' and 'conceivably' weaken the clarity and certainty of climate change? Why did you choose to use these caveats?

I think they do cloud the picture, somewhat, but I included them in the book because it is the only honest way to talk about the science, which is clouded by considerable uncertainty. Most of that uncertainty is about human action-what we will do, and how quickly, remains the biggest driver of our own climate future. But there is genuine scientific uncertainty, too, and I think it's invariably the case that some conventional wisdom that exists today about climate change will shift in the years and decades ahead-though it's also the case that in the years I've been following the news from science closely there have been many, many more papers that make the future look more bleak than those that make it look sunnier.

Unfortunately, we do-almost all of us- tend to see expressions of uncertainty and treat them as reasons to not take the projections seriously. Of course, that's bad-and irresponsible. But we've behaved with regard to climate change considerably worse than we behave when, say, we disregard the small chance of a plane or car crash. Because with climate change the vanishingly small possibility is that we avert catastrophic warming- yet, we continue to act, collectively, as a planet, as though some tiny sliver of hope we could steer our way clear of disaster is a reason to think we will inevitably avert it. This is especially pernicious because climate preparedness is not just a game of chance, in which the dice are very much loaded against us; to avert that disaster requires us to

act, very quickly and very dramatically. Instead, to this point we've done hardly anything at all.

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