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## Capitalism and Planetary Destruction: Activism for Climate Change Emergency

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### Introduction

This article is in two sections. In section 1, I discuss the relationship between capitalism and planetary destruction, and in section 2, activism for climate change emergency. I begin section 1 with a brief summary of the agreement made at the 2015 United Nations Climate Change Conference in Paris. I then consider the relationship between capitalism and planetary destruction, focusing on the negative role of certain capitalist world leaders, namely Donald Trump, Jair Bolsonaro and Scott Morrison. Next I address the Paris climate change accord four years on: Madrid (COP 25), suggesting that we may be on a trend for total planetary catastrophe. I conclude section 1 with a forward look to Glasgow 2021 (COP 26), suggesting that we have a mountain to climb. In section 2, after briefly outlining the long history of climate change awareness, the role of activism in fostering climate change emergency is analysed, with reference to Greta Thunberg, and movements inspired by her example, as well as Extinction Rebellion. The case is made that a climate change *emergency* needs to be declared worldwide, citing a number of factors that seriously threaten the survival of our planet. I move on to a consideration of the relationship between climate change and gender, before concluding the chapter by stressing that it is not just the existence of humankind that is at threat, but also around a million other species.

### 1. Capitalism and Planetary Destruction

#### The Paris Climate Change Accord

Climate change public pedagogy got a boost and a stimulus after the Paris climate agreement of 2015 that aimed to limit the global rise in temperature attributed to gases or emissions released from industry and agriculture. Nearly two hundred countries agreed to:

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- Keep global temperatures ‘well below’ 2C above pre-industrial levels and ‘endeavour to limit’ them to 1.5C
- At some point between 2050 and 2100, limit greenhouse gases emitted by human activity to the same levels that trees, soil and oceans can absorb naturally
- Review each country's contribution to cutting emissions every five years
- Enable rich countries to help poorer ones by providing ‘climate finance’ to adapt to climate change and switch to renewable energy (BBC News, 2019).

Such attempts to promote climate change awareness by overwhelmingly pro-capitalist governments are to be lauded, as are attempts by any other constituencies<sup>1</sup>. However, from a Marxist perspective a critique of the role of the world capitalist system in fermenting climate change extinction is not only necessary, but essential. The Intergovernmental Panel on Climate Change (IPCC) (2018) declared that preventing runaway global warming will require ‘far-reaching transitions in energy, land ... and industrial systems’. To even contemplate solving the unprecedented problems that we all face, as Ashley Dawson (2019) argues, ‘we need a carefully planned and democratically administered emergency program for ecological reconstruction’. However, ‘such a program is not remotely reconcilable with capitalism’s imperatives of profit maximization and growth, not to mention private ownership of the means of production’ (Dawson, 2019). In other words, as Dawson (2019) asserts: ‘We need system change to beat climate change’, a slogan that encouragingly for ecosocialists often appears at climate change demonstrations.

As Dawson (2019) explains, following Marxist geographer David Harvey (2010), under capitalism economies must grow at a minimum compound rate of 3 percent to remain healthy. In Harvey’s words: ‘Any slowdown or blockage in capital flow will produce a crisis. If our blood flow stops, then we die. If capital flow stops, then the body politic of capitalist society dies’. Harvey gives the example of 9/11:

This simple rule was most dramatically demonstrated in the wake of the events of 9/11. Normal processes of circulation were stopped dead in and around New York City with huge ramifications for the global economy. Within five days, then Mayor Guiliani was pleading with everyone to get out their credit cards and go shopping, go to the restaurants and the Broadway shows (seats are now available!) and shortly thereafter the President of the United States did an unprecedented thing: he appeared in a collective commercial for the airlines pleading with people to start flying again (Harvey, 2010).

Given the finite planetary resource, capitalism’s incessant and unrelenting growth is literally killing us. A recent major report (Waheed et al. 2019) surveying hundreds of scientific studies shows a direct link over the last 50 years between economic growth, energy use and carbon emissions. Waheed et al. (2019) conclude that it is clear that ‘higher energy consumption helps to boost ... economic growth but at the cost of environmental degradation’.

Citing think tank Carbon Tracker (2013), Dawson (2019) points out that 80 percent of known fossil fuel reserves need to be kept in the ground if we are to avert temperature rise above 2C. But many of these reserves are controlled by fossil fuel corporations accountable only to investors, and to maintain their value and market share, these companies must continue to extract and sell these reserves and discover new reserves to replace them, since contraction is inimical to growth (Dawson, 2019). Free market solutions and incentives such as carbon taxes, Dawson (2019) concludes, have failed to significantly diminish fossil fuel consumption<sup>2</sup>.

### **The Negative Role of Certain Capitalist World Leaders**

Certain capitalist world leaders also play a major role in contributing to climate change disasters. As Somini Sengupta (2019) reported for *The New York Times*: ‘This is the world we live in: Punishing heat waves, catastrophic floods, huge fires and climate conditions so uncertain that children ... [take] to the streets en masse in global protests to demand action’.

She continues, ‘But this is also the world we live in: A pantheon of world leaders who have deep ties to the industries that are the biggest sources of planet-warming emissions, are hostile to protests, or use climate science denial to score political points’:

In Russia, Vladimir Putin presides over a vast, powerful petro-state. China’s state-owned companies are pushing for coal projects at home and abroad, even as the country tries in other ways to tamp down emissions. Narendra Modi of India is set on expanding coal too, even as he champions solar power (Sengupta, 2019).

By far the biggest and most dangerous world leaders pursuing public pedagogy and accompanying actions threatening climate change extinction are the presidents of the United States of America and Brazil and the Prime Minister of Australia.

### ***Trump***

According to James Ellsmoor (2019), the US Department of Energy, under the climate-denying President of the United States, has started referring to fossil fuels as ‘molecules of freedom’ and specifically natural gas as ‘freedom gas.’ The term may have originated during a visit by U.S. Energy Secretary Rick Perry to the European Union in April, 2019, who stated:

Seventy-five years after liberating Europe from Nazi Germany occupation, the United States is again delivering a form of freedom to the European continent. And rather than in the form of young American soldiers, it’s in the form of liquefied natural gas (cited in Ellsmoor, 2019)

In November, 2019, the Trump administration formally began withdrawing from the Paris climate change agreement, the only country not signed up to it (Buncombe, 2019). Trump has repeatedly dismissed the existence of human-caused climate change, branding it as a ‘hoax’, while rolling back Obama-era policies aimed at tackling the crisis (Baynes, 2019a). Moreover, most

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disturbingly, researchers found that between 2016 and 2019 a quarter of all references to ‘climate change’ were removed from federal government websites. The Environmental Data and Governance Initiative (EDGI) analysed more than 5,300 pages on the websites of 23 federal agencies and found usage of the terms ‘climate change,’ ‘clean energy,’ and ‘adaptation’ had dropped 25 per cent since Trump’s inauguration (Baynes, 2019b). EDGI explains the overall strategy:

Rather than cultivating the informational resources necessary to confront climate change, the Trump administration has attempted to remove the topic from federal agency websites, a clear policy indicator in line with withdrawing from the Paris Agreement and revoking the Clean Power Plan (cited in Baynes, 2019b)<sup>3</sup>

‘While prominent political, journalistic, and scientific entities are sharpening the language they use to describe the climate crisis,’ EDGI goes on, ‘we see precisely the opposite from this administration: removal of the term “climate change” and its replacement with less clear language’ (cited in Baynes, 2019b). Chris Baynes (2019a) concludes that Trump’s position puts him at odds ‘with the overwhelming majority of scientists and his own government agencies, which have warned human-caused global warming is on course to have catastrophic consequences for life on Earth’.

