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# Climatology/Ideology: Unacknowledged Struggle among Global Warming Movements

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What is it to be a climate movement? That depends on how climate change is defined. The tensions dividing today's climate movements are also tensions among different *conceptions* of climate. Building better alliances around global warming action means first recognizing that there are ongoing conflicts over what climate *is.*

When educated classes in either North or South imagine that climate is defined by climatology, that itself is a problem for political organization. At no time has it been more urgent to wade into other understandings of climate, when so many people outside the scientifically-sophisticated intelligentsia – peasants, forest dwellers, fenceline communities, schoolchildren and working-class grannies, to name a few – are ready to take so many risks to find a way to move forward on the issue.

One clarification in advance: this paper doesn't concern itself with the strife dragging on between the majority of climatologists and climate change denialists. That conflict isn't unimportant, and it's fortunate when able researchers such as Naomi Oreskes and Erik Conway (2010) investigate at least some of its dynamics. The assumption of this paper, however, is that taking sides in this somewhat parochial rumpus isn't a top priority in efforts to strengthen global climate movements. Denialism is not a belief but something much deeper. It can't be addressed just by prying open more spaces for climatology to be heard, but ultimately only by understanding the roots of the fetishisms that it represents. A more urgent priority is to develop careful, respectful ways of working where there is more immediate potential: with the multitudes troubled or outraged by climate change globally who nevertheless might find problematic – or do find problematic – what I'll call the ideological and political "settlement" that climatology represents.

This chapter will try to suggest something of what those ways of working might involve. Its argument is laid out as follows.

First, it lists two important political characteristics of climatology and sets out some quick reminders of how dominant that politics is in environmentalist, state and United Nations contexts.

Second, it takes a step back and goes over this politics a second time from other angles, attempting to etch it in sharper relief by showing not only why it is merely one politics among many, but also that it tends to be in tension with those of a large majority of people who yearn for climate action around the world. Recalling how climatology comes out of a particular history that could have been otherwise, it imagines some encounters between it and other modern understandings of climate that are emphatically non-climatological.

Third, having established the depth of the political "Otherness" of climatology from various crucial practices of climate activism entrenched around the world, the chapter concludes by emphasizing how important it is for alliance-building among climate movements to pay greater attention to the dynamics of radical mutual interpretation, dialogue and friendship-formation among incommensurable approaches to global warming, especially between those that are currently dominated by climatological understandings and those that are not.

## Climatology's View of Climate

Seen in world-historical perspective, climatology's understanding of climate is, at present, extremely idiosyncratic, biased, narrow, exclusionary and even bizarre. Two interconnected features of this understanding are of particular importance for this chapter. First is the way it locates the climate problem in molecules, molecular movements and energy flows as objects in a "nature" that has been politically divided off from "society." Second is the reflexive political support it gives to certain archaic fictions of expert management as if they could be "solutions" to global warming.

The prominence of the putatively non-social **molecule** and **energy flow** in climatology is easily proved. Climatology aspires to divide a "nonhuman" nature ($CO_2$ molecules, cloud albedo, methane clathrates) from a "nonnatural" society (surplus extraction, labor unions, energy policy) (Bonneuil and Fressoz 2016). It is structured to treat greenhouse gases as if they moved in a space in which intentionality had become invisible. For example, it can understand the origins of greenhouse gas molecules in the atmosphere only insofar as it can trace them to points in a human-free Cartesian space. And because it is accepted political practice for modern nation-states use country-names to label different sectors of this space, it becomes permissible for climatology to identify a certain number of molecules as being emitted by, say, "China." The result is that climatology slips toward colluding in assigning causal responsibility for them to China. At the same time, climatology is barred from tracing any responsibility for carbon dioxide molecules originating from the burning of coal within the borders of China to other countries whose companies have invested in facilities to take advantage of cheap Chinese labor. To do so is agreed to lie outside the boundaries of climatology, and thus not to be "about" climate at all.

