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The Virus and the Environment: The Problem of Sustaining Unexpected Gains

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Robin Attfield
Professor Emeritus of Philosophy, Cardiff University, UK
AttfieldR@cardiff.ac.uk

Abstract

The coronavirus pandemic has had some unexpected benign effects (including a large drop in air pollution and levels of nitrogen oxides in UK and elsewhere, and a smaller drop in global carbon emissions), which raises the problem of how to sustain and build on these unexpected gains. These gains could easily be lost when economies and road transport return to something like their previous condition. But if governments and industries are inspired to reduce automobile emissions to match the levels of the spring of 2020, gains such as these could become recurrent, and many more lives could be saved. Further, if (with greater effort) carbon emissions could remain reduced, then future generations could be saved from sea-level rise, extreme weather events, and even from the spread of tropical diseases. Such a prevention of disease would be an ironic but welcome gain from a pandemic.

Keywords*:* problem of sustaining unexpected gains, transport fuelled by renewably-generated electricity, energy policy, reduced spread of tropical diseases, bird-song

Introduction

The scientist Frank Kelly explained on 'The Life Scientific' (BBC Radio 4) on 19th May 2020 that there had been a 50 percent drop in levels of nitrogen dioxide in UK as a result of the coronavirus lockdown of March 2020, because of the reduced use of diesel-powered cars. (Sadly, there had, according to Kelly, been hardly any drop in the equally dangerous emission of particulates: but see below.) This raises the problem of whether the unexpected gains can be sustained and built upon when economies are restored. Changing buses (omnibuses) from being powered by diesel to being run on electricity, he added, would lead to dramatic reductions in both of these pollutants, attended by considerable saving of lives.

Despite there being over two hundred air-pollution monitoring stations in London, little notice of their findings, prior to the recent pandemic, was taken either by policy-makers or by car-manufacturers, he related. But if these decision-makers were now to change the engines of automobiles away from dependence on diesel and/or petrol to being powered by electricity, he observed, that could lead to a dramatic improvement in human health (Kelly 2020). This, I should add, would depend on the electric supply used to charge these vehicles being powered by renewables, and not by fossil fuels, granted the need to curtail the greenhouse gas emissions that fossil fuels produce; but Kelly would most probably agree.

Unexpected Temporary Gains From Lockdown

There has, it turns out, been a drop in carbon emissions of 17 percent worldwide, as may be learned from BBC TV News reports of the same day. Reductions appear to have varied between 26 percent in China and 13 percent in UK. Such reductions will have temporarily curtailed the rise in carbon emissions, even if they rise again when the pandemic is over, and if the drop is thus largely nullified.

Another study (yet to be peer-reviewed) has found that both at ground level and at tropospheric levels (between the atmosphere and the stratosphere) air pollution reduced by 20 percent across twenty countries during February and March 2020. This could well point to substantial gains, however temporary, because nitrogen dioxide causes 4 million new cases of asthma in children each year, while fine particulate matter is estimated to lead annually to 9 million premature deaths (of people of all ages). In the troposphere, a 10 percent reduction in nitrous oxide concentrations was found over the populated parts of the world, including a 30 percent decline over Europe and a 12 percent fall over China. Also at this level there was a small increase in levels of ozone, which is beneficial to most forms of life through reducing exposure to skin-cancer. Meanwhile at ground level there was a 23 percent reduction in levels of nitrous oxide, and a significant 17 percent reduction of particulates. (Both of these reductions were more significant in Australia and in Mexico.) After just two weeks of lockdown in 27 countries, there was a net reduction of 7,400 premature deaths and of 6,600 cases of asthma in children. In India and China in particular, the number of premature deaths from particulates fell by 5,300 and 1,400 respectively (Venter et al. 2020; Thomas 2020). These are striking gains by any standards.

A different outcome of the reduction of road traffic has been the reduced loss of life on the roads. In Thailand in particular, the annual Songkran celebration period usually leads to between 200 and 500 deaths related to road accidents, largely because of drivers having drunk too much alcohol, and to thousands of accident-related injuries each year. But in 2020, with a lockdown and a travel-ban in force, the death toll during this period (at least where drunk-driving was concerned) seems to have actually fallen to nil (Sukphisit 2000). While such a dramatic drop in road casualties is unlikely to have taken place in

other countries, there are probably many thousands of people worldwide who have escaped both death and injury from road accidents as a result of lockdowns and associated regulations.

Like Kelly, I would not foresee the roads staying as empty as they have been during the spring of 2020, once the current pandemic is over. Road transport is likely to return to somewhere close to previous levels, perhaps with slightly less congestion, but not with enough of a reduction to maintain the currently reduced levels of nitrogen dioxide. So this benign side-effect of the coronavirus pandemic could well be lost before long.

Yet some of the impacts of the virus and the lockdown on road traffic are set to persist. An example is to be found in a town in the southern part of the English county of Norfolk, where the narrowness of the high street, and the near-impossibility of observance of the mandatory 'social distancing' there of the lockdown period (a rule requiring people to stay two metres apart from one another), has caused the local authority (South Norfolk Council) to close that street to motorists and to reserve it for pedestrians only. Nor is this the only example of pedestrianisation in Britain resulting from the lockdown. These developments were featured on BBC Television News on 29th September 2020, and are likely to be long-lasting legacies of the pandemic.