Towards the end of 2019, Greta Thunberg was named Time magazine’s Person of the Year, prompting Trump (who was hoping to get the award himself) to tell her to ‘chill out’ and ‘work on her anger management problem’, adding that she should ‘go to a good old fashioned movie with a friend’ (cited in Wood, 2019). He had previously responded sarcastically to her UN speech saying, ‘She seems like a very happy young girl looking forward to a bright and wonderful future. So nice to see’ (cited in Wood, 2019). Thunberg once replied to those whose public pedagogies of hate are directed at her: ‘When haters go after your looks and differences, it means they have nowhere left to go. And then you know you’re winning’. She went on, ‘I have Aspergers and that means I’m sometimes a bit different from the norm. And - given the right circumstances - being different is a superpower’ (cited in Wood, 2019)<sup>4</sup>.

In January, 2020, Trump attended the World Economic Forum (WEF) in Davos,<sup>5</sup> and was involved in what Tim Cohen (2020) describes as ‘surely one of the most bizarre non-confrontational confrontations in history’, with a president of the United States and a young Swedish woman going:

toe-to-toe, without mentioning each other’s names, without a meeting, and without any overt acknowledgement of each others’ argument. Together they symbolise the distance between climate activists and the bastions of political power (Cohen, 2020).

In an audience that included Thunberg, Trump declared, ‘We must reject the perennial prophets of doom and their predictions of the apocalypse’, dismissing climate activists as fearmongering ‘prophets of doom’ who will cripple global economies and strip away individual liberties in what

he described as a misguided mission to save the planet. He compared them to people who predicted an overpopulation crisis in the 1960s, mass starvation in the '70s, and an end of oil in the '90s:

These alarmists always demand the same thing: absolute power to dominate, transform and control every aspect of our lives. We will never let radical socialists destroy our economy, wreck our country or eradicate our liberty (cited in Cohen, 2020)

In a different panel, Thunberg responded: ‘The facts are clear, but they are still too uncomfortable. You just leave it because you think it’s too depressing and they will give up. But people will not give up. You are the ones who are giving up’ (cited in Cohen, 2020). She argued that planting trees is good (Trump had promised to plant one trillion trees) but not enough; we need zero emissions (Cohen, 2020) (Just after Trump left Davos, it was revealed that BP had successfully lobbied in favour of Trump’s decision to dilute a landmark environmental law, making it easier for new major infrastructure projects, such as oil pipelines and power plants, to bypass checks - Ambrose, 2020).

Thunberg was right to point out at Davos that from a ‘sustainability perspective, the right, the left and the centre have all failed’ and that no ‘political ideology or economic structure has been able to tackle the environmental and climate emergency and create a cohesive and sustainable world,’ but, as will be argued in the last chapter of this book, wrong to claim that ‘it’s not about politics’ (cited in Cohen, 2020). That no political ideology or economic structure *has been able* to solve climate change does not mean that it cannot. In the next two chapters, I will make the case that ecosocialism is the only way that we can both save the planet and harness the technological fruits of the Fourth Industrial Revolution for the good of all.

### ***Bolsonaro***

Valdillene Urumon points out that during his election campaign, Brazil’s far-right president, Jair Bolsonaro promised to divide up indigenous lands: ‘That’s why the ranchers voted for him. But we don’t want to share our land’. She was talking to *The Guardian’s* Latin American correspondent Tom Phillips, as a fire continued to rage near her village (Phillips, 2019a). As Phillips explains, a ‘2,000km road and river odyssey in Brazil reveals consensus from all sides: Bolsonaro has ushered in a new age of wrecking’. Phillips is witnessing ‘an inferno: a raging conflagration obliterating yet another stretch of the world’s greatest rainforest ... a catastrophic blaze ... [in the jungle] perhaps two miles long’. Statistics produced by Brazil’s own space institute – whose director was sacked in August 2019 after clashing with Bolsonaro – show the deforestation surged a Manhattan-sized area lost every day in July of that year (Phillips, 2019a).

The *Guardian* travelled nearly 2,000km by road and river through two of the Amazon states worst affected by the fires, Rondônia and Amazonas. Along the way, indigenous leaders, wildcat goldminers, environmental activists and government officials were agreed that Bolsonaro’s stripping back of protections and anti-environmental rhetoric had contributed to the scale of the fires, more than 30,000 in August 2019, alone (Phillips, 2019a). The delight of the goldminers and

those who sell to them contrasts with the growing despair of many forest dwellers whose lives were previously upended in the 1960s when Brazil's military dictatorship bulldozed roads through the Amazon (Phillips, 2019a).

Bolsonaro's actions are made all the worse by the fact that the Amazon rainforest is a crucial life-support ecosystem. Without its strength and power to generate hydrologic systems across the sky (as far north as Iowa), absorb and store carbon (CO<sub>2</sub>), and its life-giving endless supply of oxygen, civilization would cease to exist beyond scattered tribes, here and there (Hunziker, 2019a). The Amazon is beginning to become an 'emitter of carbon', the same as coal power plants. This is not just due to wildfires and land clearing but to global warming *per se*, all of which exacerbate each other. In environmental journalist, Robert Hunziker's (2019a) words, according to the world's two leading Amazon scientists, Thomas Lovejoy and Carlos Nobre, the combination of warming temperatures, crippling wildfires, and ongoing land clearing for cattle ranching and crops 'has extended dry seasons, killed off water-sensitive vegetation and created conditions for more fire' (Hunziker 2019a).

Unsurprisingly, like Trump, Bolsonaro has derided Thunberg. She gave her voice to growing international condemnation of a surge of anti-indigenous violence in the Amazon: 'Indigenous people are literally being murdered for trying to protect the forrest [sic] from illegal deforestation. Over and over again'. She accompanied the tweet with a video depicting the aftermath of a drive-by shooting that left two indigenous leaders dead (Phillips, 2019b). Smirking, Bolsonaro's response was: 'Greta's been saying Indians have died because they were defending the Amazon. It's amazing how much space the press gives this kind of *pirralha*' (a Portuguese word that loosely translates as 'little brat' or 'pest' (Phillips, 2019b).

