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CLIMATE EMERGENCY

How Societies Create the Crisis

Mark Harvey

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Mark Harvey applies a wide-angle lens to the ultimate global crisis – climate change – demonstrating that a social scientific understanding of the historical development of societal ecologies is crucial. An original contribution of importance to all concerned with understanding problems and solutions.

–Alan Warde, Sustainable Consumption Institute, University of Manchester, UK

Working with and building upon the generative insights of Karl Polanyi, Mark Harvey delivers a penetrating and original analysis of the climate emergency, grounded in an integrative, historical, and comparative method. *Climate Emergency* establishes a new benchmark, and provides new tools, for the critical social-scientific study of global climate change.

–Jamie Peck, University of British Columbia, Canada

Coping with anthropogenic climate change requires us all to "follow the science". This must include the insights of historical and social sciences, which are epiphenomena of the planetary degradation of recent centuries. Mark Harvey's concept of sociogenesis is a landmark contribution, which he operationalizes in this book to explicate the emergency we now face. He highlights the economic and ethical dilemmas not of humanity in the abstract, but of concrete political societies around the world with very unequal endowments and histories.

–Chris Hann, Max Planck Institute for Social Anthropology, Germany

CLIMATE EMERGENCY

How Societies Create the Crisis

BY

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INVESTOR IN PEOPLE

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Mark Harvey is Emeritus Professor at the Sociology Department University of Essex. He was Research Professor from September 2007 to 2019, and established the Centre for Research in Economic Sociology and Innovation. For the previous decade he had been at the ESRC Centre for Research in Innovation and Competition (CRIC) at the University of Manchester, and is now Honorary Professor there in the Sustainable Consumption Institute. With a first degree in History from Oxford, followed by a PhD in Sociology (on Historico-critical Epistemology) from London School of Economics, he held a post-doctoral research fellowship at the Institute of Genetic Epistemology, working with Jean Piaget at the University of Geneva (1968–1970). He was a Lecturer in Sociology and Psychology at Brunel University (1971–1974) before leaving academia to become a building labourer, returning to academia 17 years later in 1993. He was made a honorary life member of the building trades union, UCATT, in 2002 for services to the labour movement.

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CLIMATE EMERGENCY

Climate change has become a climate emergency. A long history of the human impact on the earth's climate has met with global and national political failure. Following the 2015 Paris Agreement, awareness of the rapidity and extent of climate change and the need to keep warming below 1.5°C called for much more drastic national and international political action to be taken. Instead, there has been stalemate and prevarication, before and especially since the election of climate change denying presidents of the United States and Brazil (Trump and Bolsonaro).

Now, from December 2019, the world has been hit by a very different kind of emergency, the COVID-19 pandemic. In general, the contrast in political responses to the two emergencies could scarcely be greater. The grounding of most of the world's airplane fleets, ironically immediately and sharply reducing CO_2 emissions, was a reaction to the immediate, rather than long-term, threat of hundreds of millions of deaths worldwide. Lockdowns across the world have drastically reduced vehicle traffic on roads, plunging the demand for oil, when only weeks before Russia and OPEC were fighting the

United States for market share in a price war. Another significant reduction in CO_2 emissions, and sharp reduction in air pollution from nitrous oxygen in many of the world's major cities, ensued as an unintended consequence. The International Energy Authority estimates that there has been a 25% drop in total energy demand in lockdown countries, by far the biggest drop in 70 years (IEA, 2020). One might ask whether we need the threat of an immediate culling of the world population to stimulate a politics adequate to deal with the climate emergency.

This contemporary confluence between climate change and a pandemic prompts a reflection on a historical parallel, if one of a much greater scale: the Black Death and the Little Ice Age. Although by no means scientifically consensual, the reduction of human activity arising from a loss of between a quarter and a third of the global human population resulted in abandonment of land, reforestation and the reduction of methane emissions from livestock (Ruddiman, 2010).[1] The resultant if time-lagged cooling of the planet then produced a vicious cycle of crop failures and famines. In turn, apart from the major economic and social consequences of the scarcity of labour, the economic collapse had a dramatic impact on the finances of European (and other) states. It has been argued that the plague-induced financial crises of states in Europe, China, India and Africa lay behind decades of political turbulence and national and civil wars (Parker, 2013). And, finally, in a dark resonance with the present, there were the historical equivalents of lockdowns, with plague banishments and forced isolations.

