The Great Derangement

CLIMATE CHANGE AND THE UNTHINKABLE

Amitav Ghosh

The University of Chicago Press
CHICAGO AND LONDON

1.

Who can forget those moments when something that seems inanimate turns out to be vitally, even dangerously alive? As, for example, when an arabesque in the pattern of a carpet is revealed to be a dog's tail, which, if stepped upon, could lead to a nipped ankle? Or when we reach for an innocent looking vine and find it to be a worm or a snake? When a harmlessly drifting log turns out to be a crocodile?

It was a shock of this kind, I imagine, that the makers of *The Empire Strikes Back* had in mind when they conceived of the scene in which Han Solo lands the Millennium Falcon on what he takes to be an asteroid—but only to discover that he has entered the gullet of a sleeping space monster.

To recall that memorable scene now, more than thirty-five years after the making of the film, is to recognize its impossibility. For if ever there were a Han Solo, in the near or distant future, his assumptions about interplanetary objects are certain to be very different from those that prevailed in California at the time when the film was made. The humans of the future will surely understand, knowing what they presumably will know about the history of their forebears on Earth, that only in one, very brief era, lasting less than three centuries, did a significant number of their kind believe that planets and asteroids are inert.

2.

My ancestors were ecological refugees long before the term was invented.

They were from what is now Bangladesh, and their village was on the shore of the Padma River, one of the mightiest wa-

terways in the land. The story, as my father told it, was this: one day in the mid-1850s the great river suddenly changed course, drowning the village; only a few of the inhabitants had managed to escape to higher ground. It was this catastrophe that had unmoored our forebears; in its wake they began to move westward and did not stop until the year 1856, when they settled once again on the banks of a river, the Ganges, in Bihar.

I first heard this story on a nostalgic family trip, as we were journeying down the Padma River in a steamboat. I was a child then, and as I looked into those swirling waters I imagined a great storm, with coconut palms bending over backward until their fronds lashed the ground; I envisioned women and children racing through howling winds as the waters rose behind them. I thought of my ancestors sitting huddled on an outcrop, looking on as their dwellings were washed away.

To this day, when I think of the circumstances that have shaped my life, I remember the elemental force that untethered my ancestors from their homeland and launched them on the series of journeys that preceded, and made possible, my own travels. When I look into my past the river seems to meet my eyes, staring back, as if to ask, Do you recognize me, wherever you are?

Recognition is famously a passage from ignorance to knowledge. To recognize, then, is not the same as an initial introduction. Nor does recognition require an exchange of words: more often than not we recognize mutely. And to recognize is by no means to understand that which meets the eye; comprehension need play no part in a moment of recognition.

The most important element of the word *recognition* thus lies in its first syllable, which harks back to something prior, an already existing awareness that makes possible the passage from ignorance to knowledge: a moment of recognition occurs when a prior awareness flashes before us, effecting an instant

change in our understanding of that which is beheld. Yet this flash cannot appear spontaneously; it cannot disclose itself except in the presence of its lost other. The knowledge that results from recognition, then, is not of the same kind as the discovery of something new: it arises rather from a renewed reckoning with a potentiality that lies within oneself.

This, I imagine, was what my forebears experienced on that day when the river rose up to claim their village: they awoke to the recognition of a presence that had molded their lives to the point where they had come to take it as much for granted as the air they breathed. But, of course, the air too can come to life with sudden and deadly violence—as it did in the Congo in 1988, when a great cloud of carbon dioxide burst forth from Lake Nyos and rolled into the surrounding villages, killing 1,700 people and an untold number of animals. But more often it does so with a quiet insistence—as the inhabitants of New Delhi and Beijing know all too well—when inflamed lungs and sinuses prove once again that there is no difference between the without and the within; between using and being used. These too are moments of recognition, in which it dawns on us that the energy that surrounds us, flowing under our feet and through wires in our walls, animating our vehicles and illuminating our rooms, is an all-encompassing presence that may have its own purposes about which we know nothing.

It was in this way that I too became aware of the urgent proximity of nonhuman presences, through instances of recognition that were forced upon me by my surroundings. I happened then to be writing about the Sundarbans, the great mangrove forest of the Bengal Delta, where the flow of water and silt is such that geological processes that usually unfold in deep time appear to occur at a speed where they can be followed from week to week and month to month. Overnight a stretch of riverbank will disappear, sometimes taking houses

and people with it; but elsewhere a shallow mud bank will arise and within weeks the shore will have broadened by several feet. For the most part, these processes are of course cyclical. But even back then, in the first years of the twenty-first century, portents of accumulative and irreversible change could also be seen, in receding shorelines and a steady intrusion of salt water on lands that had previously been cultivated.

This is a landscape so dynamic that its very changeability leads to innumerable moments of recognition. I captured some of these in my notes from that time, as, for example, in these lines, written in May 2002: "I do believe it to be true that the land here is demonstrably alive; that it does not exist solely, or even incidentally, as a stage for the enactment of human history; that it is [itself] a protagonist." Elsewhere, in another note, I wrote, "Here even a child will begin a story about his grandmother with the words: 'in those days the river wasn't here and the village was not where it is . . .'"

Yet, I would not be able to speak of these encounters as instances of recognition if some prior awareness of what I was witnessing had not already been implanted in me, perhaps by childhood experiences, like that of going to look for my family's ancestral village; or by memories like that of a cyclone, in Dhaka, when a small fishpond, behind our walls, suddenly turned into a lake and came rushing into our house; or by my grandmother's stories of growing up beside a mighty river; or simply by the insistence with which the landscape of Bengal forces itself on the artists, writers, and filmmakers of the region.

But when it came to translating these perceptions into the medium of my imaginative life—into fiction, that is—I found myself confronting challenges of a wholly different order from those that I had dealt with in my earlier work. Back then, those challenges seemed to be particular to the book I was then writing, *The Hungry Tide*; but now, many years later,

at a moment when the accelerating impacts of global warming have begun to threaten the very existence of low-lying areas like the Sundarbans, it seems to me that those problems have far wider implications. I have come to recognize that the challenges that climate change poses for the contemporary writer, although specific in some respects, are also products of something broader and older; that they derive ultimately from the grid of literary forms and conventions that came to shape the narrative imagination in precisely that period when the accumulation of carbon in the atmosphere was rewriting the destiny of the earth.

3.

That climate change casts a much smaller shadow within the landscape of literary fiction than it does even in the public arena is not hard to establish. To see that this is so, we need only glance through the pages of a few highly regarded literary journals and book reviews, for example, the *London Review of Books*, the *New York Review of Books*, the *Los Angeles Review of Books*, the *Literary Journal*, and the *New York Times Review of Books*. When the subject of climate change occurs in these publications, it is almost always in relation to nonfiction; novels and short stories are very rarely to be glimpsed within this horizon. Indeed, it could even be said that fiction that deals with climate change is almost by definition not of the kind that is taken seriously by serious literary journals: the mere mention of the subject is often enough to relegate a novel or a short story to the genre of science fiction. It is as though in the literary imagination climate change were somehow akin to extraterrestrials or interplanetary travel.

There is something confounding about this peculiar feedback loop. It is very difficult, surely, to imagine a conception of

seriousness that is blind to potentially life-changing threats. And if the urgency of a subject were indeed a criterion of its seriousness, then, considering what climate change actually portends for the future of the earth, it should surely follow that this would be the principal preoccupation of writers the world over—and this, I think, is very far from being the case.

But why? Are the currents of global warming too wild to be navigated in the accustomed barques of narration? But the truth, as is now widely acknowledged, is that we have entered a time when the wild has become the norm: if certain literary forms are unable to negotiate these torrents, then they will have failed—and their failures will have to be counted as an aspect of the broader imaginative and cultural failure that lies at the heart of the climate crisis.

Clearly the problem does not arise out of a lack of information: there are surely very few writers today who are oblivious to the current disturbances in climate systems the world over. Yet, it is a striking fact that when novelists do choose to write about climate change it is almost always outside of fiction. A case in point is the work of Arundhati Roy: not only is she one of the finest prose stylists of our time, she is passionate and deeply informed about climate change. Yet all her writings on these subjects are in various forms of nonfiction.

Or consider the even more striking case of Paul Kingsnorth, author of *The Wake*, a much-admired historical novel set in eleventh-century England. Kingsnorth dedicated several years of his life to climate change activism before founding the influential Dark Mountain Project, "a network of writers, artists and thinkers who have stopped believing the stories our civilization tells itself." Although Kingsnorth has written a powerful nonfiction account of global resistance movements, as of the time of writing he has yet to publish a novel in which climate change plays a major part.

I too have been preoccupied with climate change for a long time, but it is true of my own work as well, that this subject figures only obliquely in my fiction. In thinking about the mismatch between my personal concerns and the content of my published work, I have come to be convinced that the discrepancy is not the result of personal predilections: it arises out of the peculiar forms of resistance that climate change presents to what is now regarded as serious fiction.

4.

In his seminal essay "The Climate of History," Dipesh Chakrabarty observes that historians will have to revise many of their fundamental assumptions and procedures in this era of the Anthropocene, in which "humans have become geological agents, changing the most basic physical processes of the earth." I would go further and add that the Anthropocene presents a challenge not only to the arts and humanities, but also to our commonsense understandings and beyond that to contemporary culture in general.

There can be no doubt, of course, that this challenge arises in part from the complexities of the technical language that serves as our primary window on climate change. But neither can there be any doubt that the challenge derives also from the practices and assumptions that guide the arts and humanities. To identify how this happens is, I think, a task of the utmost urgency: it may well be the key to understanding why contemporary culture finds it so hard to deal with climate change. Indeed, this is perhaps the most important question ever to confront *culture* in the broadest sense—for let us make no mistake: the climate crisis is also a crisis of culture, and thus of the imagination.

Culture generates desires—for vehicles and appliances, for

certain kinds of gardens and dwellings—that are among the principal drivers of the carbon economy. A speedy convertible excites us neither because of any love for metal and chrome, nor because of an abstract understanding of its engineering. It excites us because it evokes an image of a road arrowing through a pristine landscape; we think of freedom and the wind in our hair; we envision James Dean and Peter Fonda racing toward the horizon; we think also of Jack Kerouac and Vladimir Nabokov. When we see an advertisement that links a picture of a tropical island to the word *paradise*, the longings that are kindled in us have a chain of transmission that stretches back to Daniel Defoe and Jean-Jacques Rousseau: the flight that will transport us to the island is merely an ember in that fire. When we see a green lawn that has been watered with desalinated water, in Abu Dhabi or Southern California or some other environment where people had once been content to spend their water thriftily in nurturing a single vine or shrub, we are looking at an expression of a yearning that may have been midwifed by the novels of Jane Austen. The artifacts and commodities that are conjured up by these desires are, in a sense, at once expressions and concealments of the cultural matrix that brought them into being.

This culture is, of course, intimately linked with the wider histories of imperialism and capitalism that have shaped the world. But to know this is still to know very little about the specific ways in which the matrix interacts with different modes of cultural activity: poetry, art, architecture, theater, prose fiction, and so on. Throughout history these branches of culture have responded to war, ecological calamity, and crises of many sorts: why, then, should climate change prove so peculiarly resistant to their practices?

From this perspective, the questions that confront writers and artists today are not just those of the politics of the carbon

economy; many of them have to do also with our own practices and the ways in which they make us complicit in the concealments of the broader culture. For instance: if contemporary trends in architecture, even in this period of accelerating carbon emissions, favor shiny, glass-and-metal-plated towers, do we not have to ask, What are the patterns of desire that are fed by these gestures? If I, as a novelist, choose to use brand names as elements in the depiction of character, do I not need to ask myself about the degree to which this makes me complicit in the manipulations of the marketplace?

In the same spirit, I think it also needs to be asked, What is it about climate change that the mention of it should lead to banishment from the preserves of serious fiction? And what does this tell us about culture writ large and its patterns of evasion?

In a substantially altered world, when sea-level rise has swallowed the Sundarbans and made cities like Kolkata, New York, and Bangkok uninhabitable, when readers and museumgoers turn to the art and literature of our time, will they not look, first and most urgently, for traces and portents of the altered world of their inheritance? And when they fail to find them, what should they—what can they—do other than to conclude that ours was a time when most forms of art and literature were drawn into the modes of concealment that prevented people from recognizing the realities of their plight? Quite possibly, then, this era, which so congratulates itself on its self-awareness, will come to be known as the time of the Great Derangement.

5.

On the afternoon of March 17, 1978, the weather took an odd turn in north Delhi. Mid-march is usually a nice time of year

in that part of India: the chill of winter is gone and the blazing heat of summer is yet to come; the sky is clear and the monsoon is far away. But that day dark clouds appeared suddenly and there were squalls of rain. Then followed an even bigger surprise: a hailstorm.