Brazil's Indigenous Missionary Council rights group stated in September 2019 that 153 indigenous territories had been invaded since the start of the year, noting that Bolsonaro's 'aggressive' talk was partly responsible (Phillips, 2019b).

### ***Morrison***

Brazil is not the only place where droughts have a political dimension. Writing about Australia, Kenneth Surin (2019) points out, both the centrist Labor Party and the right-wing Liberal Party 'are responsible for Australia's water crisis': as is the case in many capitalist countries with a significant agribusiness sector, 'disaster relief measures are tailored in the main to help this sector and less so small farmers'. 'The low-interest-loans scheme intended to tide-over small farmers during the crisis,' he explains, 'will not help much'. This is because, already heavily indebted because the drought has devastated grazing lands for their animals, they will find it difficult to repay these loans (Surin, 2019). As Martin Scott (2019) elaborates, a report from the Australia Institute, one of the country's most influential public policy think tanks, has revealed that dozens of large dams have been built in Australia in recent years, but not for the public good. According to the report:

The recently constructed dams in the Murray-Darling Basin do not help drought-stricken towns, struggling small irrigators or the wider public. They are built with taxpayer money on private land mainly for the benefit of large corporate agribusiness like Webster Limited (cited in Scott, 2019).

The key to the government's market approach is the sale of 'water rights' that allows irrigators to be 'owed' water by virtue of a provision allowing them to take as much as 300% of their annual allocation in non-drought-years to 'make up' for drought years (Surin, 2019).

The neoliberal coalition between the Liberals and Nationals is headed by strident Trump supporting Liberal Prime Minister Scott Morrison (the Australian Liberal Party is a centre-right party), who in a speech in November, 2019, when referring to environmental protesters, echoing Trump, mentioned a 'new breed of radical activism' that was 'apocalyptic in tone, and pledged to outlaw boycott campaigns that he argued could hurt the country's mining industry. The remarks were made to an audience at the Queensland Resources Council, an organization that represents peak mining interests in the state (Taylor, A. 2019). Surin (2019) recognises the irony of Morrison's use of the term 'apocalyptic', which was also used by the media to describe the wildfires and accompanying smog that shrouded Australia's east coast. Just as Oklahoma's US senator Jim 'Brain Freeze' Inhofe (global warming is 'the second-largest hoax ever played on the American people, after the separation of church and state' – Nicks, 2017) brought a snowball on to the Senate floor to 'prove' that global warming did not exist, Morrison once brought a lump of coal into the House Chamber to 'show' parliament they need not be afraid of coal (Surin, 2019).

On 11 November, 2019, *The New York Times* reported more than 85 fires burning across Australia's east coast, with 40 out of control (Cave, 2019). Some three weeks later, *The Guardian* warned that about a third of the 146 wildfires then burning were not contained (Australian Associated Press, 2019), and later reported that some fires would take weeks to put out (Surin, 2019). In late December 2019, it was revealed that around three million hectares (7.4 million acres) of land had been burned across the country, and that nine people had been killed and more than 800 homes destroyed (Sky News, 2019). On New Year's Day, 2020, the New South Wales Rural Fire Service reported that 916 homes had been destroyed that season, with another 363 damaged, and 8,159 saved (BBC News, 2020a). Three days later, Penrith in Greater Sydney became the hottest place on earth at 48.9C, with bushfires across Australia generating so much heat they created their own storms (Longbottom, 2020).

Early in 2020, it was reported that the bushfires turned the sky bright orange over Auckland in New Zealand, more than 1,200 miles away, with people reporting their breathing was affected by the smoke from the devastating blazes. Hours before the sun was due to set, streetlights in Auckland were turned on and motorists forced to use headlights because the plumes of smoke had made the skies so dark (Collier, 2020). A few days later skies as far as 7,000 miles away in Chile went grey in the thick smoke, with the World Meteorological Organization (WMO) citing reports that the sunset in Argentina's capital, Buenos Aires, had turned red (Binding, 2020). In December 2019, Morrison had been criticised for going on holiday to Hawaii as the bushfire

crisis worsened, with the rising public anger at his absence eventually forcing him to cut that trip short, and following mounting criticism and weeks of angry responses by those affected by the fires, Morrison conceded in January 2020 that there were ‘things I could have handled on the ground much better’, saying he would seek a royal commission review (BBC News, 2020b). In the same interview, however, he defended his government's approach, claiming that it took into account the effect of climate change on the bushfires. When pressed on reducing carbon emissions, he insisted the government was on track to ‘meet and beat’ its targets pledged under the Paris climate agreement, for Australia to cut emissions by 26% to 28% by 2030 compared to 2005 levels (BBC News, 2020b).

The following day, he insisted that people had to get used to massive bushfires and other climate-change catastrophes, and that calling out the armed forces to deal with climate-related emergencies was the ‘new normal’ (Head, 2020).

As Mike Head (2020), writing for the World Socialist Web Site, contends:

Despite Morrison’s evasions, his interview pointed to the underlying refusal of the ruling capitalist class to seriously address climate change because that would cut across the profit interests of the fossil fuel conglomerates and other key sections of the corporate elite.

‘Reversing his many previous denials of any connection between the bushfires and climate change’, Head continues Morrison said there was ‘no dispute’ that climate change was creating ‘the longer, hotter, dryer, summer seasons’. However, he maintained that this was an unstoppable process that, over the next ten years and beyond, requires greater ‘resilience’ and ‘adaptation’ (cited in Head, 2020). Head correctly interprets his statement:

In other words, people just have to accept the failure of the Australian government and governments around the world to halt, let alone reverse, climate change and accept the terrible consequences—higher temperatures, long and more ferocious bushfire seasons, drought and other climate-induced catastrophes (Head, 2020).

Backing up the predictions of Australia’s Bureau of Meteorology, Professor Richard Betts from the UK Met Office Hadley Centre commented on Australia as follows: ‘Temperatures ... are extreme for now but they would be normal under a world getting on for three degrees of warming, so we are seeing a sign of what would be normal conditions under a future warming world of 3 degrees’ (cited in McGrath, 2020a).

Australia’s Bureau of Meteorology has referred to a prolonged drought of historic proportions, while the Climate Council of Australia (CCA) alerts that by 2040 temperatures of 50C could become common in Sydney and Melbourne unless global warming is limited to 1.5C above pre-industrial levels, while long-term climate models project a continuing decline in rainfall over southern Australia for the next century (Surin, 2019).