By the same token, climatology is licensed to use a lot of resources to assign numbers to the comparative "global warming potentials" of various molecules such as methane or nitrous oxide, even if there is no consistent physical basis for such numbers (Mackenzie 2009). But it isn't allowed to identify the relative global warming potentials of different capital investments or forest commons practices. No matter how obviously varying those potentials are, they are held to lie "outside" the study of the causes of climate change. Similarly, climatology is permitted to distinguish between molecules of $CO_2$ and molecules of $CH_4$, but is not allowed to distinguish between two subsets of $CO_2$ molecules: "subsistence $CO_2$" and "luxury $CO_2$." That distinction continues to be treated as irrelevant to climate change, despite the now nearly 30-year-old arguments of Anil Agrawal and Sunita Narain (1991).

Another political bias inside climatology is its unmarked use of a very specific, nonsocial conception of energy stemming from the thermodynamics developed in the 19$^{th}$ century. This energy concept is so widespread today that it is hard to remember that it was created principally in the course of making the conversion engines of the early industrial era – the steam engine, the dynamo and other devices that exploited fossil fuels (Malm 2016; Bonneuil and Fressoz 2016) – capable of helping business concentrate, discipline and increase, for purposes of accumulation, the productivity of huge masses of labourers separated from their land. The point of combining fire, wind, electricity, magnetism and so forth into an omnibus "energy" – and separating that energy from any particular human entanglement in horse-drawn agriculture, sailing ships, smelting, cooking and so forth – was capitalistic, imperialistic, that is, deeply political. Yet the older, socially-entangled,

plural, mutually-incommensurable "energies" persisted and continued to evolve. Today they coexist with 19th-century thermodynamic energy and form one foundation for those climate movements that are, in many parts of the world, the most radical and critical of fossil capitalism. They are evident, for example, wherever a rural community seeks to defend its complexly socially-entangled agriculture or firewood use against incursions based on the hegemony of a unified, thermodynamic energy (in the form, say, of annexation of land or water for a coal mine or hydroelectric dam) – or even local rights of way that highways catering to internal combustion engines threaten to break up (Lohmann and Hildyard 2014). Insofar as climatology falls in with industrialism's prevailing methodological blindness toward the multiple Otherness of these energies, it is bound to be continually pushed into opposition to the livelihood and climate interests and understandings of hundreds of millions of people worldwide.

Once climate change has been identified with non-social molecule movements and energy flows, it becomes much easier to imagine that the correct response to it must lie in fantastic schemes of **managing** these essentially dead, inert units from "outside." That is, by purifying climate into a blocklike, exclusively "natural" phenomenon seen from above in isolation from experience in the everyday spheres that anthropologist Tim Ingold (2000) calls "lifeworlds", climatology also tends to simplify "humanity" into a managerial monolith standing off at some distance – like a hobbyist (stereotypically male) standing over a model railway. If, within climatology, climate is barred from being understood as a matter of concrete histories entangling both humans and nonhumans and their labor in surplus extraction, neocolonialism, racism, hydrocarbon use, labour discipline, patriarchy and struggles over class and modes of respect for and dialogue with nonhumans, it is only to be expected that climate action "based" on climatology – as so many environmentalists wish it to be – tends to shrink into advocacy of the control or expert "governance" of an external, zombie-like entity.

This form of advocacy tends to lump together policymakers, environmentalists and flood refugees on one side, while constructing an entirely nonhuman climate on the other, with the two linked only via an exceedingly narrow channel. "Human" influence on "climate" passes through this rudimentary interface as what Marcus Taylor (2015: 38) calls an "outside 'forcing' to an otherwise coherent model of atmospheric dynamics". "External shocks" from the climate then pass through the channel in the other direction to influence the human world. This is followed by management responses from the human world to the climate (such as carbon pricing), guided by a climate-scientist profession understood to have a privileged method for interpreting signals passing through this interface with nature while filtering out static from society (Rouse 2002).

This cosmovision was not invented by climatology. It has precedents in, for example, colonial forest management, which likewise tended to bracket capitalist practices as unquestionable and connected to a monolithic climate through an interface of scientific management. Under this regime, climate became climate *for* a blocklike colonial society – for rulers (to secure plantation productivity or nature conservation) but also for their workers (partly to keep them from rebelling). The effects, as historian Richard Grove (1997: 183) observes, "were frequently just as destructive or oppressive in their effects on indigenous societies as direct ecological destruction and appropriation of environments and common rights by private capital." That observation can only be sobering for environmentalists who still hope that climatology can somehow by itself form a first rallying point for a global activism embracing all classes, races and genders.