I was then studying for an MA at Delhi University while also working as a part-time journalist. When the hailstorm broke, I was in a library. I had planned to stay late, but the unseasonal weather led to a change of mind and I decided to leave. I was on my way back to my room when, on an impulse, I changed direction and dropped in on a friend. But the weather continued to worsen as we were chatting, so after a few minutes I decided to head straight back by a route that I rarely had occasion to take.

I had just passed a busy intersection called Maurice Nagar when I heard a rumbling sound somewhere above. Glancing over my shoulder I saw a gray, tube-like extrusion forming on the underside of a dark cloud: it grew rapidly as I watched, and then all of a sudden it turned and came whiplashing down to earth, heading in my direction.

Across the street lay a large administrative building. I sprinted over and headed toward what seemed to be an entrance. But the glass-fronted doors were shut, and a small crowd stood huddled outside, in the shelter of an overhang. There was no room for me there so I ran around to the front of the building. Spotting a small balcony, I jumped over the parapet and crouched on the floor.

The noise quickly rose to a frenzied pitch, and the wind began to tug fiercely at my clothes. Stealing a glance over the parapet, I saw, to my astonishment, that my surroundings had been darkened by a churning cloud of dust. In the dim glow that was shining down from above, I saw an extraordinary panoply of objects flying past—bicycles, scooters, lampposts,

sheets of corrugated iron, even entire tea stalls. In that instant, gravity itself seemed to have been transformed into a wheel spinning upon the fingertip of some unknown power.

I buried my head in my arms and lay still. Moments later the noise died down and was replaced by an eerie silence. When at last I climbed out of the balcony, I was confronted by a scene of devastation such as I had never before beheld. Buses lay overturned, scooters sat perched on treetops, walls had been ripped out of buildings, exposing interiors in which ceiling fans had been twisted into tulip-like spirals. The place where I had first thought to take shelter, the glass-fronted doorway, had been reduced to a jumble of jagged debris. The panes had shattered, and many people had been wounded by the shards. I realized that I too would have been among the injured had I remained there. I walked away in a daze.

Long afterward, I am not sure exactly when or where, I hunted down the *Times of India*'s New Delhi edition of March 18. I still have the photocopies I made of it.

"30 Dead," says the banner headline, "700 Hurt As Cyclone Hits North Delhi."

Here are some excerpts from the accompanying report: "Delhi, March 17: At least 30 people were killed and 700 injured, many of them seriously, this evening when a freak funnel-shaped whirlwind, accompanied by rain, left in its wake death and devastation in Maurice Nagar, a part of Kingsway Camp, Roshanara Road and Kamla Nagar in the Capital. The injured were admitted to different hospitals in the Capital.

"The whirlwind followed almost a straight line. . . . Some eyewitnesses said the wind hit the Yamuna river and raised waves as high as 20 or 30 feet. . . . The Maurice Nagar road . . . presented a stark sight. It was littered with fallen poles . . . trees, branches, wires, bricks from the boundary walls of various institutions, tin roofs of staff quarters and dhabas and scores of

scooters, buses and some cars. Not a tree was left standing on either side of the road."

The report quotes a witness: "I saw my own scooter, which I had abandoned on the road, during those terrifying moments, being carried away in the wind like a kite. We saw all this happening around but were dumbfounded. We saw people dying . . . but were unable to help them. The two tea-stalls at the Maurice Nagar corner were blown out of existence. At least 12 to 15 persons must have been buried under the debris at this spot. When the hellish fury had abated in just four minutes, we saw death and devastation around."

The vocabulary of the report is evidence of how unprecedented this disaster was. So unfamiliar was this phenomenon that the papers literally did not know what to call it: at a loss for words they resorted to "cyclone" and "funnel-shaped whirlwind."

Not till the next day was the right word found. The headlines of March 19 read, "A Very, Very Rare Phenomenon, Says Met Office": "It was a tornado that hit northern parts of the Capital yesterday—the first of its kind. . . . According to the Indian Meteorological Department, the tornado was about 50 metres wide and covered a distance of about five k.m. in the space of two or three minutes."

This was, in effect, the first tornado to hit Delhi—and indeed the entire region—in recorded meteorological history. And somehow I, who almost never took that road, who rarely visited that part of the university, had found myself in its path.

Only much later did I realize that the tornado's eye had passed directly over me. It seemed to me that there was something eerily apt about that metaphor: what had happened at that moment was strangely like a species of visual contact, of beholding and being beheld. And in that instant of contact something was planted deep in my mind, something irreducibly mysterious, something quite apart from the danger that I had been in and the destruction that I had witnessed; something that was not a property of the thing itself but of the manner in which it had intersected with my life.

6.

As is often the case with people who are waylaid by unpredictable events, for years afterward my mind kept returning to my encounter with the tornado. Why had I walked down a road that I almost never took, just before it was struck by a phenomenon that was without historical precedent? To think of it in terms of chance and coincidence seemed only to impoverish the experience: it was like trying to understand a poem by counting the words. I found myself reaching instead for the opposite end of the spectrum of meaning—for the extraordinary, the inexplicable, the confounding. Yet these too did not do justice to my memory of the event.

Novelists inevitably mine their own experience when they write. Unusual events being necessarily limited in number, it is but natural that these should be excavated over and again, in the hope of discovering a yet undiscovered vein.

No less than any other writer have I dug into my own past while writing fiction. By rights then, my encounter with the tornado should have been a mother lode, a gift to be mined to the last little nugget.

It is certainly true that storms, floods, and unusual weather events do recur in my books, and this may well be a legacy of the tornado. Yet oddly enough, no tornado has ever figured in my novels. Nor is this due to any lack of effort on my part. Indeed, the reason I still possess those cuttings from the *Times of India* is that I have returned to them often over the years,

hoping to put them to use in a novel, but only to meet with failure at every attempt.

On the face of it there is no reason why such an event should be difficult to translate into fiction; after all, many novels are filled with strange happenings. Why then did I fail, despite my best efforts, to send a character down a road that is imminently to be struck by a tornado?

In reflecting on this, I find myself asking, What would I make of such a scene were I to come across it in a novel written by someone else? I suspect that my response would be one of incredulity; I would be inclined to think that the scene was a contrivance of last resort. Surely only a writer whose imaginative resources were utterly depleted would fall back on a situation of such extreme improbability?

Improbability is the key word here, so we have to ask, What does the word mean?

Improbable is not the opposite of *probable*, but rather an inflexion of it, a gradient in a continuum of probability. But what does probability—a mathematical idea—have to do with fiction?

The answer is: Everything. For, as Ian Hacking, a prominent historian of the concept, puts it, probability is a "manner of conceiving the world constituted without our being aware of it."

Probability and the modern novel are in fact twins, born at about the same time, among the same people, under a shared star that destined them to work as vessels for the containment of the same kind of experience. Before the birth of the modern novel, wherever stories were told, fiction delighted in the unheard-of and the unlikely. Narratives like those of *The Arabian Nights*, *The Journey to the West*, and *The Decameron* proceed by leaping blithely from one exceptional event to another. This, after all, is how storytelling must necessarily proceed,

inasmuch as it is a recounting of "what happened"—for such an inquiry can arise only in relation to something out of the ordinary, which is but another way of saying "exceptional" or "unlikely." In essence, narrative proceeds by linking together moments and scenes that are in some way distinctive or different: these are, of course, nothing other than instances of exception.

Novels too proceed in this fashion, but what is distinctive about the form is precisely the concealment of those exceptional moments that serve as the motor of narrative. This is achieved through the insertion of what Franco Moretti, the literary theorist, calls "fillers." According to Moretti, "fillers function very much like the good manners so important in [Jane] Austen: they are both mechanisms designed to keep the 'narrativity' of life under control—to give a regularity, a 'style' to existence." It is through this mechanism that worlds are conjured up, through everyday details, which function "as *the opposite of narrative*."

It is thus that the novel takes its modern form, through "the relocation of the unheard-of toward the background . . . while the everyday moves into the foreground."

Thus was the novel midwifed into existence around the world, through the banishing of the improbable and the insertion of the everyday. The process can be observed with exceptional clarity in the work of Bankim Chandra Chatterjee, a nineteenth-century Bengali writer and critic who self-consciously adopted the project of carving out a space in which realist European-style fiction could be written in the vernacular languages of India. Chatterjee's enterprise, undertaken in a context that was far removed from the metropolitan mainstream, is one of those instances in which a circumstance of exception reveals the true life of a regime of thought and practice.

Chatterjee was, in effect, seeking to supersede many old and very powerful forms of fiction, ranging from the ancient Indian epics to Buddhist Jataka stories and the immensely fecund Islamicate tradition of Urdu *dastaans*. Over time, these narrative forms had accumulated great weight and authority, extending far beyond the Indian subcontinent: his attempt to claim territory for a new kind of fiction was thus, in its own way, a heroic endeavor. That is why Chatterjee's explorations are of particular interest: his charting of this new territory puts the contrasts between the Western novel and other, older forms of narrative in ever-sharper relief.

In a long essay on Bengali literature, written in 1871, Chatterjee launched a frontal assault on writers who modeled their work on traditional forms of storytelling: his attack on this so-called Sanskrit school was focused precisely on the notion of "mere narrative." What he advocated instead was a style of writing that would accord primacy to "sketches of character and pictures of Bengali life."

What this meant, in practice, is very well illustrated by Chatterjee's first novel, *Rajmohan's Wife*, which was written in English in the early 1860s. Here is a passage: "The house of Mathur Ghose was a genuine specimen of mofussil [provincial] magnificence united with a mofussil want of cleanliness. . . . From the far-off paddy fields you could descry through the intervening foliage, its high palisades and blackened walls. On a nearer view might be seen pieces of plaster of a venerable antiquity prepared to bid farewell to their old and weather-beaten tenement."

Compare this with the following lines from Gustave Flaubert's *Madame Bovary*: "We leave the high road . . . whence the valley is seen. . . . The meadow stretches under a bulge of low hills to join at the back with the pasture land of the Bray country, while on the eastern side, the plain, gently rising, broadens out, showing as far as eye can follow its blond cornfields."

In both these passages, the reader is led into a "scene" through the eye and what it beholds: we are invited to "descry," to "view," to "see." In relation to other forms of narrative, this is indeed something new: instead of being told about what happened we learn about what was observed. Chatterjee has, in a sense, gone straight to the heart of the realist novel's "mimetic ambition": detailed descriptions of everyday life (or "fillers") are therefore central to his experiment with this new form.

Why should the rhetoric of the everyday appear at exactly the time when a regime of statistics, ruled by ideas of probability and improbability, was beginning to give new shapes to society? Why did fillers suddenly become so important? Moretti's answer is "'Because they *offer the kind of narrative pleasure compatible with the new regularity of bourgeois life*. Fillers turn the novel into a 'calm passion' . . . they are part of what Weber called the 'rationalization' of modern life: a process that begins in the economy and in the administration, but eventually pervades the sphere of free time, private life, entertainment, feelings. . . . Or in other words: fillers are an attempt at rationalizing the novelistic universe: turning it into a world of few surprises, fewer adventures, and no miracles at all."

This regime of thought imposed itself not only on the arts but also on the sciences. That is why *Time's Arrow, Time's Cycle*, Stephen Jay Gould's brilliant study of the geological theories of gradualism and catastrophism is, in essence, a study of narrative. In Gould's telling of the story, the catastrophist recounting of the earth's history is exemplified by Thomas Burnet's *Sacred Theory of the Earth* (1690) in which the narrative turns on events of "unrepeatable uniqueness." As opposed to this, the gradualist approach, championed by James Hutton (1726–97) and Charles Lyell (1797–1875), privileges slow processes that unfold over time at even, predictable rates. The central credo

in this doctrine was "nothing could change otherwise than the way things were seen to change in the present." Or, to put it simply: "Nature does not make leaps."

The trouble, however, is that Nature does certainly jump, if not leap. The geological record bears witness to many fractures in time, some of which led to mass extinctions and the like: it was one such, in the form of the Chicxulub asteroid, that probably killed the dinosaurs. It is indisputable, in any event, that catastrophes waylay both the earth and its individual inhabitants at unpredictable intervals and in the most improbable ways.

Which, then, has primacy in the real world, predictable processes or unlikely events? Gould's response is "the only possible answer can be 'both and neither.'" Or, as the National Research Council of the United States puts it: "It is not known whether the relocation of materials on the surface of the Earth is dominated by the slower but continuous fluxes operating all the time or by the spectacular large fluxes that operate during short-lived cataclysmic events."