## **Madrid 2019 (COP 25)<sup>6</sup> – The Paris Climate Change Accord Four Years On: ‘On a trend for total planetary catastrophe’**

In total contradiction to the capitalist apologist Morrison, Professor of Climate Change Science at the University of East Anglia UK, Corinne Le Quéré has said that we can stabilise the world’s climate ‘if we ‘bring CO<sub>2</sub> and other long-lived greenhouse gases down to net zero emissions’. ‘If we don't do it’, she warns even more starkly than Betts, ‘we will have much worse impacts - so what we are seeing in Australia is not the new normal, it's a transition to worse impacts’ (Mcgrath 2020a). Catastrophically, even with current government plans to limit emissions of CO<sub>2</sub>, the world is on course for around 3C of warming by the end of the twenty-first century.

What then have governments been doing since the Paris Accord? According to Hunziker (2019b), as of the end of 2019, global banks had invested \$1.9 trillion in fossil fuel projects since the Paris climate change accord, while global governments, including the US, China, Russia, Saudi Arabia, India, Canada, and Australia, plan to increase fossil fuels by 120% by 2030. In addition, between the middle of 2018 and December, 2019, China added enough new coal-based power generation (43GW) to power 31 million new homes, and plans on adding another 148GW of coal-based power, which will equal the total current coal generating capacity of the European Union. Outside of its borders, China is financing 25% of all new worldwide coal plant construction, for example, in South Africa, Pakistan, and Bangladesh. Meanwhile, in India, coal-fired power capacity increased by 74% between 2012 and 2019 (Hunziker, 2019b).

Few countries came to the December, 2019 climate talks in Madrid (COP25) with updated plans to reach the Paris goals. Instead the focus was on narrow technical issues such as the workings of the global carbon markets, a means by which countries can trade their successes in cutting emissions with other countries that have not cut their own emissions fast enough (Harvey 2019a). According to Fiona Harvey (2019a), no major breakthrough had been seriously expected at the meeting, with the US being blamed for refusing to agree to financial assistance to developing countries for the ravages they face from climate breakdown. Not unexpectedly, another wrecker was Brazil who held up agreement over a provision allowing governments to trade in carbon credits (permits allowing the holder to emit carbon dioxide or other greenhouse gases, but limiting the emission to a mass equal to one ton of carbon dioxide, the ultimate goal being to reduce the emission of greenhouse gases into the atmosphere). Its rationale was an insistence that its carbon sinks – mainly forests, including the Amazon – should count towards its emissions-cutting goals, while also selling carbon credits derived from preserving forests to other countries to count towards their emissions targets. Other countries responded that this was double counting and would undermine the carbon trading system (Harvey, 2019a). The world’s poorest countries, and those most vulnerable to climate chaos, came away largely disappointed and calling for more action in the next year (Harvey, 2019a).

Sonam Wangdi, chair of the Least Developed Countries Group, commented:

Our people are already suffering from the impacts of climate change. Our communities across the world are being devastated. Global emissions must be drastically and urgently reduced to limit further impacts, and financial support scaled up so our countries can better address climate change and its impacts (cited in Harvey, 2019a)

Mohamed Adow, the director of Power Shift Africa, a climate and energy think tank, added:

This is a disastrous, profoundly distressing outcome – the worst I have ever seen. At a time when scientists are queuing up to warn about terrifying consequences if emissions keep rising, and schoolchildren taking to the streets in their millions, what we have here in Madrid is a betrayal of people across the world. It is disgraceful and governments are simply not doing their job of protecting the planet (cited in Harvey, 2019a).

Hunziker (2019b) views the world to be ‘on a colossal fossil fuel growth phase in the face of stark warnings from scientists that emissions must decline to net zero’. Peter Carter, an IPCC expert reviewer, has stated:

In COP25 the science has been blocked completely. Right now all three major greenhouse gas concentrations, carbon dioxide, methane, and nitrous oxide are accelerating. It means we are on a trend for total planetary catastrophe. We are on a trend for biosphere collapse. Carbon dioxide is on a rate exceeding anything over the past millions of years. We are at 412 ppm [parts per million]. To put that into context, we have an ice core that goes back 2.2 million years. The highest CO<sub>2</sub> over that period is 300 ppm (cited in Hunziker, 2019b)

### **Glasgow 2021 (COP 26) – The Paris Climate Change Accord Five Years On: ‘A mountain to climb’**

Harvey (2019a) concludes that the lack of progress leaves the UK, the co-host with Italy of the talks in Glasgow, subsequently postponed to November 2021 ‘with a diplomatic mountain to climb’ in the coming months. Claudia Beamish (2020), MSP (Member of the Scottish Parliament) for South Scotland region and shadow cabinet secretary for climate change, environment and land reform, rightly reminds us that so much has moved forward since 2015 in terms of climate change consciousness, with Greta Thunberg lighting ‘a fire in millions around the world ... giving the young a voice and empowering them’, hence COP 26 is already being lauded as the most important COP since Paris. Referring back to COP 25, she notes that it ‘is disappointing to see yet again some of the richest countries in the world sidestepping their responsibilities, failing to reach agreement on finance for loss and damage, while the poorest countries in the world, who have done least to cause the crisis, face its cruellest effects already’, and that ‘we must go the extra

mile to bring in voices from the global South and the front line of climate change’, and that ‘that inclusivity must also envelop activists, unionists, civil society and the voices of the many’ (Beamish, 2020).

The extent of the mountainous challenge appears to be compounded by the ‘huge lack of leadership and engagement’ shown by Boris Johnson, according to Claire O’Neill, the sacked head of the summit. O’Neill also claims Johnson has admitted that he does not understand the issue (Mason and Harvey, 2020). After being dismissed by Johnson’s Chief Special Adviser, Dominic Cummings, she sent a letter to the Prime Minister saying that the UK is ‘miles off track’ and that promises of action ‘are not close to being met’ (cited in Mason and Harvey, 2020). Moreover, she stated the cabinet sub-committee on the climate conference had not met since it formed in October, 2019. ‘The playground politics – the yah boo politics – has got to stop’ she went on. Commenting on Johnson personally she noted:

My advice to anybody to whom Boris is making promises – whether it is voters, world leaders, ministers, employees or indeed, to family members – is to get it in writing, get a lawyer to look at it and make sure the money is in the bank (cited in Mason and Harvey, 2020)

Johnson hit back by pledging an earlier ban on new petrol and diesel cars (2035 rather than 2040) and called on other countries to match the UK’s legal commitment to net zero carbon emissions by 2050. However, as Rob Merrick (2020) reminds us, the car ban falls short of independent climate adviser advice of 2030, while his government faces growing criticism that it has not announced practical measures to achieve net zero.