The significance for climate change of these two pandemics, differing in scale and hopefully duration, is that they

1 'Plague-driven CO2 decreases were probably most important just after 1350 AD and between 1500 AD and 1750 AD' (Ruddiman, 2003, p. 290).

dramatically reduced human activity, either by political fiat as in today's case, or by the relentless and recurrent depopulation of the earlier period. While the advance of scientific knowledge might solve the immediate biological threats by means of vaccines and therapies, the political capacities to resolve the resultant economic crisis are deeply uncertain. Likewise, for the climate emergency, in spite of the overwhelming scientific understanding of the effects of particular kinds of greenhouse gas emitting human activity, steps to reduce or replace that activity have proved substantially inadequate. It is clear that, unlike curing a disease, there is no straightforward technical fix.

A central argument of this book is that in important ways there has been a failure to diagnose the complex and varied nature of the climate emergency. Or rather, there have been enormous advances in the natural scientific understanding of the climate change, and a relatively laggardly development of social scientific and historical understanding of what has been and is a complex, multiple and varied combination of historical societal processes. As we shall shortly see, environmental sciences have rightly focused on physical processes of burning fossil fuels, deforestation and land-use change, and their effects on the planet's atmosphere, inducing global warming. To understand the physical processes, in a sense it doesn't matter who is doing it and why. It is reasonable for natural sciences to bracket off the who and why, and just observe and analyse the physical effects as a consequence of human activity in general. Hence, within these disciplines it is quite justifiable to speak of 'anthropogenic' climate change, climate change induced by 'the human', the no-matter-what human. The crucial insight that a new geological period has been entered when a unique species has, for the first time, had the capacity to fundamentally alter the earth's atmosphere dictates their choice of a name: the Anthropocene. There is,

natural scientifically speaking, no problem with these terms. But they cannot be imported into a social scientific account of the climate emergency, which needs to complement, rather than contest, the conceptual and empirical work of natural science with that of social science.

The who, the how and the why are the central questions for any social scientific understanding of climate change in the first place, and then the why it has become the climate emergency. So the perspective advocated here adopts the term 'sociogenic' to embrace the complex dynamics of how societies make the climate change crisis. Likewise, rather than adopting a geological time-frame of 'the anthropocene' – and we will see that there are debates amongst environmental scientists as to when that began – an historical and comparative social science approach needs to delineate historical phases and different historical societal trajectories accelerating and modifying the physical processes of climate change.

One of the key arguments of the book therefore grasps what has been called 'the great divergence' as a key period of history affecting climate change (Pomeranz, 2000). It was the time when Northern Europe both began to industrialise and to expand and colonise the New World, relying on the development of mass plantation slavery (Harvey, 2019). This political, social and economic transformation both accelerated climate change and created new levels of inequality, both between and within societies across the globe. Northern Europe diverged from China, India, Japan and other societies which had been roughly equal in prosperity before then. Inequality and climate change are coeval, an entanglement which, as we shall see, is central to any social scientific analysis of climate change and to the political obstacles to overcoming it.

Before setting on this road to social scientific understanding, and developing the concept of sociogenesis, it is

worth recognising fully where natural science has now got us in understanding the climate emergency. In 2000, the term Anthropocene was coined, recognising fully for the first time that human beings were the one species capable of altering the planet's atmosphere (Crutzen, 2002; Crutzen & Stoermer, 2000). At the time, it was suggested that the new geological epoch, 'supplementing the Holocene', began in the latter part of the eighteenth century. Indeed, the culprit was identified and named: James Watt, designer of the coal-fired steam engine, icon of the British industrial revolution. However, even in these early papers, the 'expansion of mankind' was predicated on the expansion of agriculture. Conversion of 'wild' nature into cultivated nature through domestication of plants and animals released CO_2 and the much more powerful greenhouse gas, methane, and was seen as a major source of climate change. Indeed, even those papers that advocate the eighteenth century as the commencement date for the Anthropocene allude to the fact that while the human population increased by 10-fold over three centuries, the number of cattle emitting methane grew at a much faster pace. By the time the global population had reached six billion the number of domesticated cattle reached 14 billion.