It was not until quite recently that geology reached this agnostic consensus. Through much of the era when geology—and also the modern novel—were coming of age, the gradualist (or "uniformitarian") view held absolute sway and catastrophism was exiled to the margins. Gradualists consolidated their victory by using one of modernity's most effective weapons: its insistence that it has rendered other forms of knowledge obsolete. So, as Gould so beautifully demonstrates, Lyell triumphed over his adversaries by accusing them of being primitive: "In an early stage of advancement, when a great number of natural appearances are unintelligible, an eclipse, an earthquake, a flood, or the approach of a comet, with many other occurrences afterwards found to belong to the regular course of events, are regarded as prodigies. The same delusion prevails as to moral phenomena, and many of these are ascribed to the

intervention of demons, ghosts, witches, and other immaterial and supernatural agents."

This is exactly the rhetoric that Chatterjee uses in attacking the "Sanskrit school": he accuses those writers of depending on conventional modes of expression and fantastical forms of causality. "If love is to be the theme, Madana is invariably put into requisition with his five flower-tipped arrows; and the tyrannical king of Spring never fails to come to fight in his cause, with his army of bees, and soft breezes, and other ancient accompaniments. Are the pangs of separation to be sung? The moon is immediately cursed and anathematized, as scorching the poor victim with her cold beams."

Flaubert sounds a strikingly similar note in satirizing the narrative style that entrances the young Emma Rouault: in the novels that were smuggled into her convent, it was "all love, lovers, sweethearts, persecuted ladies fainting in lonely pavilions, postilions killed at every stage, horses ridden to death on every page, sombre forests, heartaches, vows, sobs, tears and kisses, little skiffs by moonlight, nightingales in shady groves." All of this is utterly foreign to the orderly bourgeois world that Emma Bovary is consigned to; such fantastical stuff belongs in the "dithyrambic lands" that she longs to inhabit.

In a striking summation of her tastes in narrative, Emma declares, "I . . . adore stories that rush breathlessly along, that frighten one. I detest commonplace heroes and moderate sentiments, such as there are in Nature."

"Commonplace"? "Moderate"? How did Nature ever come to be associated with words like these?

The incredulity that these associations evoke today is a sign of the degree to which the Anthropocene has already disrupted many assumptions that were founded on the relative climatic stability of the Holocene. From the reversed perspective of our time, the complacency and confidence of the emergent

bourgeois order appears as yet another of those uncanny instances in which the planet seems to have been toying with humanity, by allowing it to assume that it was free to shape its own destiny.

Unlikely though it may seem today, the nineteenth century was indeed a time when it was assumed, in both fiction and geology, that Nature was moderate and orderly: this was a distinctive mark of a new and "modern" worldview. Chatterjee goes out of his way to berate his contemporary, the poet Michael Madhusudan Datta, for his immoderate portrayals of Nature: "Mr. Datta . . . wants repose. The winds rage their loudest when there is no necessity for the lightest puff. Clouds gather and pour down a deluge, when they need do nothing of the kind; and the sea grows terrible in its wrath, when everybody feels inclined to resent its interference."

The victory of gradualist views in science was similarly won by characterizing catastrophism as un-modern. In geology, the triumph of gradualist thinking was so complete that Alfred Wegener's theory of continental drift, which posited upheavals of sudden and unimaginable violence, was for decades discounted and derided.

It is worth recalling that these habits of mind held sway until late in the twentieth century, especially among the general public. "As of the mid-1960s," writes the historian John L. Brooke, "a gradualist model of earth history and evolution . . . reigned supreme." Even as late as 1985, the editorial page of the *New York Times* was inveighing against the asteroidal theory of dinosaur extinction: "Astronomers should leave to astrologers the task of seeking the causes of events in the stars." As for professional paleontologists, Elizabeth Kolbert notes, they reviled both the theory and its originators, Luis and Walter Alvarez: "'The Cretaceous extinctions were gradual and the catastrophe theory is wrong,' . . . [a] paleontologist stated. But 'simplistic

theories will continue to come along to seduce a few scientists and enliven the covers of popular magazines.'"

In other words, gradualism became "a set of blinders" that eventually had to be put aside in favor of a view that recognizes the "twin requirements of uniqueness to mark moments of time as distinctive, and lawfulness to establish a basis of intelligibility."

Distinctive moments are no less important to modern novels than they are to any other forms of narrative, whether geological or historical. Ironically, this is nowhere more apparent than in *Rajmohan's Wife* and *Madame Bovary*, in both of which chance and happenstance are crucial to the narrative. In Flaubert's novel, for instance, the narrative pivots at a moment when Monsieur Bovary has an accidental encounter with his wife's soon-to-be lover at the opera, just after an impassioned scene during which she has imagined that the lead singer "was looking at her . . . She longed to run to his arms, to take refuge in his strength, as in the incarnation of love itself, and to say to him, to cry out, 'Take me away! carry me with you!'"

It could not, of course, be otherwise: if novels were not built upon a scaffolding of exceptional moments, writers would be faced with the Borgesian task of reproducing the world in its entirety. But the modern novel, unlike geology, has never been forced to confront the centrality of the improbable: the concealment of its scaffolding of events continues to be essential to its functioning. It is this that makes a certain kind of narrative a recognizably modern novel.

Here, then, is the irony of the "realist" novel: the very gestures with which it conjures up reality are actually a concealment of the real.

What this means in practice is that the calculus of probability that is deployed within the imaginary world of a novel is not the same as that which obtains outside it; this is why it

is commonly said, "If this were in a novel, no one would believe it." Within the pages of a novel an event that is only slightly improbable in real life—say, an unexpected encounter with a long-lost childhood friend—may seem wildly unlikely: the writer will have to work hard to make it appear persuasive.

If that is true of a small fluke of chance, consider how much harder a writer would have to work to set up a scene that is wildly improbable even in real life? For example, a scene in which a character is walking down a road at the precise moment when it is hit by an unheard-of weather phenomenon?

To introduce such happenings into a novel is in fact to court eviction from the mansion in which serious fiction has long been in residence; it is to risk banishment to the humbler dwellings that surround the manor house—those generic outhouses that were once known by names such as "the Gothic," "the romance," or "the melodrama," and have now come to be called "fantasy," "horror," and "science fiction."

7.

So far as I know, climate change was not a factor in the tornado that struck Delhi in 1978. The only thing it has in common with the freakish weather events of today is its extreme improbability. And it appears that we are now in an era that will be defined precisely by events that appear, by our current standards of normalcy, highly improbable: flash floods, hundred-year storms, persistent droughts, spells of unprecedented heat, sudden landslides, raging torrents pouring down from breached glacial lakes, and, yes, freakish tornadoes.

The superstorm that struck New York in 2012, Hurricane Sandy, was one such highly improbable phenomenon: the word *unprecedented* has perhaps never figured so often in the description of a weather event. In his fine study of Hurricane San-

dy, the meteorologist Adam Sobel notes that the track of the storm, as it crashed into the east coast of the United States, was without precedent: never before had a hurricane veered sharply westward in the mid-Atlantic. In turning, it also merged with a winter storm, thereby becoming a "mammoth hybrid" and attaining a size unprecedented in scientific memory. The storm surge that it unleashed reached a height that exceeded any in the region's recorded meteorological history.

Indeed, Sandy was an event of such a high degree of improbability that it confounded statistical weather-prediction models. Yet dynamic models, based on the laws of physics, were able to accurately predict its trajectory as well as its impacts.

But calculations of risk, on which officials base their decisions in emergencies, are based largely on probabilities. In the case of Sandy, as Sobel shows, the essential improbability of the phenomenon led them to underestimate the threat and thus delay emergency measures.

Sobel goes on to make the argument, as have many others, that human beings are intrinsically unable to prepare for rare events. But has this really been the case throughout human history? Or is it rather an aspect of the unconscious patterns of thought—or "common sense"—that gained ascendancy with a growing faith in "the regularity of bourgeois life"? I suspect that human beings were generally catastrophists at heart until their instinctive awareness of the earth's unpredictability was gradually supplanted by a belief in uniformitarianism—a regime of ideas that was supported by scientific theories like Lyell's, and also by a range of governmental practices that were informed by statistics and probability.

It is a fact, in any case, that when early tremors jolted the Italian town of L'Aquila, shortly before the great earthquake of 2009, many townsfolk obeyed the instinct that prompts people who live in earthquake-prone areas to move to open

spaces. It was only because of a governmental intervention, intended to prevent panic, that they returned to their homes. As a result, a good number were trapped indoors when the earthquake occurred.

No such instinct was at work in New York during Sandy, where, as Sobel notes, it was generally believed that "losing one's life to a hurricane is . . . something that happens in faraway places" (he might just as well have said "dithyrambic lands"). In Brazil, similarly, when Hurricane Catarina struck the coast in 2004, many people did not take shelter because "they refused to believe that hurricanes were possible in Brazil."

But in the era of global warming, nothing is really far away; there is no place where the orderly expectations of bourgeois life hold unchallenged sway. It is as though our earth had become a literary critic and were laughing at Flaubert, Chatterjee, and their like, mocking *their* mockery of the "prodigious happenings" that occur so often in romances and epic poems.

This, then, is the first of the many ways in which the age of global warming defies both literary fiction and contemporary common sense: the weather events of this time have a very high degree of improbability. Indeed, it has even been proposed that this era should be named the "catastrophozoic" (others prefer such phrases as "the long emergency" and "the Penumbral Period"). It is certain in any case that these are not ordinary times: the events that mark them are not easily accommodated in the deliberately prosaic world of serious prose fiction.

Poetry, on the other hand, has long had an intimate relationship with climatic events: as Geoffrey Parker points out, John Milton began to compose *Paradise Lost* during a winter of extreme cold, and "unpredictable and unforgiving changes in the climate are central to his story. Milton's fictional world, like the real one in which he lived, was . . . a 'universe of death' at the mercy of extremes of heat and cold." This is a universe

very different from that of the contemporary literary novel.

I am, of course, painting with a very broad brush: the novel's infancy is long past, and the form has changed in many ways over the last two centuries. Yet, to a quite remarkable degree, the literary novel has also remained true to the destiny that was charted for it at birth. Consider that the literary movements of the twentieth century were almost uniformly disdainful of plot and narrative; that an ever-greater emphasis was laid on style and "observation," whether it be of everyday details, traits of character, or nuances of emotion—which is why teachers of creative writing now exhort their students to "show, don't tell."

Yet fortunately, from time to time, there have also been movements that celebrated the unheard-of and the improbable: surrealism for instance, and most significantly, magical realism, which is replete with events that have no relation to the calculus of probability.

There is, however, an important difference between the weather events that we are now experiencing and those that occur in surrealist and magical realist novels: improbable though they might be, these events are neither surreal nor magical. To the contrary, these highly improbable occurrences are overwhelmingly, urgently, astoundingly real. The ethical difficulties that might arise in treating them as magical or metaphorical or allegorical are obvious perhaps. But there is another reason why, from the writer's point of view, it would serve no purpose to approach them in that way: because to treat them as magical or surreal would be to rob them of precisely the quality that makes them so urgently compelling—which is that they are actually happening on this earth, at this time.

8.

The Sundarbans are nothing like the forests that usually figure in literature. The greenery is dense, tangled, and low; the canopy is not above but around you, constantly clawing at your skin and your clothes. No breeze can enter the thickets of this forest; when the air stirs at all it is because of the buzzing of flies and other insects. Underfoot, instead of a carpet of softly decaying foliage, there is a bank of slippery, knee-deep mud, perforated by the sharp points that protrude from mangrove roots. Nor do any vistas present themselves except when you are on one of the hundreds of creeks and channels that wind through the landscape—and even then it is the water alone that opens itself; the forest withdraws behind its muddy ramparts, disclosing nothing.

In the Sundarbans, tigers are everywhere and nowhere. Often when you go ashore, you will find fresh tiger prints in the mud, but of the animal itself you will see nothing: glimpses of tigers are exceedingly uncommon and rarely more than fleeting. Yet you cannot doubt, since the prints are so fresh, that a tiger is somewhere nearby; and you know that it is probably watching you. In this jungle, concealment is so easy for an animal that it could be just a few feet away. If it charged, you would not see it till the last minute, and even if you did, you would not be able to get away; the mud would immobilize you.

Scattered through the forest are red rags, fluttering on branches. These mark the sites where people have been killed by tigers. There are many such killings every year; exactly how many no one knows because the statistics are not reliable. Nor is this anything new; in the nineteenth century, tens of thousands were killed by tigers. Suffice it to say that in some villages every household has lost a member to a tiger; everyone has a story to tell.

In these stories a great deal hinges on the eyes; seeing is one of their central themes; *not* seeing is another. The tiger is watching you; you are aware of its gaze, as you always are, but you do not see it; you do not lock eyes with it until it launches its charge, and at that moment a shock courses through you and you are immobilized, frozen.

The folk epic of the Sundarbans, *Bon Bibir Johuranama* (*The Miracles of Bon Bibi*), comes to a climax in one such moment of mutual beholding, when the tiger demon, Dokkhin Rai, locks eyes with the protagonist, a boy called Dukhey.