## The Dominance of the Climatological View

It would be difficult to underestimate how hegemonic this treatment of climate change has become. At official meetings on global warming, for example, climatologists empowered as spokespersons for "nature" are encouraged to leave the room after they "present the science", so that policymakers

empowered as spokespersons for "society" can get on with their discussions about how to keep capital accumulation going in a greenhouse world. This rule is set out in black and white in, for example, the mandate of the Intergovernmental Panel on Climate Change (2013) to assess "the science comprehensively, without bias and in a way that is relevant to policy but not policy prescriptive." This statement requires "the science" to be a monolith with sharp boundaries that can influence and be influenced by politics but comes out of completely distinct, nonpolitical processes. It excludes, via the word "comprehensively," any claim that climatology might not cover the whole field of climate knowledge. By deploying the phrase "without bias," it denies the possibility that for climatology to attribute global warming to molecules and energy flows might be prejudicial to many social classes with a different view of causality. Such incessant boundary patrols render dialogue about the political biases of climatology even more difficult than dialogue about the political biases of policymakers.

Climate deniers reinforce these ignorance-producing dynamics when they profess horror that some scientists might have "cross[ed] a line into policy advocacy" (Broder 2010). But so do environmentalists such as Bill McKibben when they advocate a politics in which "physics and chemistry call the tune" (Romm 2011) to which governments and the rest of us dance, or when they set up networks with names like 350.org, which see climate action as organized around climatology-guided management of molecule flows. And so do scientific panels convened to decide at what point "humanity's" influence on a separate "natural" world became powerful enough to justify the naming of a new, anthropocene geological epoch (Lewis and Maslin 2015). On this understanding, the very authority and status of physical scientists, as well as their responsibility to society, comes to depend on conjuring up and maintaining a public vision of a nature devoid of relationships involving humans, giving scientists themselves a strong incentive to fall in with the fantasy.

Or take the table below, reproduced from a book edited by the businessman Paul Hawken and endorsed by the billionaire hedge fund manager Tom Steyer (Roberts 2019).

## Top 10 solutions to climate change

**Total gigatons of CO2-equivalent emissions that could be reduced by 2050**

| SOLUTION | | PLAUSIBLE SCENARIO | | DRAWDOWN SCENARIO | | OPTIMUM SCENARIO |
|---|---|---|---|---|---|---|
| Refrigerant Management | 1 | 89.74 | 2 | 96.49 | 3 | 96.49 |
| Wind Turbines (Onshore) | 2 | 84.60 | 1 | 146.50 | 1 | 139.31 |
| Reduced Food Waste | 3 | 70.53 | 4 | 83.03 | 4 | 92.89 |
| Plant-Rich Diet | 4 | 66.11 | 5 | 78.65 | 5 | 87.86 |
| Tropical Forests | 5 | 61.23 | 3 | 89.00 | 2 | 105.60 |
| Educating Girls | 6 | 59.60 | 7 | 59.60 | 8 | 59.60 |
| Family Planning | 7 | 59.60 | 8 | 59.60 | 9 | 59.60 |
| Solar Farms | 8 | 36.90 | 6 | 64.60 | 7 | 60.48 |
| Silvopasture | 9 | 31.19 | 9 | 47.50 | 6 | 63.81 |
| Rooftop Solar | 10 | 24.60 | 10 | 43.10 | 13 | 40.34 |

Source: Project Drawdown

Vox

Here the root cause of "climate change" to which "solutions" are to be offered is rigorously limited to an excess of greenhouse-gas molecules – or, rather, the "molecule-equivalents" dreamed up by climatologists working with the IPCC. Accordingly, the top priority for addressing climate change is not – for example – support for the wide range of already-existing social movements working to keep fossil fuels in the ground, with all of their complex concerns and goals. Instead, it is … "refrigerant management." Feminism is condescendingly reduced to the quantifiable contribution that "educating girls" might make to improved molecular concentrations. Within the terms of the table, it isn't even possible to estimate the effects of Jevons dynamics under current capitalist processes, through which individual economies resulting in lowered greenhouse gas emissions in one sector at one time can result in increased long-term emissions overall (Polimeni, Mayumi et al. 2008; Lohmann and Hildyard 2014). It would be hard to imagine a representation of climate change that ignores its nature and causes more pointedly or aggressively. Yet the table is representative of a great deal of environmentalist thinking that ostentatiously strives to base itself on climatology.