## **2. Activism for Climate Change Emergency**

My message is that we'll be watching you. This is all wrong. I shouldn't be up here. I should be back in school on the other side of the ocean. Yet you all come to us young people for hope. How dare you! You have stolen my dreams and my childhood with your empty words. And yet I'm one of the lucky ones. People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you! (Greta Thunberg addresses the UN General Assembly, New York, September, 2019)

Climate change awareness has a long history. Manuel García, Jr. (2019) alerts us to the work of Clive Thompson (2019) who has traced a CO<sub>2</sub>-induced climate change experiment back to 1856, when Eunice Newton Foote, an American suffragette, showed that carbon dioxide and water vapour were radiant-heat trapping and retaining gases, and not thermally transparent as was generally believed. In the scientific paper she submitted to the American Association for the Advancement of Science (which had to be presented by a man) she prophetically observed: ‘An

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atmosphere of that gas would give to our earth a high temperature' (cited in García, 2019). Her results were confirmed by a number of elaborate experiments conducted by Irish physicist John Tyndall and others in subsequent years.

In the following century, during the Third Industrial Revolution (3.0), a landmark report 'Our Common Future' was published by the United Nations (United Nations, 1987), providing the definition of sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (United Nations, 1987, 43). The Association for Global New Thought, whose goal is 'spiritually guided activism ... to support concerned and informed citizens in their emerging role as ethically motivated community leaders' (Association for Global New Thought (AGNT), undated 1) has provided an overview of the report. In the light of concern about population growth, technological advance (as a result of 3.0), and consumer demand on the planetary fabric that had been smouldering away since the 1970s, a World Commission on Environment and Development was convened to address 'a new generation of environmental worries - global warming, deforestation, species loss, toxic wastes' that 'had begun to capture scientific and popular attention' (Association for Global New Thought (AGNT), undated 2).

As AGNT (undated 2) explains, the natural resources of the world were being rapidly depleted in the name of development, but the poverty that such development was supposed to solve was still widespread. By the time the report was published in 1987, population growth had ceased to be seen as a major threat, since it was mostly occurring among the planet's poor who were *not* the ones who were:

consuming the Earth's supply of fossil fuels, warming the globe with their carbon emissions, depleting its ozone layer with their CFCs [gaseous compounds that contain carbon], poisoning soil and water with their chemicals, or wreaking ecological havoc with their oil spills. In fact, their consumption of the world's resources was minute compared to that of the industrialized world (AGNT, undated 2).

Indeed as 'Our Common Future' declared, poverty in the developing world was less cause than effect of contemporary environmental degradation: 'the outcome of insensitive technology transfer that pauperized people and natural systems' (AGNT, undated 2); hence the necessity of sustainable development – social and economic advance to assure that humankind has a healthy and productive life - but in a form that does not compromise the ability of future generations to meet *their* needs (AGNT, undated 2). Only sustainable development can accommodate the fulfilment of human needs and the protection of air, soil, water and all forms of life - from which, ultimately, planetary stability is inseparable (AGNT, undated 2). As AGNT (undated 2) concludes, 'sustainable development brought environmentalism into poverty reduction and poverty reduction into environmentalism in a single and simple formula'. It led to the first Earth Summit - the UN Conference on Environment and Development - at Rio de Janeiro in 1992, and to the formulation

of Agenda 21 (AGNT, undated 2), a comprehensive but non-binding action plan to be taken globally, nationally and locally by organizations of the United Nations System, governments, and major groups in every area in which human beings impact on the environment (United Nations, 1992).

### **Greta Thunberg and Fridays For Future**

Two decades after the non-binding Agenda 21, it is clear that it is climate change activism that is encouraging or forcing (by civil disobedience) a wide constituency of people to listen. A growing number of activists are prepared to engage in direct action, as well as collectively and individually taking steps to reduce carbon emissions. Ever since, at the age of 15 in August 2018, Greta Thunberg<sup>7</sup> began protesting outside the Swedish Parliament about the need for urgent and immediate steps to control climate change, an explosion of positive interest in the subject is omnipresent in the media, including social media (e.g. Ellis, 2019), in both publicly owned and capitalist industries worldwide, and with some exceptions as we have seen (e.g. Trump, Bolsonaro and Morrison), among most politicians. Unsurprisingly, climate deniers are backed up by reactionary think tanks and other climate denying ‘institutes’, funded by Exxon and Chevron (Tanuro, 2019).

Fridays For Future (FFF) (or Youth for Climate, Climate Strike or Youth Strike for Climate) is a movement whose origins lie in Thunberg’s posting on Instagram and Twitter, where it went viral, that she was continuing her protest outside the Parliament every school day for three weeks. On September 8, 2018, she decided to continue striking every Friday until Swedish Government policies provided a safe pathway well under 2C, in line with the Paris climate agreement. Hashtags #FridaysForFuture and #Climatestrike have spread, as many students and adults began to protest outside of their parliaments and local city halls all over the world (About #FridaysForFuture. 2019).

Early in 2020, Thunberg visited Bristol in the west country of England. Here is her speech:

This is an emergency. People are already suffering and dying from the consequences of the climate and environmental emergency but it will get worse ... Basically, nothing is being done to halt this crisis despite all the beautiful words and promises for the elected officials. So what did we do during this crucial time? What we will do right now? Well I will not stand aside and watch, I will not be silenced while the world is on fire - will you? World leaders are behaving like children, so it falls on us to be the adults in the room. Just look at Bristol as an example. The other week, the plans to expand Bristol Airport were cancelled - a lot thanks to climate activists. And of course this is far from enough, but it shows that it does actually make a difference. Activism works. So I'm telling you to act. If you look throughout history, all the great changes have come from the people. We are being betrayed by the people in power and they are failing us but we will not back down. If you feel threatened by that, then I have some very bad news for you - we

will not be silenced because we are the change and change is coming whether you like it or not. Thank you and let's march (cited in Millett, 2020).

### **Extinction Rebellion**

Formed in London on October 31, 2018, a few months after Thunberg's intervention, and now active in large parts of the world, considerable credit must also be afforded in forcing climate change up the political agenda to Extinction Rebellion (XR) (Rehman, 2019). The purpose of its frequent series of actions in cities throughout the world is to press for action now, not by some date in the near or distant future. In so doing, it has been a most effective form of public pedagogy urging for declarations of climate emergency. As Matthew Taylor (2019) explains, the UK group, by way of example, has three core demands. First the Government must tell the truth about the scale of the crisis by declaring such an emergency and 'working with other groups and institutions to communicate the urgent need for change'. Second, the UK must drastically cut its greenhouse gas emissions, reaching net zero by 2025<sup>8</sup>. Third, the Government must create a citizens' assembly to hear evidence and devise policy to tackle the climate crisis. Such assemblies would bring together ordinary people to investigate, discuss and make recommendations on how to respond to the ecological emergency (Taylor, M. 2019). As Taylor points out, in the US another demand has been added:

A just transition that prioritises the most vulnerable and indigenous sovereignty [and] establishes reparations and remediation led by and for black people, indigenous people, people of colour and poor communities for years of environmental injustice (Taylor, M. 2019).