> It was then from afar, that the demon saw Dukhey . . .
>
> Long had he hungered for this much-awaited prize; in an instant he assumed his tiger disguise.
>
> "How long has it been since human flesh came my way? Now bliss awaits me in the shape of this boy Dukhey."
>
> On the far mudbank Dukhey caught sight of the beast: "that tiger is the demon and I'm to be his feast."
>
> Raising its head, the tiger reared its immense back; its jowls filled like sails as it sprang to attack.
>
> The boy's life took wing, on seeing this fearsome sight.

Many stories of encounters with tigers hinge upon a moment of mutual recognition like this one. To look into the tiger's eyes is to recognize a presence of which you are already aware; and in that moment of contact you realize that this presence possesses a similar awareness of you, even though it is not human. This mute exchange of gazes is the only communication that is possible between you and this presence—yet communication it undoubtedly is.

But what is it that you are communicating with, at this moment of extreme danger, when your mind is in a state unlike any you've ever known before? An analogy that is some-

times offered is that of seeing a ghost, a presence that is not of this world.

In the tiger stories of the Sundarbans, as in my experience of the tornado, there is, as I noted earlier, an irreducible element of mystery. But what I am trying to suggest is perhaps better expressed by a different word, one that recurs frequently in translations of Freud and Heidegger. That word is *uncanny*—and it is indeed with uncanny accuracy that my experience of the tornado is evoked in the following passage: "In dread, as we say, 'one feels something uncanny.' What is this 'something' and this 'one'? We are unable to say what gives 'one' that uncanny feeling. 'One' just feels it generally."

It is surely no coincidence that the word *uncanny* has begun to be used, with ever greater frequency, in relation to climate change. Writing of the freakish events and objects of our era, Timothy Morton asks, "Isn't it the case, that the effect delivered to us in the [unaccustomed] rain, the weird cyclone, the oil slick is something uncanny?" George Marshall writes, "Climate change is inherently uncanny: Weather conditions, and the high-carbon lifestyles that are changing them, are extremely familiar and yet have now been given a new menace and uncertainty."

No other word comes close to expressing the strangeness of what is unfolding around us. For these changes are not merely strange in the sense of being unknown or alien; their uncanniness lies precisely in the fact that in these encounters we recognize something we had turned away from: that is to say, the presence and proximity of nonhuman interlocutors.

Yet now our gaze seems to be turning again; the uncanny and improbable events that are beating at our doors seem to have stirred a sense of recognition, an awareness that humans were never alone, that we have always been surrounded by beings of all sorts who share elements of that which we had

thought to be most distinctively our own: the capacities of will, thought, and consciousness. How else do we account for the interest in the nonhuman that has been burgeoning in the humanities over the last decade and over a range of disciplines; how else do we account for the renewed attention to panpsychism and the metaphysics of Alfred North Whitehead; and for the rise to prominence of object-oriented ontology, actor-network theory, the new animism, and so on?

Can the timing of this renewed recognition be mere coincidence, or is the synchronicity an indication that there are entities in the world, like forests, that are fully capable of inserting themselves into our processes of thought? And if that were so, could it not *also* be said that the earth has itself intervened to revise those habits of thought that are based on the Cartesian dualism that arrogates all intelligence and agency to the human while denying them to every other kind of being?

This possibility is not, by any means, the most important of the many ways in which climate change challenges and refutes Enlightenment ideas. It is, however, certainly the most uncanny. For what it suggests—indeed proves—is that nonhuman forces have the ability to intervene directly in human thought. And to be alerted to such interventions is also to become uncannily aware that conversations among ourselves have always had other participants: it is like finding out that one's telephone has been tapped for years, or that the neighbors have long been eavesdropping on family discussions.

But in a way it's worse still, for it would seem that those unseen presences actually played a part in shaping our discussions without our being aware of it. And if these are real possibilities, can we help but suspect that all the time that we imagined ourselves to be thinking about apparently inanimate objects, we were ourselves being "thought" by other entities? It is almost as if the mind-altering planet that Stanislaw Lem

imagined in *Solaris* were our own, familiar Earth: what could be more uncanny than this?

These possibilities have many implications for the subject that primarily concerns me here, literary fiction. I will touch on some of these later, but for now I want to attend only to the aspect of the uncanny.

On the face of it, the novel as a form would seem to be a natural home for the uncanny. After all, have not some of the greatest novelists written uncanny tales? The ghost stories of Charles Dickens, Henry James, and Rabindranath Tagore come immediately to mind.

But the environmental uncanny is not the same as the uncanniness of the supernatural: it is different precisely because it pertains to nonhuman forces and beings. The ghosts of literary fiction are not human either, of course, but they are certainly represented as projections of humans who were once alive. But animals like the Sundarbans tiger, and freakish weather events like the Delhi tornado, have no human referents at all.

There is an additional element of the uncanny in events triggered by climate change, one that did not figure in my experience of the Delhi tornado. This is that the freakish weather events of today, despite their radically nonhuman nature, are nonetheless animated by cumulative human actions. In that sense, the events set in motion by global warming have a more intimate connection with humans than did the climatic phenomena of the past—this is because we have all contributed in some measure, great or small, to their making. They are the mysterious work of our own hands returning to haunt us in unthinkable shapes and forms.

All of this makes climate change events peculiarly resistant to the customary frames that literature has applied to "Nature": they are too powerful, too grotesque, too dangerous, and too accusatory to be written about in a lyrical, or elegiac, or

romantic vein. Indeed, in that these events are not entirely of Nature (whatever that might be), they confound the very idea of "Nature writing" or ecological writing: they are instances, rather, of the uncanny intimacy of our relationship with the nonhuman.

More than a quarter century has passed since Bill McKibben wrote, "We live in a post-natural world." But did "Nature" in this sense ever exist? Or was it rather the deification of the human that gave it an illusory apartness from ourselves? Now that nonhuman agencies have dispelled that illusion, we are confronted suddenly with a new task: that of finding other ways in which to imagine the unthinkable beings and events of this era.

9.

In the final part of my novel *The Hungry Tide*, there is a scene in which a cyclone sends a gigantic storm surge into the Sundarbans. The wave results in the death of one of the principal characters, who gives his life protecting another.

This scene was extraordinarily difficult to write. In preparation for it, I combed through a great deal of material on catastrophic waves—storm surges as well as tsunamis. In the process, as often happens in writing fiction, the plight of the book's characters, as they faced the wave, became frighteningly real.

The Hungry Tide was published in the summer of 2004. A few months after the publication, on the night of December 25, I was back in my family home in Kolkata. The next morning, on logging on to the web, I learned that a cataclysmic tsunami had been set off by a massive undersea earthquake in the Indian Ocean. Measuring 9.0 on the Richter scale, the quake's epicenter lay between the northernmost tip of Sumatra and the southernmost island in the Andaman and Nicobar

pounds sterling" was destroyed in four hours and a thousand people were killed.

Since the late nineteenth century onward, cyclones in the region seem to have "abated in number and intensity," but that may well be changing now. In 2009 Mumbai did experience a cyclonic storm, but fortunately its maximum wind speeds were in the region of 50 mph (85 kmph), well below those of a Category 1 hurricane on the Saffir-Simpson hurricane intensity scale. But encounters with storms of greater intensity may be forthcoming: 2015 was the first year in which the Arabian Sea is known to have generated more storms than the Bay of Bengal. This trend could tip the odds toward the recurrence of storms like those of centuries past.

Indeed, even as Adam and I were exchanging messages, Cyclone Chapala, a powerful storm, was forming in the Arabian Sea. Moving westward, it would hit the coast of Yemen on November 3, becoming the first Category 1 cyclone in recorded history to do so: in just two days, it would deluge the coast with more rain than it would normally get in several years. And then—as if to confirm the projections—even as Chapala was still battering Yemen, another cyclone, Megh, formed in the Arabian Sea and began to move along a similar track. A few days later another cyclone began to take shape in the Bay of Bengal, so that the Indian subcontinent was flanked by cyclones on both sides, a very rare event.

Suddenly the waters around India were churning with improbable events.

11.

What might happen if a Category 4 or 5 storm, with 150 mph or higher wind speeds, were to run directly into Mumbai? Mumbai's previous encounters with powerful cyclones oc-

curred at a time when the city had considerably less than a million inhabitants; today it is the second-largest municipality in the world with a population of over 20 million. With the growth of the city, its built environment has also changed so that weather that is by no means exceptional often has severe effects: monsoon downpours, for instance, often lead to flooding nowadays. With an exceptional event the results can be catastrophic.

One such occurred on July 26, 2005, when a downpour without precedent in Mumbai's recorded history descended on the city: the northern suburbs received 94.4 cm of rain in fourteen hours, one of the highest rainfall totals ever recorded anywhere in a single day. On that day, with catastrophic suddenness, the people of the city were confronted with the costs of three centuries of interference with the ecology of an estuarine location.

The remaking of the landscape has so profoundly changed the area's topography that its natural drainage channels are now little more than filth-clogged ditches. The old waterways have been so extensively filled in, diverted, and built over that their carrying capacity has been severely diminished; and the water bodies, swamplands, and mangroves that might have served as natural sinks have also been encroached upon to a point where they have lost much of their absorptive ability.

A downpour as extreme as that of July 26 would pose a challenge even to a very effective drainage system: Mumbai's choked creeks and rivers were wholly inadequate to the onslaught. They quickly overflowed causing floods in which water was mixed with huge quantities of sewerage as well as dangerous industrial effluents. Roads and rail tracks disappeared under waist-high and even chest-high floodwaters; in the northern part of the city, where the rainfall was largely concentrated, entire neighborhoods were inundated: 2.5 million people "were under water for hours together."

On weekdays Mumbai's suburban railway network transports close to 6.6 million passengers; buses carry more than 1.5 million. The deluge came down on a Tuesday, beginning at around 2 p.m. Local train services were soon disrupted, and by 4:30 p.m. none were moving; several arterial roads and intersections were cut off by floodwaters at about the same time. The situation worsened as more and more vehicles poured on to the roads; in many parts of the city traffic came to a complete standstill. Altogether two hundred kilometers of road were submerged; some motorists drowned in their cars because short-circuited electrical systems would not allow them to open doors and windows. Thousands of scooters, motorcycles, cars, and buses were abandoned on the water-logged roads.

At around 5 p.m. cellular networks failed; most landlines stopped working too. Soon much of the city's power supply was also cut off (although not before several people had been electrocuted): parts of the city would remain without power for several days. Two million people, including many schoolchildren, were stranded, with no means of reaching home; a hundred and fifty thousand commuters were jammed into the city's two major railway stations. Those without money were unable to withdraw cash because ATM services had been knocked out as well.

Road, rail, and air services would remain cut off for two days. Over five hundred people died: many were washed away in the floods; some were killed in a landslide. Two thousand residential buildings were partially or completely destroyed; more than ninety thousand shops, schools, health care centers, and other buildings suffered damage.

While Mumbai's poor, especially the inhabitants of some of its informal settlements, were among the worst affected, the rich and famous were not spared either. The most powerful politician in the city had to be rescued from his home in a fishing boat; many Bollywood stars and industrialists were stranded or trapped by floodwaters.

Through all of this the people of Mumbai showed great generosity and resilience, sharing food and water and opening up their homes to strangers. Yet, as one observer notes, on July 26, 2005, it became "clear to many million people in Mumbai that life may never be quite the same again. An exceptional rainstorm finally put to rest the long prevailing myth of Mumbai's indestructible resilience to all kinds of shocks, including that of the partition."

In the aftermath of the deluge, many recommendations were made by civic bodies, NGOs, and even the courts. But ten years later, when another downpour occurred on June 10, 2015, it turned out that few of the recommended measures had been implemented: even though the volume of rainfall was only a third of that of the deluge of 2005, many parts of the city were again swamped by floodwaters.

What does Mumbai's experience of the downpour of 2005 tell us about what might, or might not, happen if a major storm happens to hit the city? The events will, of course, unfold very differently: to start with, a cyclone will arrive not with a few hours' notice, as was the case with the deluges, but after a warning period of several days. Storms are now so closely tracked, from the time they form onward, that there is usually an interval of a few days when emergency measures can be put in place.

Of these emergency measures, probably the most effective is evacuation. In historically cyclone-prone areas, like eastern India and Bangladesh, systems have been set up to move millions of people away from the coast when a major storm approaches; these measures have dramatically reduced casualties in recent years. But the uptick in cyclonic activity in the Arabian Sea is so recent that there has yet been no need for large-

scale evacuations on the subcontinent's west coast. Whether such evacuations could be organized is an open question. Mumbai has been lucky not to have been hit by a major storm in more than a century; perhaps for that reason the possibility appears not to have been taken adequately into account in planning for disasters. Moreover, here, "as in most megacities, disaster management is focused on post-disaster response."