## The Damage Done

If it's difficult to underestimate the dominance of the climatological picture of climate, it's also difficult to underestimate the damage that that picture can do to climate movements.

For example, when the 2015 Paris climate agreement set itself up as a passage-point through which a unitary "international community" could formulate ways to hold global average temperature rise in a similarly black-boxed physical climate system to "well below 2° C above pre-industrial levels" (UNFCCC 2015: 21), it was a sign of what Ingold (2000: 209) calls "the culmination of a process of separation" of humans from their world. For the world majority committed to contesting that separation, there was little to celebrate about plans for "mitigation" and "adaptation" that further engrained the theme that climate is a nonhuman "force of nature", interpreted by climatologists, "that enfolds upon a similarly coherent society" (Taylor 2015: 31) that duly returns the favour without having to trouble itself with conflict between peasants and agribusiness, indigenous peoples and mining companies, or slum dwellers and fossil fuel industries.

Worse, Paris ensured that the "climate" it referred to continued to be a symbol of new forms of exploitation for those for whom climate is neither natural nor social nor a hybrid of the two, but bound up into "substantial, living forms" and part of the "active formation of the lived environment" (Taylor 2015: 39). Ordinary people in rural Pakistan, for example, as Taylor points out, have little trouble in understanding that their government's climatology-inflected contention that "climate change adaptation" is a matter of protecting a functioning "social system" against disruptive physical change coming from outside is going to be hostile to their efforts to survive under conditions of global warming (137-8). It would be difficult for them to think any differently, given their experience of the way that the pushing of smallholders onto marginal land through the workings of debt and dispossession since the 19th century has "constructed an uneven human topography of vulnerability to flooding;" the way that the pushing of other smallholders further and further up new irrigation canals has made them more vulnerable to drought; or the way that "productivity" in their country has become associated with proletarianizing economies of scale rather than labor-intensive small-plot agriculture (129-137) – an association that has gone hand in hand with the sharpening of precisely that divide between nature and society that is instantiated in the climatological conception of climate.

In addition, by perpetuating the "god trick" (Haraway 1991) of imagining that climate is both representable by knowers pretending to absent themselves from politics and manipulable by controllers advised by the knowers, Paris's climatology-based approach helped keep spaces open for carbon markets. As has by now been extensively documented, such markets not only make

global warming worse, but also undermine precisely those traditions of practice that will be needed most in the future in order to turn things around. Every forest people that has to turn over part of its territory to compensate for industrial emissions whose source it does not know is seeing its own climate-stabilizing land and forest practices undercut by climatology. Every migrant that arrives in Europe or North America because she has been displaced by plantations of supposedly "carbon-neutral" agrofuels is not only a victim of the view that one $CO_2$ molecule is equal to another in its effect on global warming, but also a person who is being deskilled in the practices needed to curb it.

This deskilling is reinforced when indigenous or peasant futures are reduced to the single "emissions baselines" that are needed to measure the contribution of the "pollution-saving" alternatives that are initiated by visiting experts to create quantifiable, cheap carbon pollution rights for industry. Industry can then take advantage of these saved costs to increase further its power to destroy indigenous or peasant knowledge. Meanwhile, geoengineering – encouraged by that same climatological vision of the world as a model railway with a male hobbyist standing over it – not only constitutes an insult to most indigenous peoples and their territories, but also, in its disruption of earthly cycles and indirect support for fossil fuel industries, constitutes a further threat to their climate knowledge.

## Unsettling Climatology's Dominance

As noted above, many climate activists have traditionally tried to appeal to various publics by wrapping themselves in the mantle of climatology. However, as this chapter has shown, the very structure of that climatology can become a political Trojan horse defeating organization of more effective approaches.

But why shouldn't a different strategy be possible? A strategy that, while respecting climatology's achievements and rejecting denialism, also recognizes that climatology is profoundly Other – and, as currently constituted – generally threatening to the knowledge and practice of the climate movements central to a liveable future?

The key may lie in understanding that an Other is likely to become an Enemy only when processes of interaction with it are undemocratic. And that even when that has already happened, changing the style of encounter with it can lead to transformative outcomes.