In this context, it is important that rebellion against governments must be fully inclusive, as demanded, for example, by 'Wretched of the Earth', a diverse grassroots collective representing dozens of activist groups (see, their open letter to XR Published by the left radical UK journal, *Red Pepper*, 2019).<sup>9</sup>

### **Why Declare Climate Change Emergency?**

A landmark report issued in October 2018 by The (United Nations) Intergovernmental Panel on Climate Change (IPCC), the UN's body for assessing the science related to climate change, made the case that the Paris climate agreement 2C pledge did not go far enough and that the global average temperature rise actually needs to be kept below 1.5C (Stylianou, et.al, 2019). *Most disturbingly, the Panel's view is that there are only about twelve years for global warming to be kept to a maximum of 1.5C: even half a degree will significantly worsen the risks of drought, floods, extreme heat and poverty for hundreds of millions of people* (Watts, 2018). Crucially, the ability to grow rice, maize and wheat will be seriously threatened with obvious potentially devastating impacts, especially for the poor in the world's developing countries, which comprise most of the southern hemisphere (World Population Review, 2020). Almost all cities (95%) facing

extreme climate change (rising temperatures and extreme weather) risks are in Africa or Asia, with the faster-growing cities (84 in number) most at risk (Stylianou, et.al, 2019).

The biggest emitter of greenhouse gases is China (26.6% of the total), with the US, second, at 13.1% (Stylianou, et.al, 2019). However, whereas China signed up to the Paris Accord, the US did not. If Trump gets re-elected in 2020, and his Paris agreement withdrawal comes into effect, as scheduled one day after the election on November 4, one can only speculate how this might intensify the destruction of our planet. XR's US website (Extinction Rebellion, 2019) pledges 'non-violent rebellion against the US Government for its criminal inaction on the ecological crisis.'

According to an article in *Nature* (Lenton et al. 2019), the world may have already crossed a series of 'climate tipping points'. The authors warn of 'an existential threat to civilisation', and describe 'a state of planetary emergency'. Tipping points, as environment editor for the *Guardian*, Damian Carrington (2019) explains, 'are reached when particular impacts of global heating become unstoppable, such as the runaway loss of ice sheets'. The extent of Arctic sea ice reached its lowest point on record in 2012, and the Arctic Ocean may be ice-free in the summer as soon as the 2050s unless emissions are reduced. The WMO found the extent of Arctic sea ice in 2018 was much lower than normal, with the maximum in March, the third lowest on record, and the September minimum, the sixth lowest (Stylianou, et.al, 2019). Extreme sea level events that used to happen once a century will occur every year in many parts of the world by 2050 because of global warming, a further IPCC panel reported in September 2019 (The Intergovernmental Panel on Climate Change) (IPCC), 2019), thus threatening the lives and livelihoods of a large percentage of the world's population, particularly in the tropics. By the middle of the century, the IPCC notes, one billion people will live in low-lying coastal areas, up from 680 million today. Even in developed countries, it will mean more coastal defences (Vaughan, 2019). This will also have an impact on food since more warming limits the mixing of the layers of water in the ocean, thus reducing the oxygen and nutrients that marine life depend on. This is already affecting fisheries and aquaculture (Nerilie Abram of the Australian National University, cited in Vaughan, 2019).

'In the past', Carrington points out, 'extreme heating of 5C was thought necessary to pass tipping points, but the latest evidence suggests this could happen between 1C and 2C' (Carrington, 2019). One tipping point, such as the release of methane from thawing permafrost (soil that is permanently frozen) may fuel others leading to a cascade (Lenton et al., 2019). Moreover, as stated by UN Secretary General António Guterres, 'the point of no return is no longer over the horizon', while the charity 'Save the Children' warns that 33 million people in Africa face emergency levels of hunger due to cyclones and droughts (McGrath, 2019).

The worst drought in a century slowed the Victoria Falls on the borders of Zimbabwe and Zambia to a trickle, with 2019 having brought 'an unprecedented decline in water levels' (Reuters, 2019). Already, southern Africa as a whole is suffering some of the worst effects of human-driven greenhouse gas emissions, with taps running dry and about 45 million people in need of food aid amid crop failures (Reuters, 2019). Richard Beilfuss, head of the International Crane Foundation, who has studied the Zambezi for decades, noted that climate change was delaying the monsoon,

‘concentrating rain in bigger events, which are then much harder to store, and a much longer, excruciating dry season’ (cited in Reuters, 2019).

In the northern hemisphere, the most comprehensive study into Greenland ice loss so far undertaken, involving 96 polar scientists from 50 international organisations and combining 26 separate surveys to compute changes in the mass of Greenland’s ice sheet between 1992 and 2018, revealed that Greenland’s ice sheet is melting seven times faster today than it was in the 1990s - and will be responsible, on current trends, for flooding 100 million people a year by the end of the century

This figure rises to 400 million people once sea level rise due to the expansion of the oceans from increasing water temperatures, as well as melting ice in the Antarctic and other regions, are also included (Bawden, 2019).

According to the World Meteorological Organization (WMO), the global average temperature for the first 10 months of 2018 was almost one degree warmer than the levels of 1850-1900 (Stylianou, et.al, 2019). The year 2019 did not start well. Averaged as a whole, the January 2019 global land and ocean surface temperature was 0.88°C above the 20th century average and tied with 2007 as the third highest temperature since global records began in 1880 (National Centers for Environmental Information, 2019). The latest available figures (January, 2020) show the highest ever temperature at 1.14°C above the 20th century average of 12.0°C, the fourth highest monthly temperature departure from average in the 1,681 months since 1880. (National Centers for Environmental Information, 2020).

Moreover, the 20 warmest years on record have been in the past 22 years, with 2015-2018 being the hottest four. If this trend continues, temperatures may rise by 3-5C by 2100 (Stylianou, et.al, 2019). In 2019, the heat in the world’s oceans reached a new record that, according to Carrington (2020) shows ‘irrefutable and accelerating’ heating of the planet. As he explains, oceans are ‘the clearest measure of the climate emergency because they absorb more than 90% of the heat trapped by the greenhouse gases emitted by fossil fuel burning, forest destruction and other human activities’ (Carrington, 2020). Incredibly, the amount of heat being added to the oceans is the same as every person in the world running 100 microwaves all day and all night (Carrington, 2020).

A succession of heatwaves in 2018 set a number of records. As Daisy Dunne, Science writer for CarbonBrief, a UK-based website covering the latest developments in climate science, climate policy and energy policy, points out, the extreme heat ‘broke temperature records simultaneously across North America, Europe and Asia’ (Dunne, 2019):

Among its impacts, the heatwave caused crop failures across Europe, fanned wildfires from Manchester in the UK to Yosemite National Park in the US and exposed more than 34,000 people to power outages in Los Angeles as the grid experienced an unprecedented demand for air conditioning.