In Mumbai disaster planning seems to have been guided largely by concerns about events that occur with little or no warning, like earthquakes and deluges: evacuations usually follow rather than precede disasters of this kind. With a cyclone, given a lead-up period of several days, it would not be logistically impossible to evacuate large parts of the city before the storm's arrival: its rail and port facilities would certainly be able to move millions of people to safe locations on the mainland. But in order to succeed, such an evacuation would require years of planning and preparation; people in at-risk areas would also need to be educated about the dangers to which they might be exposed. And that exactly is the rub—for in Mumbai, as in Miami and many other coastal cities, these are often the very areas in which expensive new construction projects are located. Property values would almost certainly decline if residents were to be warned of possible risks—which is why builders and developers are sure to resist efforts to disseminate disaster-related information. One consequence of the last two decades of globalization is that real estate interests have acquired enormous power, not just in Mumbai but around the world; very few civic bodies, especially in the developing world, can hope to prevail against construction lobbies, even where it concerns public safety. The reality is that "growth" in many coastal cities around the world now depends on ensuring that a blind eye is turned toward risk.

Even with extensive planning and preparation the evacu-

ation of a vast city is a formidable task, and not only for logistical reasons. The experience of New Orleans, in the days before Hurricane Katrina, or of New York before Sandy, or the city of Tacloban before Haiyan, tells us that despite the most dire warnings large numbers of people will stay behind; even mandatory evacuation orders will be disregarded by many. In the case of a megacity like Mumbai this means that hundreds of thousands, if not millions, will find themselves in harm's way when a cyclone makes landfall. Many will no doubt assume that having dealt with the floods of the recent past they will also be able to ride out a storm.

But the impact of a Category 4 or 5 cyclone will be very different from anything that Mumbai has experienced in living memory. During the deluges of 2005 and 2015 rain fell heavily on some parts of the city and lightly on others: the northern suburbs bore the brunt of the rainfall in both cases. The effects of the flooding were also most powerfully felt in low-lying areas and by the residents of ground-level houses and apartments; people living at higher elevations, and on the upper stories of tall buildings, were not as badly affected.

But the winds of a cyclone will spare neither low nor high; if anything, the blast will be felt most keenly by those at higher elevations. Many of Mumbai's tall buildings have large glass windows; few, if any, are reinforced. In a cyclone these exposed expanses of glass will have to withstand, not just hurricane-strength winds, but also flying debris. Many of the dwellings in Mumbai's informal settlements have roofs made of metal sheets and corrugated iron; cyclone-force winds will turn these, and the thousands of billboards that encrust the city, into deadly projectiles, hurling them with great force at the glass-wrapped towers that soar above the city.

Nor will a cyclone overlook those parts of the city that were spared the worst of the floods; to the contrary they will prob-

ably be hit first and hardest. The cyclones that have struck the west coast of India in the past have all traveled upward on a northeasterly tack, from the southern quadrant of the Arabian Sea. A cyclone moving in this direction would run straight into south Mumbai, where many essential civic and national institutions are located.

The southernmost tip of Mumbai consists of a tongue of low-lying land, much of it reclaimed; several important military and naval installations are located there, as is one of the country's most important scientific bodies—the Tata Institute of Fundamental Research. A storm surge of two or three meters would put much of this area under water; single-story buildings may be submerged almost to the roof. And an even higher surge is possible.

Not far from here lie the areas in which the city's most famous landmarks and institutions are located: most notably, the iconic Marine Drive, with its sea-facing hotels, famous for their sunset views, and its necklace-like row of art deco buildings. All of this sits on reclaimed land; at high tide waves often pour over the seawall. A storm surge would be barely impeded as it swept over and advanced eastward.

A distance of about four kilometers separates south Mumbai's two sea-facing shorelines. Situated on the east side are the city's port facilities, the legendary Taj Mahal Hotel, and the plaza of the Gateway of India, which is already increasingly prone to flooding. Beyond lies a much-used fishing port: any vessels that had not been moved to safe locations would be seized by the storm surge and swept toward the Gateway of India and the Taj Hotel.

At this point waves would be pouring into South Mumbai from both its sea-facing shorelines; it is not inconceivable that the two fronts of the storm surge would meet and merge. In that case the hills and promontories of south Mumbai would

once again become islands, rising out of a wildly agitated expanse of water. Also visible above the waves would be the upper stories of many of the city's most important institutions: the Town Hall, the state legislature, the Chhatrapati Shivaji Railway Terminus, the towering headquarters of the Reserve Bank of India, and the skyscraper that houses India's largest and most important stock exchange.

Much of south Mumbai is low lying; even after the passing of the cyclone many neighborhoods would probably be waterlogged for several days; this will be true of other parts of the city as well. If the roads and rail lines are cut for any length of time, food and water shortages may develop, possibly leading to civil unrest. In Mumbai waterlogging often leads to the spread of illness and disease: the city's health infrastructure was intended to cater to a population of about half its present size; its municipal hospitals have only forty thousand beds. Since many hospitals will have been evacuated before the storm, it may be difficult for the sick and injured to get medical attention. If Mumbai's stock exchange and Reserve Bank are rendered inoperative, then India's financial and commercial systems may be paralyzed.

But there is another possibility, yet more frightening. Of the world's megacities, Mumbai is one of the few that has a nuclear facility within its urban limits: the Bhabha Atomic Research Centre at Trombay. To the north, at Tarapur, ninety-four kilometers from the city's periphery, lies another nuclear facility. Both these plants sit right upon the shoreline, as do many other nuclear installations around the world: these locations were chosen in order to give them easy access to water.

With climate change many nuclear plants around the world are now threatened by rising seas. An article in the *Bulletin of the Atomic Scientists* notes: "During massive storms . . . there is a

greatly increased chance of the loss of power at a nuclear power plant, which significantly contributes to safety risks." Essential cooling systems could fail; safety systems could be damaged; contaminants could seep into the plant and radioactive water could leak out, as happened at the Fukushima Daiichi plant.

What threats might a major storm pose for nuclear plants like those in Mumbai's vicinity? I addressed this question to a nuclear safety expert, M. V. Ramana, of the Program on Science and Global Security at Princeton University. His answer was as follows: "My biggest concerns have to do with the tanks in which liquid radioactive waste is stored. These tanks contain, in high concentrations, radioactive fission products and produce a lot of heat due to radioactive decay; explosive chemicals can also be produced in these tanks, in particular hydrogen gas. Typically waste storage facilities include several safety systems to prevent explosions. During major storms, however, some or all of these systems could be simultaneously disabled: cascading failures could make it difficult for workers to carry out any repairs—this is assuming that there will be any workers available and capable of undertaking repairs during a major storm. An explosion at such a tank, depending on the energy of the explosion and the exact weather conditions, could lead to the dispersal of radioactivity over hundreds of square kilometers; this in turn could require mass evacuations or the long-term cessation of agriculture in regions of high contamination."

Fortunately, the chances of a cyclone hitting Mumbai are small in any given year. But there is no doubt whatsoever of the threats that will confront the city because of other climate change impacts: increased precipitation and rising sea levels. If there are substantial increases in rainfall over the next few decades, as climate models predict, then damaging floods will become more frequent. As for sea levels, if they rise by a meter or more by the end of the century, as some climate scientists

fear they might, then some parts of south Mumbai will gradually become uninhabitable.

A similar fate awaits two other colonial cities, founded in the same century as Mumbai: Chennai (Madras), which also experienced a traumatic deluge in 2015; and Kolkata, to which I have close familial links.

Unlike Chennai and Mumbai, Kolkata is not situated beside the sea. However, much of its surface area is below sea level, and the city is subject to regular flooding: like everyone who has lived in Kolkata, I have vivid memories of epic floods. But long familiarity with flooding tends to have a lulling effect, which is why it came as a shock to me when I learned, from a World Bank report, that Kolkata is one of the global megacities that is most at risk from climate change; equally shocking was the discovery that my family's house, where my mother and sister live, is right next to one of the city's most threatened neighborhoods.

The report forced me to face a question that eventually confronts everybody who takes the trouble to inform themselves about climate change: what can I do to protect my family and loved ones now that I know what lies ahead? My mother is elderly and increasingly frail; there is no telling how she would fare if the house were to be cut off by a flood and medical attention were to become unavailable for any length of time.

After much thought I decided to talk to my mother about moving. I tried to introduce the subject tactfully, but it made little difference: she looked at me as though I had lost my mind. Nor could I blame her: it *did* seem like lunacy to talk about leaving a beloved family home, with all its memories and associations, simply because of a threat outlined in a World Bank report.

It was a fine day, cool and sunlit; I dropped the subject.

But the experience did make me recognize something that I

would otherwise have been loathe to admit, contrary to what I might like to think, my life is not guided by reason; it is ruled, rather, by the inertia of habitual motion. This is indeed the condition of the vast majority of human beings, which is why very few of us will be able to adapt to global warming if it is left to us, as individuals, to make the necessary changes; those who will uproot themselves and make the right preparations are precisely those obsessed monomaniacs who appear to be on the borderline of lunacy.

If whole societies and polities are to adapt then the necessary decisions will need to be made collectively, within political institutions, as happens in wartime or national emergencies. After all, isn't that what politics, in its most fundamental form, is about? Collective survival and the preservation of the body politic?

Yet, to look around the world today is to recognize that with some notable exceptions, like Holland and China, there exist very few polities or public institutions that are capable of implementing, or even contemplating, a managed retreat from vulnerable locations. For most governments and politicians, as for most of us as individuals, to leave the places that are linked to our memories and attachments, to abandon the homes that have given our lives roots, stability, and meaning, is nothing short of unthinkable.

12.

It is surely no accident that colonial cities like Mumbai, New York, Boston, and Kolkata were all brought into being through early globalization. They were linked to each other not only through the circumstances of their founding but also through patterns of trade that expanded and accelerated Western

economies. These cities were thus the drivers of the very processes that now threaten them with destruction. In that sense, their predicament is but an especially heightened instance of a plight that is now universal.

It isn't only in retrospect that the siting of some of these cities now appear as acts of utter recklessness: Bombay's first Parsi residents were reluctant to leave older, more sheltered ports like Surat and Navsari and had to be offered financial incentives to move to the newly founded city. Similarly, Qing dynasty officials were astonished to learn that the British intended to build a city on the island of Hong Kong: why would anyone want to create a settlement in a place that was so exposed to the vagaries of the earth?

But in time, sure enough, there was a collective setting aside of the knowledge that accrues over generations through dwelling in a landscape. People began to move closer and closer to the water.

How did this come about? The same question arises also in relation to the coast around Fukushima, where stone tablets had been placed along the shoreline in the Middle Ages to serve as tsunami warnings; future generations were explicitly told "Do not build your homes below this point!"

The Japanese are certainly no more inattentive to the words of their ancestors than any other people: yet not only did they build *exactly* where they had been warned *not* to, they actually situated a nuclear plant there.

This too is an aspect of the uncanny in the history of our relations with our environments. It is not as if we had not been warned; it is not as if we were ignorant of the risks. An awareness of the precariousness of human existence is to be found in every culture: it is reflected in biblical and Quranic images of the Apocalypse, in the figuring of the Fimbulwinter in Norse mythology, in tales of *pralaya* in Sanskrit literature,

us to recognize that there are other, fully aware eyes looking over our shoulders—then the first question to present itself is this: What is the place of the nonhuman in the modern novel?

To attempt an answer is to confront another of the uncanny effects of the Anthropocene: it was in exactly the period in which human activity was changing the earth's atmosphere that the literary imagination became radically centered on the human. Inasmuch as the nonhuman was written about at all, it was not within the mansion of serious fiction but rather in the outhouses to which science fiction and fantasy had been banished.

15.

The separation of science fiction from the literary mainstream came about not as the result of a sudden drawing of boundaries but rather through a slow and gradual process. There was, however, one moment that was critical to this process, and it happens to have had a link to a climate-related event.

The seismic event that began on April 5, 1815, on Mount Tambora, three hundred kilometers to the east of Bali, was the greatest volcanic eruption in recorded history. Over the next few weeks, the volcano would send one hundred cubic kilometers of debris shooting into the air. The plume of dust—1.7 million tons of it—soon spread around the globe, obscuring the sun and causing temperatures to plunge by three to six degrees. There followed several years of severe climate disruption; crops failed around the world, and there were famines in Europe and China; the change in temperature may also have triggered a cholera epidemic in India. In many parts of the world, 1816 would come to be known as the "Year without a Summer."

In May that year, Lord Byron, besieged by scandal, left England and moved to Geneva. He was accompanied by his physician, John Polidori. As it happened, Percy Bysshe Shelley and Mary Wollstonecraft Godwin, who had recently eloped together, were also in Geneva at the time, staying at the same hotel. Accompanying them was Mary Godwin's stepsister, Claire, with whom Byron had had a brief affair in England.