Imagine a planet without the transformational activity of humans. All things being equal, the earth is subject to regular periods of glaciation followed by warming during the interglacial period, reaching a peak, before atmospheric temperatures decline towards the next glaciation. The current interglacial period, the Holocene, was already turning on a downwards cooling pathway. Without setting a formal date for the commencement of the Anthropocene, those arguing for an alternative perspective for initiating anthropogenic climate change point to the atypical presence of CO_2 and methane (CH_4) in ice cores at levels that can only be plausibly accounted

for by human activity. Widespread deforestation with the spread of agriculturalist human societies, the domestication and cultivation of rice in China 5,000 years ago, and the domestication and rearing of livestock, it is argued, resulted in planet-warming if slow changes to earth's atmosphere, countering expected regular cooling leading towards glaciation. Nearly 40% of the land under rice cultivation today was already in cultivation a 1000 years ago; and the area of land dedicated to raising livestock nearly tripled between 3000BC and 1000BC (Fuller, 2010; Fuller et al., 2011). We will call this the Long View, as propounded by Ruddiman, Fuller and others, as distinct from the Industrialisation View.

Although scientists may argue between the Long View and the Industrialisation View of anthropogenic climate change, none dispute the rapid acceleration occurring from the end of the eighteenth century onwards. It was a change of pace beyond compare, historically speaking. However, the importance attributed to domestication of plants and livestock advocated by the Long View provides a significant counterbalance to regarding the rapid acceleration of the later period as a consequence of industrialisation with the totemic coal-fired steam engine. The Pomeranz thesis points to the colonisation of the New World, which, together with the expansion of agricultural land in Eastern Europe, resulted in an exponential increase in deforestation and land-use change for agriculture. In different ways in different societies, industrialisation and urbanisation only developed in combination with agricultural expansion and intensification. Industrialisation and land-use change are dynamically related, so it is mistaken to consider either one or the other as responsible for the rapid acceleration from the late eighteenth century. Overall, between 1700 and 1890, the area brought under cultivation increased 466%, again, historically speaking, a rate of change beyond compare.

The figure for North America, given the minimal spread of agriculturalism there before colonisation, was a statistically extreme increase of 6,666% (Meyer & Turner, 1992). Yet this fanciful figure masks a crucial societal and climate change event, discussed further below (Chapter 3): the genocidal replacement of hunter-gatherer Native Americans by the white colonists of slave cotton production and cattle ranching. The first and gradual emergence of agriculturalism displacing hunter-gatherer societies contrasts with the brutal rapidity and scale of change in nineteenth century North America. To date, there has been no natural scientific estimation or modelling of the relative significance of the industrial burning of coal and agricultural expansion between 1750 and 1850, but as one depended on the other, it is only their combination that matters when natural scientists observe the aggregate impact on the Earth System.

Given the fundamental differences between the temporalities of geological interglacial cycles and the irregularities, disruptions and variable temporal and spatial scales of human societal histories, in the end it does not make sense to fix a start date for when human activity initiated a shift into a new geological epoch: the Anthropocene. Geological time and historical time operate on radically different temporalities. It is enough to know that, unless a pandemic eliminates the human species, the physical impacts of human activity on the Earth System are climate changing. The Anthropocene could never have the same kind of beginnings or endings as the Miocene, the Pliocene or the Pleistocene. It is clear – again from within a natural science perspective – that anthropogenic impacts on the earth's planetary system go a very long way back, and that there have been periods of acceleration and deceleration over the millennia.

Setting aside when all this began, therefore, this is how leading earth scientists construct the boundary between environmental and social science:

> *While recognising that different societies around the world have contributed differently and unequally to pressures on the Earth System and will have varied capacities to alter future trajectories,* the sum total of human impacts *(my emphasis) needs to be taken into account for analysing future trajectories of the Earth System.*
>
> (Steffen et al., 2018, p. 8252)

Environmental scientists and cosmologists measure gases in ice-cores, sea temperature and levels, satellite maps of shrinking polar ice cover and mountain glaciers, land-use change and deforestation, and other physical indicators in order to model the effects on the Earth System, conceived of as a physical system. In this way, as the quotation indicates, they bracket off the socioeconomic processes, even societal differences, which generate greenhouse gases only to consider the aggregate total impact of all human activity. They do what social scientists do not and cannot do, leaving the challenge for social science to analyse the historical social/societal processes. There is a division of labour implied in the concepts of 'anthropogenic' and the Anthropocene, not a denial of the significance of historical social/societal processes.

Similarly, pointing a finger at James Watt's steam engine burning coal might be seen as defending a kind of technological determinism of climate change. But, as we shall see there are very different technological trajectories in different societies (Chapters 3, 4, 5). Major new technologies, such as oil as a fossil fuel for terrestrial and air transport or the electrification of domestic and industrial equipment (Chapter 5), or nitrogen phosphate fertilizers all combine to produce an