This led scientists, she explains, to conclude that it is ‘virtually certain’ that the 2018 northern-hemisphere heatwave could not have happened without climate change, with “virtually certain”, according to Martha Vogel, of the Institute for Atmospheric and Climate Science, amounting to more than 98% probability (Dunne, 2019). Moreover, summer heatwaves on such a scale could occur every year if global temperatures reach 2C above pre-industrial levels. If global warming is limited to 1.5C, such heatwaves could occur in two of every three years. By a similar token, the extreme heat seen in Japan in 2018, in which more than 1,000 people died, could not have occurred without climate change. In January, 2020, Nasa, Noaa (the US National Oceanic and Atmospheric Administration) and the UK Met Office all declared that the 10 years to the end of 2019 were the warmest decade on record (McGrath, 2020b).

### **Climate Change and Gender**

Following Colleen Curry (2017), McCarthy and Sanchez (2019) argue that in the global south, women and girls are often hit hardest by climate disasters such as floods and droughts, leading to more families struggling to afford to feed and house their own children. Thus climate change is not just changing weather; its consequences are a daily reality for millions of people around the world (Qasim, 2019). As Arsheen Qasim (2019) explains, writing for ActionAid, an international charity that works with women and girls living in poverty, it is usually women and girls that struggle to survive and recover from the aftermath of climate change disasters. This is because of an already existing gender disparity: the world’s richest 1% have more than twice the wealth as 6.9 billion people; the richest 22 men in the world have more money than all the women in Africa; women and girls do 12.5 billion hours of unpaid work per day; women’s unpaid care work has a monetary value of \$10.8 trillion per year (Whiting, 2020) that compounds and multiplies when disasters strike (Qasim, 2019).

From the work of ActionAid in countries like Somaliland and Bangladesh, there is evidence that climate change-related crises are ‘already instigating deep, life-altering changes for some of the poorest and most marginalised women and girls in the world’ (Qasim, 2019).

#### ***Increased risk of violence against women and girls***

As a result of climate change-related droughts, hurricanes or cyclones, women and girls may be forced to migrate to camps for displaced people where living under temporary tarpaulin sheets or bare, plastic sheets can make them vulnerable to violence from strangers (Qasim, 2019). Qasim describes a camp for displaced people in Somaliland, where two sisters, one just 15 and the other 19 lie awake at night listening to any sounds that may alert them to men walking into their makeshift shelter which has no proper doors. Some nights, Qasim points out, they do not sleep at all for fear of being attacked.

#### ***Increased risk of child marriage***

For poor families who lose their homes and livelihoods, child marriage can be seen as a way out of, or at least a way to diminish the effects of crippling poverty, while also ensuring the perceived security of their daughters from violence. Qasim gives the example of Sarmin who had

to face the prospect of marriage at just 14 when floods hit Bangladesh in 2017. Her parents, having lost everything, believed that marriage would keep her well-fed and safe. As Sarmin puts it: ‘Because of poverty parents marry off their daughters like me at a very early age. I cannot go to school since I got married. Life is tough for girls of young age in the village’ (cited in Qasim, 2019).

***More likely to miss classes or drop out of school***

In times of crises, girls often have to drop out of school or miss classes because household chores become a strain with fewer family members available to share the pressures at home. Girls are often required to take care of family members, or to help with cooking, cleaning or finding water, with school considered a lower priority in times of need. Moreover, whole schools can be closed for a long period or even destroyed, while floods can make journeys to school more dangerous and longer as usual routes are destroyed (Qasim, 2019).

***Increased risk of death and injury***

Marginalised women and girls, the disabled and the elderly are more prone to death and injury during disasters, since as a result of their traditional roles as caretakers, women and girls often stay back in a disaster to protect their children or adults in their care while men are sometimes able to escape (Qasim, 2019). Deeply ingrained social norms can also sometimes dictate that women and girls need permission from men to leave their homes and/or are unable to escape during floods because they are not encouraged to learn to swim (Qasim, 2019).

***The effect of availability of food and chances of earning a living***

Many people living in pastoral or farming communities rely, of course, on the food from crops grown daily and/or reared livestock, used for milk, meat or for selling. Qasim informs us of the reality facing Nafisa from Somaliland, a twenty-year old mother, part of a pastoralist family that owned several animals that they reared for their food and income. As Qasim points out, years of climate change-related drought dried out her land and killed all her livestock. This was exacerbated when her husband took her children and left her without food or money. As she puts it:

In many rural communities, men control the income in their households. Women who rely on men for economic support are left struggling in times of crisis when men either abandon their families, or leave to look for work elsewhere or are even killed by disasters. Women in rural communities have limited access to and ownership of their land as well which directly impacts the food they have available to eat (Qasim, 2019).

At the same time, in Bangladesh, Shefali, 25, talks about the lack of food after the 2017 floods:

We lost our crops. Our small goat died in the flood water. Cows are sick. My children suffered a lot during flood. Now we have no crop in our storage. I, along (with) my husband have to work in people's fields to bring food (to) our table. Life is becoming harder every year after floods (cited in Qasim, 2019).

### **Loss of Plant and Animal Species**

It is not just the existence of humankind that is under threat of course. Around a million species—perhaps one eighth of all plant and animal species on Earth—are in danger of becoming extinct, many within a matter of decades, according to a report, the most comprehensive assessment of global biodiversity ever conducted, released in May, 2019 from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). This tragic loss includes more than 40 percent of amphibians, a third of all corals and all sharks (de Vries, 2019).

A further report by the International Union for Conservation of Nature (IUCN, 2019a), the largest peer-reviewed study so far into the causes, impacts and possible solutions to ocean deoxygenation and made public in December, 2019 revealed the dangers of loss of oxygen to species such as tuna, marlin and sharks (IUCN, 2019b). Ocean regions with low oxygen concentrations are expanding, with around 700 sites worldwide now affected – up from only 45 in the 1960s. In the same period, the volume of anoxic waters – areas completely depleted of oxygen – in the global ocean has quadrupled (IUCN, 2019a). Deoxygenation is changing the balance of marine life, favouring low-oxygen tolerant species (e.g. microbes, jellyfish and some squid) at the expense of low-oxygen sensitive ones (many marine species, including most fish), ultimately affecting hundreds of millions of people. Moreover, very low ocean oxygen affects basic processes like the cycling of elements crucial for life on Earth, such as nitrogen and phosphorous (IUCN, 2019b).