Shelley and Byron met on the afternoon of May 27, and shortly afterward they moved, with their respective parties, to two villas on the shores of Lake Geneva. From there they were able to watch thunderstorms approaching over the mountains. "An almost perpetual rain confines us principally to the house," Mary Shelley wrote. "One night we *enjoyed* a finer storm than I had ever before beheld. The lake was lit up, the pines on the Jura made visible, and all the scene illuminated for an instant, when a pitchy blackness succeeded, and the thunder came in frightful bursts over our heads amid the darkness."

One day, trapped indoors by incessant rain, Byron suggested that they all write ghost stories. A few days later, he outlined an idea for a story "on the subject of the vampyric aristocrat, August Darvell." After eight pages, Byron abandoned the story, and his idea was taken up instead by Polidori: it was eventually published as *The Vampyre* and is now regarded as the first in an ever-fecund stream of fantasy writing.

Mary Shelley too had decided to write a story, and one evening (a stormy one no doubt), the conversation turned to the question of whether "a corpse would be reanimated: galvanism had given token of such things: perhaps the component parts of a creature might be manufactured, brought together and endowed with vital warmth." The next day, she began writing *Frankenstein, or The Modern Prometheus*. Published in 1818, the novel created a sensation: it was reviewed in the best-known journals, by some of the most prominent writers of the time. Sir Walter Scott wrote an enthusiastic review, and he would

say later that he preferred it to his own novels. At that time, there does not seem to have been any sense that *Frankenstein* belonged outside the literary mainstream; only later would it come to be regarded as the first great novel of science fiction.

Although Byron never did write a ghost story, he did compose a poem called "Darkness," which was imbued with what we might today call "climate despair":

> The world was void,
> The populous and the powerful—was a lump,
> Seasonless, herbless, treeless, manless, lifeless—
> A lump of death—a chaos of hard clay.
> The rivers, lakes, and ocean all stood still,
> And nothing stirred within their silent depths.

Reflecting on the "wet, ungenial summer" of 1816 and its role in the engendering of these works, Geoffrey Parker writes, "All three works reflect the disorientation and desperation that even a few weeks of abrupt climate change can cause. Since the question today is not *whether* climate change will strike some part of our planet again, but *when*, we might re-read Byron's poem as we choose."

16.

To ask how science fiction came to be demarcated from the literary mainstream is to summon another question: What is it in the nature of modernity that has led to this separation? A possible answer is suggested by Bruno Latour, who argues that one of the originary impulses of modernity is the project of "partitioning," or deepening the imaginary gulf between Nature and Culture: the former comes to be relegated exclusively to the sciences and is regarded as being off-limits to the latter.

Yet, to look back at the evolution of literary culture from this vantage point is to recognize that the project of partitioning has always been contested, and never more so than at the inception, and nowhere more vigorously than in places that were in the vanguard of modernity. As proof of this, we have only to think of William Blake, asking of England:

> And was Jerusalem builded here,
> Among these dark Satanic mills?

And of Wordsworth's sonnet, "The World Is Too Much With Us":

> Little we see in Nature that is ours;
> We have given our hearts away, a sordid boon!
> . . . . . .
> Great God! I'd rather be
> A Pagan suckled in a creed outworn;
> So might I, standing on this pleasant lea,
> Have glimpses that would make me less forlorn.

Nor was it only in England, but also throughout Europe and North America that partitioning was resisted, under the banners variously of romanticism, pastoralism, transcendentalism, and so on. Poets were always in the forefront of the resistance, in a line that extends from Hölderlin and Rilke to such present-day figures as Gary Snyder and W. S. Merwin.

But being myself a writer of fiction, it is the novel that interests me most, and when we look at the evolution of the form, it becomes evident that its absorption into the project of partitioning was presaged already in the line of Wordsworth's that I quoted above: "I'd rather be / A Pagan suckled in a creed outworn."

It is with these words that the poet, even as he laments the onrushing intrusion of the age, announces his surrender to the most powerful of its tropes: that which envisages time as an irresistible, irreversible forward movement. This jealous deity, the Time-god of modernity, has the power to decide who will be cast into the shadows of backwardness—the dark tunnel of time "outworn"—and who will be granted the benediction of being ahead of the rest, always *en avant*. It is this conception of time (which has much in common with both Protestant and secular teleologies, like those of Hegel and Marx) that allows the work of partitioning to proceed within the novel, always aligning itself with the avant-garde as it hurtles forward in its impatience to erase every archaic reminder of Man's kinship with the nonhuman.

The history of this partitioning is, of course, an epic in itself, offering subplots and characters to suit the tastes of every reader. Here I want to dwell, for a moment, on a plot that completely reverses itself between the eighteenth century and today: the story of the literary tradition's curious relationship with science.

At the birth of modernity, the relationship between literature and science was very close and was perhaps perfectly exemplified in the figure of the writer Bernardin de Saint-Pierre, who wrote one of the earliest of best sellers, *Paul et Virginie*. Saint-Pierre regarded himself as primarily a naturalist and saw no conflict between his calling as writer and man of science. It is said of him that when taken to see the cathedral of Chartres, as a boy, he noticed nothing but the jackdaws that were roosting on the towers.

Goethe also famously saw no conflict between his literary and scientific interests, conducting experiments in optics, and propounding theories that remain compelling to this day. Herman Melville too was deeply interested in the study of marine

animals and his views on the subject are, of course, expounded at length in *Moby Dick*. I could cite many other instances ranging from the mathematics of *War and Peace* to the chemistry of *Alice in Wonderland*, but there is no need: it is hardly a matter of dispute that Western writers remained deeply engaged with science through the nineteenth century.

Nor was this a one-sided engagement. Naturalists and scientists not only read but also produced some of the most significant literary works of the nineteenth century, such as Darwin's *Voyage of the Beagle* and Alfred Russell Wallace's *The Malay Archipelago*. Their works, in turn, served as an inspiration to a great number of poets and writers, including Tennyson.

How, then, did the provinces of the imaginative and the scientific come to be so sharply divided from each other? According to Latour the project of partitioning is supported always by a related enterprise: one that he describes as "purification," the purpose of which is to ensure that Nature remains off-limits to Culture, the knowledge of which is consigned entirely to the sciences. This entails the marking off and suppression of hybrids—and that, of course, is exactly the story of the branding of science fiction, as a genre *separate* from the literary mainstream. The line that has been drawn between them exists only for the sake of neatness; because the zeitgeist of late modernity could not tolerate Nature-Culture hybrids.

Nor is this pattern likely to change soon. I think it can be safely predicted that as the waters rise around us, the mansion of serious fiction, like the doomed waterfront properties of Mumbai and Miami Beach, will double down on its current sense of itself, building ever higher barricades to keep the waves at bay.

The expulsion of hybrids from the manor house has long troubled many who were thus relegated to the status of genre writers, and rightly so, for nothing could be more puzzling

than the strange conceit that science fiction deals with material that is somehow contaminated; nothing could better express the completeness of the literary mainstream's capitulation to the project of partitioning. And this capitulation has come at a price, for it is literary fiction itself that has been diminished by it. If a list were to be made of the late twentieth-century novelists whose works remain influential today, we would find, I suspect, that many who once bestrode the literary world like colossi are entirely forgotten while writers like Arthur C. Clarke, Raymond Bradbury, and Philip K. Dick are near the top of the list.

That said, the question remains: Is it the case that science fiction is better equipped to address the Anthropocene than mainstream literary fiction? This might appear obvious to many. After all, there is now a new genre of science fiction called "climate fiction" or cli-fi. But cli-fi is made up mostly of disaster stories set in the future, and that, to me, is exactly the rub. The future is but one aspect of the Anthropocene: this era also includes the recent past, and, most significantly, the present.

In a perceptive essay on science fiction and speculative fiction, Margaret Atwood writes of these genres that they "all draw from the same deep well: those imagined other worlds located somewhere apart from our everyday one: in another time, in another dimension, through a doorway into the spirit world, or on the other side of the threshold that divides the known from the unknown. Science Fiction, Speculative Fiction, Sword and Sorcery Fantasy, and Slipstream Fiction: all of them might be placed under the same large 'wonder tale' umbrella."

This lays out with marvelous clarity some of the ways in which the Anthropocene resists science fiction: it is precisely not an imagined "other" world apart from ours; nor is it lo-

cated in another "time" or another "dimension." By no means are the events of the era of global warming akin to the stuff of wonder tales; yet it is also true that in relation to what we think of as normal now, they are in many ways uncanny; and they have indeed opened a doorway into what we might call a "spirit world"—a universe animated by nonhuman voices.

If I have been at pains to speak of resistances rather than insuperable obstacles, it is because these challenges can be, and have been, overcome in many novels: Liz Jensen's *Rapture* is a fine example of one such; another is Barbara Kingsolver's wonderful novel *Flight Behavior*. Both are set in a time that is recognizable as our own, and they both communicate, with marvelous vividness, the uncanniness and improbability, the magnitude and interconnectedness of the transformations that are now under way.

17.

Global warming's resistance to the arts begins deep underground, in the recesses where organic matter undergoes the transformations that make it possible for us to devour the sun's energy in fossilized forms. Think of the vocabulary that is associated with these substances: *naphtha, bitumen, petroleum, tar,* and *fossil fuels*. No poet or singer could make these syllables fall lightly on the ear. And think of the substances themselves: coal and the sooty residue it leaves on everything it touches; and petroleum—viscous, foul smelling, repellant to all the senses.

Of coal at least it can be said that the manner of its extraction is capable of sustaining stories of class solidarity, courage, and resistance, as in Zola's *Germinal*, for instance, and John Sayles's fine film *Matewan*.

The very materiality of coal is such as to enable and promote

1.

In accounts of the Anthropocene, and of the present climate crisis, capitalism is very often the pivot on which the narrative turns. I have no quarrel with this: as I see it, Naomi Klein and others are right to identify capitalism as one of the principal drivers of climate change. However, I believe that this narrative often overlooks an aspect of the Anthropocene that is of equal importance: empire and imperialism. While capitalism and empire are certainly dual aspects of a single reality, the relationship between them is not, and has never been, a simple one: in relation to global warming, I think it is demonstrably the case that the imperatives of capital and empire have often pushed in different directions, sometimes producing counter-intuitive results.

To look at the climate crisis through the prism of empire is to recognize, first, that the continent of Asia is conceptually critical to every aspect of global warming: its causes, its philosophical and historical implications, and the possibility of a global response to it. It takes only a moment's thought for this to be obvious. Yet, strangely, the implications are rarely reckoned with—and this may be because the discourse around the Anthropocene, and climate matters generally, remains largely Eurocentric. This is why the case for Asia's centrality to the climate crisis does need to be laid out in some detail, even if it is at the cost of stating the obvious.

2.

Asia's centrality to global warming rests, in the first instance, upon numbers. The significance of this is perhaps most readily apparent in relation to the future; that is to say, if we consider

the location of those who are most at threat from the changes that are now under way across the planet. The great majority of potential victims are in Asia.

The effect of mainland Asia's numbers is such as to vastly amplify the human impacts of global warming. Take, for instance, the Bengal Delta (a region that consists of most of Bangladesh and much of the Indian state of West Bengal). Formed by the confluence of two of the world's mightiest rivers, the Ganges and the Brahmaputra, this is one of the most densely populated parts of the world, with more than 250 million people living in an area about a quarter the size of Nigeria.

The floodplains of Bengal are not likely to be submerged as soon or as completely as, say, the Pacific island nation of Tuvalu. But the population of Tuvalu is less than ten thousand while the partial inundation of just one island in Bangladesh—Bhola island—has led to the displacement of more than half a million people.

Because of the density of its population, some of the world's worst disasters have occurred in the Bengal Delta. The 1971 Bhola cyclone is thought to have killed three hundred thousand people. As recently as 1991, a cyclone in Bangladesh resulted in 138,000 dead, of whom 90 percent were women. Sea-level rise and the increasing intensity of storms will make large-scale inundations more likely, all along the coastline.

Moreover, in Bengal, as in other Asian deltas, for example, those of the Irrawaddy, the Indus, and the Mekong, another factor has magnified the effects of sea-level rise: this is that delta regions across Asia (and elsewhere in the world) are subsiding much faster than the oceans are rising. This is due partly to geological processes and partly to human activities, such as dam building and the extraction of groundwater and oil. Again, the southern parts of Asia are particularly vulnerable, with the deltas of the Chao Phraya, the Krishna-Godavari, the

Ganges-Brahmaputra, and the Indus being especially imperiled. The Indus, on which Pakistan is critically dependent, has been exploited to the point where it no longer reaches the sea and, as a result, salt water has pushed inland by forty miles, swallowing up over a million acres of agricultural land.