Two overlapping approaches might help. One is to show how climatology is an expression of a particular history that is only one among many. And that to "distance" climatology in this way is not to be ignorant or unappreciative of it, but, on the contrary, to understand better what it is and what it can and cannot do. The other is to help open up dialogues between climatology and other quintessentially "modern" understandings of climate that can expose where previously-hidden conflicts lie and what might be done to acknowledge, confront and deal with them. Listening carefully to the nuance of the resulting arguments is itself a way of challenging climatological hegemony over climate movements and deepening respect for all, not just some, of the radically different sides of climate activism.

No one, however, should underestimate the difficulties in breaking up the frozen hierarchies of knowledge exemplified by the political settlement of which current climatology is an active component. If a more fertile "middle ground" is to be created for the interaction and strengthening of climate movements that will nevertheless remain mutually Other, it will be necessary – perhaps following the clues identified by historian Richard White in his classic history of the indigenous colonial Great Lakes region in North America – to work so that all sides are unable "to gain their ends through force" (White 2011: 52). That constitutes a sobering prompt to Northern and other

activists who have followed the formula of conceptualizing climate action as stemming from "peer-reviewed science" to become more aware of their own colonial history.

## Exposing Climatology to Its Own History

Historians of science Crosbie Smith and M. Norton Wise offer what may be useful pointers for this enterprise in their two-volume biography of Lord Kelvin, *Energy and Empire* (1989). Kelvin, as one of the 19th century's leading British scientists, is a highly-relevant figure to the topic of this chapter in that he was, so to speak, present at the creation not only of fossil capitalism and of thermodynamics, but also of a fair bit of modern earth science.

Like climatology, the energy science that Kelvin helped originate is a landmark in the history of inquiry. Yet it could only have arisen in the context of empire – of the concurrent enclosure of commons in Europe, India and Africa and the mobilization by business of millions of newly-landless laborers in centers of mechanization. And this is reflected in its structure: not only in the way that the First Law of Thermodynamics organizes disparate commons energies into a monolithic unitary energy in the service of the mechanized capital represented by the steam engine, the vortex turbine and the transatlantic cable, but also in the way that the Second Law quantifies concerns about efficiency and usable "work" that could only have come to the fore with such urgency in an age of global industrial capital (Lohmann and Hildyard 2014).

As Smith and Wise are careful to insist, Kelvin's "social context" could never have "determined the content of his science." But neither did his intelligence consist of being born with some amazing skill for taking on board what an eternal, noncapitalist "nature" was telling him. Instead, it derived from the ways his "industrial vision thoroughly permeated his understanding of the natural world and the theoretical and experimental research which he pursued," which in turn was able to feed back into capitalist history as a whole. The ideology of a Victorian scientific entrepreneur – and that would have included all its racist, patriarchalist and colonialist attitudes – was actively "expressed in his best scientific work, in his instruments and patents certainly, but also in his mathematical physics" (Smith and Wise 1989: xx-xxi). Like any other cosmovision, Kelvin's science represented a "construction of a system of the world" (xxiii) whose nature was organized, along the way, in a fashion that advanced certain interests more than others. To elevate the capitalist nature of abstract energy that he helped construct to the status of "nature itself" is merely fetishism.

So, too, with climatology. What climatology is and is not – and can and cannot do – is a topic that can't be disconnected from the biases it has been given by its history. The political vision incorporated in computer-powered Global Circulation Models, to take one example, derives not only from a generalized capitalist drive to create and isolate "nonnatural" humans who can make commodities out of natures carefully construed as "nonhuman", but also from a much more specific background of Cold War-era cybernetics, systems analysis and computer simulations of the nonlinear fluid dynamics of nuclear explosions; World War II-era artillery-control servomechanisms (Edwards 2013, Elichirigoity 1999); and, going back a bit further, the mechanical feedback-control "governors" required by Industrial Revolution steam engines (Beniger 1986). It is no accident that many of the innovations foundational to neoliberalism and to climate modelling emerged roughly in parallel. Nor is it an accident that the climatological knowledge produced by the IPCC, as Kathleen Fogel puts it, "helps governments erect and then justify their simplified constructions of people and nature, and the institutions based on them" (Fogel 2004: 109).

Climatology's history has provided it with particular strengths, in short, but also – especially for those who have been on the receiving end of these developments – particular weaknesses. The most important of these may be a lack of awareness of the biases that that very history has bequeathed it.