As Daniel de Vries (2019), writing on the World Socialist Web Site (WSWS), points out:

While there have been five previous mass extinctions during the 3.5-billion-year history of life on Earth<sup>10</sup>, the die-off of biodiversity over the past 50 years is not only unprecedented in the existence of humanity, it is caused by our species<sup>11</sup>

Recognising this fact, and the imminence of impending climate catastrophe, as this article amended from Chapter 1 of the book goes to press (August, 2020) 1759 jurisdictions in 30 countries have declared a climate emergency, amounting to over 820 million citizens (Climate Emergency Declaration, 2020).

While such declarations are essential and urgent, and while they are to be lauded, they are not enough. Referring to the IPBES report, de Vries (2019) argues that while it makes a clear call for 'transformative change,' that is, 'fundamental, system-wide reorganization across technological, economic and social factors', what is lacking is not the knowledge or technological

capability to implement these changes, but the much needed social initiative. ‘By its very nature’, Robert Watson of IPBES observed, ‘transformative change can expect opposition from those with interests vested in the status quo, but also ... such opposition can be overcome for the broader public good’ (cited in de Vries, 2019). de Vries (2019) has translated ‘the cautious wording of scientific studies conducted under the auspices of the United Nations’ into the language of socialism:

the issue confronting humanity is the incapability of dealing with ecological catastrophe under the present regime: an economy based on private profit and a world divided into antagonistic nation-states. The problem is capitalism as a global system.

Capitalism is now witnessing its Fourth Industrial Revolution. This generates a whole new plethora of problems, and, having discussed the relationship between capitalism and planetary destruction in this chapter, it is to 4IR that I now turn in the next. In the third and final chapter, I address the ecosocialist alternative.

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<sup>1</sup> An exception is the attempt by eco-fascists to appropriate ecology (Wilson, 2019).

<sup>2</sup> Kevin Beck (2019) has provided an explanation of exactly what is meant by ‘fossil fuels’. They are produced from the remains of plants and animals that lived millions of years ago, with the ‘slow transformation of this carbon-heavy material into various *hydrocarbon* compounds resulted in the creation of plentiful, highly flammable fuels’. The four types are petroleum, coal, natural gas and *orimulsion* (italicized because it is a registered trademark name for a bitumen-based fuel). While they have a number of physical and chemical properties in common, the most critical fact about them is that they are not renewable: ‘many more millions of years have to pass before even small amounts can be made again, assuming the same processes will ever even occur on the same scale’ (Beck, 2019). In their natural form, the carbon in fossil fuels is stored. However, when they are burned, the carbon is unlocked and returns to the atmosphere. Natural gas is considered clean-burning compared to other fossil fuels; it is getting it out of the ground that is the most problematic aspect of its production. At current levels of use, unless policies radically change, fossil fuels are expected to still account for 78 percent of energy used worldwide in 2040 (Beck, 2019). Renewable energy sources (‘clean’ energy) include sunlight, wind, rain, tides, waves and geothermal heat (Ellabban et. al. 2014).

<sup>3</sup> The aim of the Clean Power Plan, unveiled by Barack Obama on 3 August, 2015 was to cut greenhouse gas emissions from US power stations by nearly a third within 15 years, placing significant emphasis on wind, solar power and other renewable energy sources (BBC News, 2015).

<sup>4</sup> This is not the first example of Trump’s disablism (see Cole, 2020, 18-21), not indeed sexism and hatred of women and girls (Street, 2019; see also, Cole, 2020, 16-17). Here the misogyny of the woman-hater-in-chief (Street, 2019) is patronising, with 16 year old Thunberg demeaned as a ‘young girl’.

<sup>5</sup> The World Economic Forum and its founder are addressed in detail in the next chapter of this book on the Fourth Industrial Revolution

<sup>6</sup> COP simply means Conference of the Parties, the supreme decision-making body for Climate Change under the United Nations Framework for the Convention on Climate Change (UNFCCC). Its task is to assess the effects of the measures taken by Parties and the progress made in achieving the ultimate objective of the Convention, on a yearly basis. The first COP meeting was held in Berlin in March, 1995 (United Nations Climate Change, 2020).

<sup>7</sup> While Thunberg is undoubtedly the most high profile female climate change activist, at least in the global north, Joe McCarthy and Erica Sanchez (2019) identify eleven others. See also Global Justice Now (2020) for six stories of women who have defended the environment and resisted corporate power.

<sup>8</sup> To underline the urgency, the UN stated in November 2019 that global emissions must fall by 7.6% every year from then until 2030 even to stay within the 1.5C ceiling and avoid ‘climate chaos’ (Harvey, 2019b).

<sup>9</sup> Mass action should not undermine the importance of individual and small-scale remedial action. For an interesting analysis, see Foer (2019).

<sup>10</sup> A ‘mass extinction’ can be defined as a time period in which a large percentage of all known species living at the time goes extinct, or is completely wiped out (Scoville, 2018). The single biggest driver of mass extinctions appears to be major changes in the Earth’s carbon cycle, such as huge volcanoes that flooded hundreds of thousands of square miles with lava, ejecting massive amounts of heat-trapping gases such as carbon dioxide into the atmosphere, leading to global warming (Greshko and National Geographic Staff, 2019). These extinctions include the Ordovician-Silurian extinction - 444 million years ago; the Late Devonian extinction - 383-359 million years ago; the Permian-Triassic extinction - 252 million years ago; the Triassic-Jurassic extinction - 201 million years ago; and the Cretaceous-Paleogene extinction - 66 million years ago. This last extinction is the only one definitively connected to a major asteroid impact, when some 76 percent of all species on the planet, including all non-avian dinosaurs became extinct. Today, extinctions are occurring hundreds of times faster than they would naturally (for full details, see Greshko and National Geographic Staff (2019).

<sup>11</sup> The negative effects of human impact on Earth’s ecosystems has been described as the ‘Anthropocene’. The popularisation of the word at the beginning of the twentieth century is credited to atmospheric chemist, Paul J. Crutzen. From a Marxist perspective, a more appropriate term might be ‘Capitalocene’ to refer to the destructive effects on the planet of capitalism, as discussed in this chapter. Jason W. Moore (2017, 1) stresses the need for historical thinking to be central to an understanding of capitalism’s planetary crises in the twenty-first century. Arguing against the Anthropocene’s ‘shallow historicization’, he makes the case for using the concept Capitalocene to refer to a system of power, profit and re/production in the web of life. He suggests that the longstanding environmentalist argument about the Industrial Revolution as the origin of ecological crisis ignores early capitalism’s environment-making revolution (we make environments and the environments make us (Lewontin and Levins 1997, cited in Moore, 2017, 6), greater than any watershed moment since the rise of agriculture and the establishment of the first cities. While there is no question that environmental change accelerated sharply after 1850, and especially after 1945, he concludes, it seems equally pointless to explain these transformations without identifying how they fit into patterns of power, capital and nature established four hundred years earlier.

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