In India a significant rise in sea level could lead to the loss of some six thousand square kilometers, including some of the country's most fertile lands; many of the subcontinent's low-lying islands, like the Lakshadweep chain, may disappear. One study suggests that rising sea levels could result in the migration of up to 50 million people in India and 75 million in Bangladesh. Along with Bangladesh, Vietnam is at the top of the list of countries threatened by sea-level rise: in the event of a one-meter rise in sea level, more than a tenth of Vietnam's population will be displaced.

The ongoing changes in climate pose a dire threat also to the interior of the continent where millions of lives and livelihoods are already in jeopardy because of droughts, periodic flooding, and extreme weather events. No less than 24 percent of India's arable land is slowly turning into desert, and a two-degree Celsius rise in global average temperature would reduce the country's food supply by a quarter. In Pakistan, a hundred thousand acres of salt-encrusted land are being abandoned each year; of the fields that remain "a fifth are badly waterlogged and a quarter produce only meagre crops." In China, which feeds more than 20 percent of the world's population off 7 percent of the world's arable land, desertification is already causing direct annual losses of $65 billion.

Fearsome as these risks are, they are dwarfed by Asia's accelerating water crisis. The rivers that sustain China and South and Southeast Asia rise in Tibet and the Himalayas; the waters that are stored there, in the form of accumulations of ice, sustain 47 percent of the world's population: "here the water-

related dreams and fears of half the human race come together." But this region is warming twice as fast as the average global rate, and in 2008 it was found that the Himalayan glaciers had already lost *all* the ice formed since the mid-1940s; by some reckonings, one-third of them will disappear by 2050.

As the melting of the Himalayan glaciers accelerates, the variations in the rivers' flow will increase, falling to unprecedented lows in the dry season and causing massive inundations in the summer, as in the Kosi River disaster of 2008 in Bihar, and the Indus floods of 2010. And if the glaciers continue to shrink at the present rate, the most populous parts of Asia will face catastrophic water shortages within a decade or two. A quarter of the world's rivers already run dry before reaching the sea: many, if not most, of them are in Asia.

In terms of numbers, the consequences are beyond imagining: the lives and livelihoods of half a billion people in South and Southeast Asia are at risk. Needless to add, the burden of these impacts will be borne largely by the region's poorest people, and among them disproportionately by women.

It is the matter of numbers again that makes Asia critical to the questions of mitigation, preparedness, and resiliency. Aquifers are drying up in northern China as well as in America's Great Plains: but only 2 million people live in the 175,000 square miles that are watered by the United States' Ogallala Aquifer, while the 125,000 square miles of north China are populated by 214 million people.

The brute fact is that no strategy can work globally unless it works in Asia and is adopted by large numbers of Asians. Yet, in this matter too, the conditions that are peculiar to mainland Asia are often absent from the discussion.

3.

The vulnerability of Asia's populations is only one aspect of their centrality to global warming. The reality is that the continent has also played a pivotal role in setting in motion the chain of consequences that is driving the present cycle of climatic change. In this story, too, numbers are critical, for it was the rapid and expanding industrialization of Asia's most populous nations, beginning in the 1980s, that brought the climate crisis to a head.

Numbers are critical again to the difference in Asia's role in global warming and that of countries that industrialized earlier. The West's largest contribution to the accumulation of greenhouse gases came about through the continuous expansion of the carbon footprint of what was about 30 percent of the world's population at the beginning of the twentieth century. Asia's contribution, on the other hand, came about through a sudden but very small expansion in the footprint of a much larger number of people, perhaps as much as half of a greatly expanded global population, late in the twentieth century.

To be sure, the planet would have faced a climate crisis sooner or later, even if the history of mainland Asia had not taken this turn. After all, signs of a changing climate date back to the 1930s, and the concentration of carbon dioxide in the atmosphere had already passed 300 parts per million when Charles Keeling began to take measurements at the Mauna Loa Observatory in Hawaii. This was in the late 1950s, long before the economies of mainland Asia began their rapid acceleration. Even back then, the carbon footprint of the West was growing rapidly enough to ensure that the accumulation of greenhouse gases in the atmosphere would continue to rise. But that rise would not have been so steep if mainland Asia had

1.

Climate change poses a powerful challenge to what is perhaps the single most important political conception of the modern era: the idea of freedom, which is central not only to contemporary politics but also to the humanities, the arts, and literature.

Since the Enlightenment, as Dipesh Chakrabarty has pointed out, philosophers of freedom were "mainly, and understandably, concerned with how humans would escape the injustice, oppression, inequality, or even uniformity foisted on them by other humans or human-made systems." Nonhuman forces and systems had no place in this calculus of liberty: indeed being independent of Nature was considered one of the defining characteristics of freedom itself. Only those peoples who had thrown off the shackles of their environment were thought to be endowed with historical agency; they alone were believed to merit the attention of historians—other peoples might have had a past but they were thought to lack history, which realizes itself through human agency.

Now that the stirrings of the earth have forced us to recognize that we have never been free of nonhuman constraints how are we to rethink those conceptions of history and agency? The same question could be posed with equal force in relation to art and literature, particularly in regard to the twentieth century, when there was a radical turn away from the nonhuman to the human, from the figurative toward the abstract.

These developments were not, of course, generated by purely aesthetic considerations. They were influenced also by politics, especially the politics of the Cold War—as, for example, when American intelligence agencies intervened to promote

abstract expressionism against the social realism favored by the USSR.

But the trajectory of the arts had been determined long before the Cold War: through the twentieth century they followed a course that led them to become increasingly self-reflexive. "Twentieth-century art," wrote Roger Shattuck in 1968, "has tended to *search itself* rather than exterior reality for beauty of meaning or truth, a condition that entails a new relationship between the work of art, the world, the spectator, and the artist." It was thus that human consciousness, agency, and identity came to be placed at the center of every kind of aesthetic enterprise.

In this realm, too, Asia has played a special role: the questions that animated, obsessed, and haunted the thinkers and writers of twentieth-century Asia were precisely those that related to the "modern." Jawaharlal Nehru's passion for dams and factories and Mao Zedong's "War on Nature" had their counterparts also in literature and the arts.

In their embrace of modernity, Asian writers and artists created ruptures that radically reconfigured the region's literature, art, architecture, and so on. In Asia as elsewhere, this meant that the abstract and the formal gained ascendancy over the figurative and the iconographic; it meant also that many traditions, including those that accorded the nonhuman a special salience, were jettisoned. Here, as elsewhere, freedom came to be seen as a way of "transcending" the constraints of material life—of exploring new regions of the human mind, spirit, emotion, consciousness, interiority: freedom became a quantity that resided entirely in the minds, bodies, and desires of human beings. There is, of course, as Moretti notes, a sort of "ascetic heroism" in such a vision, but it is also clear now that the more "radical and clear-sighted the aesthetic achievements of that time, the more unliveable the world [they] depict."

And now, when we look back upon that time, with our gaze reversed, having woken against our will to the knowledge that we have always been watched and judged by other eyes, what stands out? Is it possible that the arts and literature of this time will one day be remembered not for their daring, nor for their championing of freedom, but rather because of their complicity in the Great Derangement? Could it be said that the "stance of unyielding rage against the official order" that the artists and writers of this period adopted was actually, from the perspective of the Anthropocene, a form of collusion? Recent years have certainly demonstrated the truth of an observation that Guy Debord made long ago: that spectacular forms of rebelliousness are not, by any means, incompatible with a "smug acceptance of what exists . . . for the simple reason that dissatisfaction itself becomes a commodity."

If such a judgement—or even the possibility of it—seems shocking, it is because we have come to accept that the front ranks of the arts are in some way in advance of mainstream culture; that artists and writers are able to look ahead, not just in aesthetic matters, but also in regard to public affairs. Writers and artists have themselves embraced this role with increasing fervor through the twentieth century, and never more so than in the period in which carbon emissions were accelerating.

As proof of this, let us imagine for a moment, just as a thought experiment, that a graph could be drawn of the political engagements of writers and artists through the twentieth century and into the twenty-first. It is quite likely, I suspect, that such a graph would closely resemble a chart of greenhouse gas emissions over the same period: that is to say, the line would indicate a steep and steady rise over the decades, with a few sudden and dramatic upsurges. The First World War would represent one such escalation, the rise in industrial and military activity being mirrored by an enor-

mous outpouring of literature, much of it explicitly political.

During the interwar years, too, the graphs would remain on roughly parallel tracks, a rise in worldwide industrial activity being matched by the increasingly visible involvement of writers with political movements, such as socialism, communism, antifascism, nationalism, and anti-imperialism: Lorca, Brecht, Orwell, Lu Xun, and Tagore being cases in point.

Only in the early post–Second World War decades would there be a marked divergence in the two graphs, with the political engagements of writers outpacing the rise in the rate of emissions. The large-scale industrialization of Asia had yet to begin, after all, while writers around the world were broadening their political engagements on every front. We need think only of the Progressive Writers Movement in India and Pakistan; of decolonization and Sartre; James Baldwin and the civil rights movement; the Beats and the student uprisings of the 1960s; the persecution of Pramoedya Ananta Toer in Indonesia and of Solzhenitsyn in the Soviet Union. This was a time when writers were in the forefront of every political movement around the world.

Not till the 1980s would the graphs again converge, and then, too, not because of any diminution in the political energies of writers and artists but only because the rate of emissions from Asia had begun its steady upward climb. But in this period too, writers were in the vanguard of many movements, feminism and gay rights being but two of them. This was also a time in which the paradoxical coupling of the processes of decolonization, on the one hand, and the increasing hegemony of the English language, on the other, made it possible for writers like myself to enter the global literary mainstream in a way that had not been possible in the preceding two centuries. At the same time, changes in technologies of communication, and a rapid growth in networks of translation, served to internationalize both politics and literature to a point where it could be said that Goethe's vision of a "world literature" (*Weltliteratur*) had come close to being realized.

I can attest from my own experience that this period—when an exploding rate of carbon emissions was rewriting the planet's destiny—was a breathtakingly exciting time in which to launch upon a career as a writer. As I've noted before, not the least aspect of this was the promise of "being ahead" (*en avant*, of being a part, in effect, of an avant-garde), and this conception has been one of the animating forces of the literary and artistic imagination since the start of the twentieth century. "Modernism wrote into its scripture a major text," goes Roger Shattuck's wry observation, "the avant-garde we have with us always."

To want to be ahead, and to celebrate and mythify this endeavor, is indeed one of the most powerful impulses of modernity itself. If Bruno Latour is right, then to be modern is to envision time as irreversible, to think of it as a progression that is forever propelled forward by revolutionary ruptures: these in turn are conceived of on the analogy of scientific innovations, each of which is thought to render its predecessor obsolete.

And obsolescence is indeed modernity's equivalent of perdition and hellfire. That is why this era's most potent words of damnation, passed down in an unbroken relay from Hegel and Marx to President Obama, is the malediction of being "on the wrong side of history."

That the world's most powerful leader should hurl these words at his enemies, in much the same way that curses and imprecations were once used by kings, priests, and shamans, is of course a disavowal of the very irreversibility of time that the mantra invokes: for is it not also an acknowledgment of the power that words have possessed through the ages, of striking fear into the hearts of foes, of conjuring up visions of terror

with curses and maledictions? And for modern man, terror is exactly what is evoked by the fear of being left behind, of being "backward."

There is perhaps no better means of tracking the diffusion of modernity across the globe than by charting the widening grip of this fear, which was nowhere more powerfully felt than in the places that were most visibly marked by the stigmata of "backwardness." It was what drove artists and writers in Asia, Africa, and the Arab world to go to extraordinary lengths to "keep up" with each iteration of modernity in the arts: surrealism, existentialism, and so on. And far from diminishing over time, the impulse gathered strength through the twentieth century, so that writers of my generation were, if anything, even less resistant to its power than were our predecessors: we could not but be aware of the many "isms"—structuralism, postmodernism, postcolonialism—that flashed past our eyes with ever-increasing speed.

This is why it comes as a surprise—a shock, really—to look back upon that period of surging carbon emissions and recognize that very few (and I do not exempt myself from this) of the literary minds of that intensely *engagé* period were alive to the archaic voice whose rumblings, once familiar, had now become inaudible to humanity: that of the earth and its atmosphere.