A different history would have produced a different climatology, one that would have had biases and weaknesses of its own, but weaknesses that might not have included this one.

Consider the example of Totonac scientists in the Huehuetla region of Mexico's Sierra Norte de Puebla, as recounted by anthropologist William D. Smith (2007). Like climatologists, Huehuetla scientists have registered increased unpredictability in regional rainfall patterns and linked it to, for example, the drying of springs and destructive floods. But for them, unlike for climatologists, observing such changes without being aware of the historical embeddedness of the observations in the history of the ability to make and apply them signifies a breakdown in science itself. Such observations, if they are to be rigorous, need to track and take action concerning a historical loss of respect for springs, their spirits, and the good labor of communities that rely on both, together with a weakening of the agency of the water itself and its ability to chasten the disrespectful and hence preserve itself and the situated community whose solidarity is defined by it. Good science, on such a view, sustains itself partly by being aware of its biases and its situated nature. It does not try to replace that awareness – as climatology and an environmentalism that looks to climatology for validation are both prone to do – with a mythological origin story featuring mystical priestly contact with a nonhuman, molecular infinite.

## Exposing Climatology to Its Contemporary Interlocutors

Anyone who has listened to grassroots communities talking about climate change – I am thinking of occasions in Molo in West Timor, the north coast of Flores, the *paramo* of the Ecuadorian Andes, the Scottish highlands, the central Indian forest belt, northern Thailand, and also central London and Los Angeles – will have noticed a strong undertow of non-climatological narratives shaping both discussion and other types of action.

As in the Mexican example just cited, one feature of such conversations is a relative absence of political and moral censorship. And this absence tends to carry over into encounters such communities have directly with climatologists or – more likely – with environmentalists who see themselves as representing a climatological perspective.

Unfortunately, it tends to be part of the climatological perspective to underestimate the Otherness evident in this lack of censorship. Climatology tends to view itself – as it is typically viewed by intellectuals who accede to the political settlement of which it is a part – as a universal, neutral and non-political foundation for all climate change action: something for which, as it were, no introduction is necessary. Accordingly, it tends to view critical political commentary about itself as evidence of deficiency: as denial of the facts, as an irruption of policy thinking into a scientific discussion where it is irrelevant, as a lack of intellectual discipline rather than the co-presence of a different intellectual discipline. Part of that defensiveness, of course, stems from the way climatology chronically misinterprets historically-based criticism of itself as if that criticism constituted a blanket dismissal, or revealed an “anti-science” attitude, or consisted of a demand that it be shelved and replaced with some supposedly purer “alternative” that better represented the facts of “nature” to “society”.

The consequence of this lack of awareness of the Otherness of climatology to most climate movements can be easily illustrated. Imagine what might happen if Totonac scientists concerned about the “fragmentation of thought” and of ordering processes that underpin the security of humans and nonhumans together were to intervene in a meeting of white Northern environmentalists cleaving strongly to a climatological cosmovision. The environmentalists would be likely to peer at them blankly for a moment over the top of their reading glasses and then change the subject back to parts per million. Or simply urge them to set aside their commentary for the time being since “we are all on the same side” and need to rally around the climatological consensus

before taking the next step. Or, alternatively, ignore their future-oriented commentary by trying to slot them into a superseded "past" (Fabian 2002). Or tap their fingers impatiently, frustrated and puzzled at the "philosophical" observations of these otherwise seemingly practical individuals with their labor-hardened hands, sun-beaten faces and long experience of struggle in the global coffee market, and wondering why they weren't able to embrace wholeheartedly the "realism" of refrigeration management. In such ways, moves toward collaborative climate activism often get pushed into nonsensical polemics about the need for border controls between politics and nature that prevent the possibility of questioning either the two entities themselves or the interface that has been constructed between them.

What is lost to the wider world in such processes of short-circuiting is not only vital arguments that need to be had, but also the awareness that such arguments are possible. It is this lack of awareness – and not the divergences between climatological and non-climatological processes of thinking themselves – that turns differences among climate movements into conflicts. When alternate ways of conceptualizing climate are summarily discredited or dismissed, the global majority cannot sit still forever. When "climate justice" is allowed to become no more than a matter of fair distribution of $CO_2$ molecules, or fair distribution of abstract energy, or fair distribution of the effects of temperature change, or fair distribution of carbon tax burdens, or fair distribution of the costs of industrial restructuring needed to change molecular flows, rather than of open debate about land, work, patriarchy, extraction, class, race, pollution and so on, then strife over climate injustice is not going to be contained, but increased. All this constitutes a loss for climatology itself insofar as it is prevented from realizing that it needs to learn from new forms of dialogue – not only about categories and processes outside the realm of molecule management, but also, in the process, about itself and its own biases.