I do not mean to imply that there were no manifestations of a general sense of anxiety and foreboding in the literature of that time; nor do I mean to suggest that mankind had ceased to be haunted by intuitions of apocalypse. These were certainly no less abundant in the last few decades than they have been since stories were first told. It is when I try to think of writers whose imaginative work communicated a more specific sense of the accelerating changes in our environment that I find myself at a loss; of literary novelists writing in English only a handful of names come to mind: J. G. Ballard, Margaret Atwood, Kurt

Vonnegut Jr., Barbara Kingsolver, Doris Lessing, Cormac McCarthy, Ian McEwan, and T. Coraghessan Boyle. No doubt many other names could be added to this list, but even if it were to be expanded a hundredfold or more, it would remain true, I think, that the literary mainstream, even as it was becoming more *engagé* on many fronts, remained just as unaware of the crisis on our doorstep as the population at large.

In this regard, the avant-garde, far from being "ahead," was clearly a laggard. Could it be, then, that the same process that inaugurated the rising death spiral of carbon emissions also ensured, in an uncannily clever gesture of self-protection, that the artists, writers, and poets of that era would go racing off in directions that actually blinded them to exactly what they thought they were seeing: that is to say, what lay *en avant*, what was to come? And if this were so, would it not be a damning indictment of a vision in which the arts are seen to be moving forever forward, in a dimension of irreversible time, by means of innovation and the free pursuit of imagination?

2.

Writers are not alone, of course, in having broadened and intensified their political and social engagements over the last couple of decades: this has happened to the entirety of what used to be called "the intelligentsia." In no small part has this been brought about by changes in the technology of communication: the Internet and the digital media have made the sphere of the political broader and more intrusive than ever before. Today everybody with a computer and a web connection is an activist. Yet what I said earlier about literary circles is true also of the intelligentsia, and indeed of circles far beyond: generally speaking, politicization has not translated into a wider engagement with the crisis of climate change.

The lack of a transitive connection between political mobilization, on the one hand, and global warming, on the other, is nowhere more evident than in the countries of South Asia, all of which are extraordinarily vulnerable to climate change. In the last few decades, India has become very highly politicized; great numbers take to the streets to express indignation and outrage over a wide range of issues; on television channels and social media, people speak their minds ever more stridently. Yet climate change has not resulted in an outpouring of passion in the country. This despite the fact that India has innumerable environmental organizations and grassroots movements. The voices of the country's many eminent climate scientists, environmental activists, and reporters do not appear to have made much of a mark either.

What is true of India is true also of Pakistan, Bangladesh, Sri Lanka, and Nepal: climate change has not been a significant political issue in any of those countries, even though the impacts are already being felt across the Indian subcontinent, not only in an increasing number of large-scale disasters but also in the form of a slow calamity that is quietly but inexorably destroying livelihoods and stoking social and political conflicts. Instead, political energy has increasingly come to be focused on issues that relate, in one way or another, to questions of identity: religion, caste, ethnicity, language, gender rights, and so on.

The divergence between the common interest and the preoccupations of the public sphere points to a change in the nature of politics itself. The political is no longer about the commonweal or the "body politic" and the making of collective decisions. It is about something else.

What, then, is that "something"?

A similar question could be posed in relation to the literary imaginary: Why is it increasingly open to certain conceptions of the political while remaining closed to an issue that concerns our collective survival?

Here again the trajectory of the modern novel represents, I think, a special case of a broader cultural phenomenon. The essence of this phenomenon is again captured by the words that John Updike used to characterize the modern novel: "individual moral adventure." I have already addressed one of the implications of this conception of the novel: the manner in which it banishes the collective from the territory of the fictional imagination. I want to attend now to another aspect of it: the implications of the word *moral*.

We encounter this word very frequently today in relation to fiction as well as politics. In my view, the notion of "the moral" is the hinge that has made possible the joining of the political and the literary imaginary.

The word *moral* derives from a Latin root signifying "custom" or "mores"; connotations of aristocratic usages may well, as Nietzsche famously argued, have been implicit in it. The word has had a long career in English: having once resided within the Church—especially the churches of Protestantism—it has now come to draw its force primarily from the domain of the political. But this is not a politics that is principally concerned with the ordering of public affairs. It is rather a politics that is also increasingly conceived of as an "individual moral adventure" in the sense of being an interior journey guided by the conscience. Just as novels have come to be seen as narratives of identity, so too has politics become, for many, a search for personal authenticity, a journey of self-discovery.

Although the evolution of the term moral has brought it squarely into the secular domain, the term continues to be powerfully marked by its origins, which clearly lie within Christianity and particularly Protestantism. The moral-political, as thus conceived, is essentially Protestantism without a God: it

commits its votaries to believing in perfectibility, individual redemption, and a never-ending journey to a shining city on a hill—constructed, in this instance, not by a deity, but by democracy. This is a vision of the world as a secular church, where all the congregants offer testimony about their journeys of self-discovery.

This imagining of the world has profound consequences for fiction as well as the body politic. Fiction, for one, comes to be reimagined in such a way that it becomes a form of bearing witness, of testifying, and of charting the career of the conscience. Thus do sincerity and authenticity become, in politics as in literature, the greatest of virtues. No wonder, then, that one of the literary icons of our age, the novelist Karl Ove Knausgaard, has publicly admitted to "being sick of fiction." As opposed to the "falsity" of fiction, Knausgaard has "set out to write exclusively from his own life." This is not, however, a new project: it belongs squarely within the tradition of "diary keeping and spiritual soul-searching [that] . . . was a central aspect of Puritan religiosity." This secular baring-of-the-soul is exactly what is demanded by the world-as-church.

If literature is conceived of as the expression of authentic experience, then fiction will inevitably come to be seen as "false." But to reproduce the world as it exists need not be the project of fiction; what fiction—and by this I mean not only the novel but also epic and myth—makes possible is to approach the world in a subjunctive mode, to conceive of it *as if* it were other than it is: in short, the great, irreplaceable potentiality of fiction is that it makes possible the imagining of possibilities. And to imagine other forms of human existence is exactly the challenge that is posed by the climate crisis: for if there is any one thing that global warming has made perfectly clear it is that to think about the world only as it is amounts to a formula for collective suicide. We need, rather, to envision what

it might be. But as with much else that is uncanny about the Anthropocene, this challenge has appeared before us at the very moment when the form of imagining that is best suited to answering it—fiction—has turned in a radically different direction.

This then is the paradox and the price of conceiving of fiction and politics in terms of individual moral adventures: it negates possibility itself. As for the nonhuman, it is almost by definition excluded from a politics that sanctifies subjectivity and in which political claims are made in the first person. Consider, for example, the stories that congeal around questions like, "Where were you when the Berlin Wall fell?" or "Where were you on 9/11?" Will it ever be possible to ask, in the same vein, "Where were you at 400 ppm [parts per million]?" or "Where were you when the Larsen B ice shelf broke up?"

For the body politic, this vision of politics as moral journey has also had the consequence of creating an ever-growing divergence between a public sphere of political performance and the realm of actual governance: the latter is now controlled by largely invisible establishments that are guided by imperatives of their own. And as the public sphere grows ever more performative, at every level from presidential campaigns to online petitions, its ability to influence the actual exercise of power becomes increasingly attenuated.

This was starkly evident in the buildup to the Iraq War in 2003: I was in New York on February 15 that year, and I joined the massive antiwar demonstration that wound through the avenues of mid-Manhattan. Similar demonstrations were staged in six hundred other cities, in sixty countries around the world; tens of millions of people took part in them, making them possibly the largest single manifestation of public dissent in history. Yet even at that time there was a feeling of hopelessness; relatively few, I suspect, believed that the marches

would effect a change in policy—and indeed they did not. Then, as never before, it became clear that the public sphere's ability to influence the security and policy establishment had eroded drastically.

Since then the process has only accelerated: in many other matters, like austerity, surveillance, drone warfare, and so on, it is now perfectly clear that in the West political processes exert very limited influence over the domain of statecraft—so much so that it has even been suggested that "citizens no longer *seriously expect* . . . that politicians will really represent their interests and implement their demands."

This altered political reality may in part be an effect of the dominance of petroleum in the world economy. As Timothy Mitchell has shown, the flow of oil is radically unlike the movement of coal. The nature of coal, as a material, is such that its transportation creates multiple choke points where organized labor can exert pressure on corporations and the state. This is not case with oil, which flows through pipelines that can bypass concentrations of labor. This was exactly why British and American political elites began to encourage the use of oil over coal after the First World War.

These efforts succeeded perhaps beyond their own wildest dreams. As an instrument of disempowerment oil has been spectacularly effective in removing the levers of power from the reach of the populace. "No matter how many people take to the streets in massive marches," writes Roy Scranton, "they cannot put their hands on the real flows of power because they do not help to produce it. They only consume."

Under these circumstances, a march or a demonstration of popular feeling amounts to "little more than an orgy of democratic emotion, an activist-themed street fair, a real-world analogue to Twitter hashtag campaigns: something that gives you a nice feeling, says you belong in a certain group, and is

completely divorced from actual legislation and governance."

In other words, the public sphere, where politics is performed, has been largely emptied of content in terms of the exercise of power: as with fiction, it has become a forum for secular testimony, a baring-of-the-soul in the world-as-church. Politics as thus practiced is primarily an exercise in personal expressiveness. Contemporary culture in all its aspects (including religious fundamentalisms of almost every variety) is pervaded by this expressivism, which is itself "to a significant degree a result of the strong role of Protestant Christianity in the making of the modern world." There could be no better vehicle for this expressivism than the Internet, which makes various means of self-expression instantly available through social media. And as tweets and posts and clips circle the globe, they generate their mirror images of counterexpression in a dynamic that quickly becomes a double helix of negation.

As far back as the 1960s Guy Debord argued in his seminal book *The Society of the Spectacle*: "The whole life of those societies in which modern conditions of production prevail presents itself as an immense accumulation of spectacles. All that was once directly lived has become mere representation." The ways in which political engagements unfold over social media confirm this thesis, propounded long before the Internet became so large a part of our lives: "The spectacle is by definition immune from human activity, inaccessible to any projected review or correction. *It is the opposite of dialogue*. Wherever representation takes on an independent existence, the spectacle reestablishes its rule."

The net result is a deadlocked public sphere, with the actual exercise of power being relegated to the interlocking complex of corporations and institutions of governance that has come to be known as the "deep state." From the point of view of corporations and other establishment entities, a deadlocked pub-

lic is, of course, the best possible outcome, which, no doubt, is why they frequently strive to produce it: the funding of climate change "denial" in the United States and elsewhere, by corporations like Exxon—which have long known about the consequences of carbon emissions—is a perfect example of this.

In effect, the countries of the West are now in many senses "post-political spaces" that are managed by apparatuses of various kinds. For many, this creates a haunting sense of loss that manifests itself in an ever-more-desperate yearning to recoup a genuinely participatory politics. This is in no small part the driving force behind such disparate figures as Jeremy Corbyn and Bernie Sanders, on the one hand, and Donald Trump, on the other. But the collapse of political alternatives, the accompanying disempowerment, and the ever-growing intrusion of the market have also produced responses of another kind—nihilistic forms of extremism that employ methods of spectacular violence. This too has taken on a life of its own.

3.

The public politics of climate change is itself an illustration of the ways in which the moral-political can produce paralysis.

Of late, many activists and concerned people have begun to frame climate change as a "moral issue." This has become almost a plea of last resort, appeals of many other kinds having failed to produce concerted action on climate change. So, in an ironic twist, the individual conscience is now increasingly seen as the battleground of choice for a conflict that is self-evidently a problem of the global commons, requiring collective action: it is as if every other resource of democratic governance had been exhausted leaving only this residue—the moral.

This framing of the issue certainly has one great virtue, in that it breaks decisively with the economistic, cost-benefit

language that the international climate change bureaucracy has imposed on it. But at the same time, this approach also invokes a "politics of sincerity" that may ultimately work to the advantage of those on the opposite side. For if the crisis of climate change is to be principally seen in terms of the questions it poses to the individual conscience, then sincerity and consistency will inevitably become the touchstones by which political positions will be judged. This in turn will enable "deniers" to accuse activists of personal hypocrisy by pointing to their individual lifestyle choices. When framed in this way, authenticity and sacrifice become central to the issue, which then comes to rest on matters like the number of lightbulbs in Al Gore's home and the forms of transport that demonstrators use to get to a march.

I saw a particularly telling example of this in a TV interview with a prominent activist after the New York climate change march of September 2014. The interviewer's posture was like that of a priest interrogating a wayward parishioner; her questions were along the lines of "What have *you* given up for climate change? What are *your* sacrifices?"

The activist in question was quickly reduced to indignant incoherence. So paralyzing is the effect of the fusion of the political and the moral that he could not bring himself to state the obvious: that the scale of climate change is such that individual choices will make little difference unless certain collective decisions are taken and acted upon. Sincerity has nothing to do with rationing water during a drought, as in today's California: this is not a measure that can be left to the individual conscience. To think in those terms is to accept neo-liberal premises.

Second, yardsticks of morality are not the same everywhere. In many parts of the world, and especially in English-speaking countries, canons of judgment on many issues still rest on that