Another way of putting the issue is to say that climate activism is being stymied by fast translation taking priority over slow. Whether translation back and forth between climatological and non-climatological discourses is to proceed quickly or slowly – and who decides on that pace – is a question of class struggle in which a "climatological class" has so far tended to prevail. Powerful enough to enforce a mode of exclusionary super-fast translation rather than more deliberate, open-ended forms of interaction that refuse to bracket history and politics, a climatology-dominated environmentalism often finds it too easy not only to dismiss divergent approaches to global warming as mistaken or confused, but also to try to assimilate or subsume them under a climatological framework. To claim that movements to keep oil in the soil in the Ecuadorian Amazon are really all about "emissions caps" and "biospheric limits"; or that Latin American indigenous practices of *sumak kawsay* or *buen vivir* are really about "resilient" green development; or that indigenous territories are identical to the abstract spaces championed by 16$^{th}$-century European mapmakers or 21$^{st}$-century prophets of "natural capital"; or that Andean *pachamama* is one of the externalized "natures" of capitalism whose rights can only be defended by humans situated outside it – all these are instances of fast translation that, by cutting inquiry short, only invite despair and violence.

The irony is that such instances of fast translation not only impoverish the scope of climate action, but also slow it down. As William Smith (2007: 232) suggests, a "Northern-dominated, state-centric strategy" is less likely to "turn the tide of climate change" in the time remaining than one that honors the entire "heteroglossic field" (Bakhtin 1981) of science. If faster progress is to be made in political organizing around climate change, the idea has to be embraced that many climate movements are as deeply Other to one another as were commons and enclosure movements of centuries past. Claims that climate activists are automatically "all on the same side" and should shut up about their differences and concentrate their fire on "common enemies" like oil companies or Donald Trump are stifling and retrograde, not empowering and future-oriented.

## Conclusion

Some four decades ago, Lois Gibbs, a housewife with a high school education battling industrial contamination in her neighborhood in upstate New York, brought together community members with concerned environmentalists from Washington-based NGOs to see if alliances could be built. As Gibbs tells the story,

> "It was hilarious. … People from the grassroots were at one end of the room, drinking Budweiser and smoking, while the environmentalists were at the other end of the room eating yoghurt. We wanted to talk about victim compensation. They wanted to talk about ten parts per billion benzene …. A couple of times it was almost war. We were hoping that, by seeing these local folks, the [environmentalists] would be more apt to support the grassroots position, but it didn't work out that way" (Greider 1992: 214).

What Gibbs points to is a divide that persists today in climate movements around the world – one in which climatology, with its preoccupation with those "parts per billion," plays an active part. Can climate movements learn from such histories, or are they fated to repeat them? Can they orient themselves to climatology, and succeed in reforming it, in a way that builds alliances, or will climatology continue to be a symbol of what splits them? This chapter has suggested that success will depend far more than is commonly understood on dedicated attention to processes of democratic translation and negotiation on a "middle ground" the patient construction of which will inevitably take its toll in pain and blood.

Memo to educated middle-class activists trying to save the climate from the consequences of the actions of the Donald Trumps and Jair Bolsonaros of the business world: climatologists who insist that it is their duty as scientists to confine their research to following greenhouse gas molecules and energy transfers are not necessarily always your friends. Like most everybody else, they are ideologists who – even if usually unconsciously, and with whatever good intentions – have taken sides in struggles involving class, race and gender whose origins go back to long before the Industrial Revolution.

Memo to activists who are not sure what to think about climate apocalypse in the midst of ongoing fights against austerity, mass incarceration, mineral extraction, industrial agriculture, oil wars, police killings, planned obsolescence, tax evasion, fracking and artificial intelligence: you may not be clear about whether you are really part of climate movements, but in fact you are by default among their leaders. You, too, have the right to participate in defining what climate change is. If other worlds are possible, then so, too, are other climatologies.

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