There have also been numerous social gains, as has been reported by researchers at Cardiff University (Alice Taherzadeh, Poppy Nicol, Ella Furness and Hannah Pitt). Large numbers of community mutual help organisations have been found being set up all over United Kingdom during the early weeks of the lockdown. Some were concerned to shop for food and other essentials on behalf of people (many of them elderly) who had been asked to self-isolate because of their vulnerability to CoViD-19. Others sought to encourage their participants to grow their own food, and to exchange the seeds needed to make this possible. Also existing community organisations expanded. Among these were 'food-banks', which provide supplies of food to people unable to afford to buy it; the food is donated by shops and by members of the public. It seems that this kind of activity has quadrupled during the lockdown. Many of these community organisations seem set to continue after the period of lockdown, and to have good prospects of reducing some of the equalities of British society.

The same Cardiff researchers report that large numbers of people resident in United Kingdom came forward during this period to undertake work in agriculture and horticulture that had previously been undertaken by overseas workers, who are either no longer able or no longer willing to travel to Britain because of the onset of CoViD. Not all of these volunteers proved able to persist with these kinds of work after taking them on, but some were able to do so. This willingness at least to try one's hand at work on the land was evidence of an enhanced community spirit in response to the threat posed by the virus to British society. Meanwhile there has also been an increase in schemes to deliver groceries to people's homes, some of them organised by large-scale companies, and others by members of local communities. Some such schemes may prove sustainable, and may outlast the pandemic that gave rise to them.

Other gains, whether temporary or long-term, include the greater audibility of birdsong. Bird numbers in Britain have been declining rapidly in recent decades, but substantial populations remain, from such widespread species as the hedge-sparrow, the robin, the wren and the blackbird to rare species such as the bittern and (on some Scottish mountains) the ptarmigan. The lockdown has made many people much more aware of birdsong, whether it was present all along, but drowned out by the noise of traffic, or has actually increased as birds, in the absence of traffic, have become bolder and more vocal. They have certainly become bolder in places, as I witnessed in a recent visit to a nature reserve, where a hide, built for humans to observe birds, had been closed for some

months to humans because of the CoViD virus, and has gradually itself become a perch for chaffinches and bluetits.

In other continents too, wildlife has been making a come-back. Thus in Thailand the closure of large market-places has led to greater flourishing on the part of marine wildlife such as blue crabs and shrimps. These species have had time to propagate and become more plentiful (Sukphisit 2000). While this is likely to benefit fishing after the lockdown, it is also a benefit for marine ecosystems, which have been allowed to recover from increasing levels of fishing.

Quite a different kind of gain has consisted in the solutions that people who have been obliged to work at home have found to carry out business meetings, and other meetings necessary for the running of charities. Great numbers of people have been using Zoom, a device allowing a number of people to speak to one another and to see one another's faces as they do so. Zoom meetings have become so widespread and popular that many people have discovered that they do not need to travel to city-centre offices to do their daily work, but can carry out necessary communications in this way instead. If this form of communication continues after the epidemic is over, that might of itself contribute to a reduction of traffic levels, and of urban congestion, in the new form of society that emerges after the epidemic is over. That society may well also require fewer offices in city centres, now that many office workers turn out to be content to work from home.

There have also been gains from working at home due to reduced levels of stress associated with morning and evening travel (Mallon 2020). Travelling in traffic queues is widely acknowledged to generate stress, and the absence of this kind of stress is an undoubted benefit. Working at home has also had the adverse consequence of increased violence against women and children, with all the increased stress that such violence involves; but the impacts of lockdown on stress levels have not all been negative.

A much bigger gain in UK has been a change affecting rough sleepers, who had been accustomed to sleeping outdoors on the streets. Since this could not be allowed when a dangerous and contagious disease was circulating widely, Newham Council in London (for example) brought 320 rough sleepers into accommodation provided by the Council (Moreland and Brennan 2020), and a similar pattern has been played out in many other British cities. This sudden improvement in the lives of rough sleepers has prompted many to contemplate better provision for homeless people even after the epidemic is over.

Changes These Gains Could Generate

People's widespread experience of cleaner air could lead decision-makers in the near future to reconsider the ways in which buses and cars are fuelled, with a view to preserving the atmospheric benefits produced as unintended side-effects of the coronavirus lockdown. There are already governmental commitments to go carbon-neutral by 2050 (in the case of UK) or earlier, and the changes here suggested would greatly assist that transition, for which at least UK seems not to be sufficiently on course at present. At stake are the prospects of all coastal communities, faced with the prospect of frequent and increasing levels of inundation, and the prospects of most tropical and semi-tropical regions threatened by droughts, wildfires or storms of increasing frequency and intensity. (My relations in Kolkata and friends in Bangladesh were at risk from the fury of cyclone Amphan when these words were first written during the Spring of 2020.) While the suggested measures are not enough to remove these threats, they would be likely to alleviate them.

They would not be enough because fossil fuels continue to be extracted, even if some of their current uses are curtailed, and because the producers continue to seek new

ways to market their climate-subverting products. Governmental decisions are needed to keep these fuels in the ground, as soon as alternatives are available. But as experience of electric-powered buses and cars grows, and while memories of the clean air of Spring 2020 remain, the travelling public will increasingly demand an enhanced system of electrical charging points and of increased and renewably generated electricity supply. Not even these changes would be enough to address the global problems of carbon emissions, nor the widespread urban problems of health-undermining levels of oxides of nitrogen; but any alleviation is better than nothing, and experience of alleviation is likely to feed demands for more radical policies.

Another factor that might reduce the number of vehicles on the roads of our cities is the convenience of new forms of communication such as Zoom. Many of the world's cities, from western cities like London and New York to Third World cities such as Lagos, Beijing, Mexico City and Teheran, have become both highly congested and heavily polluted with traffic fumes. So any reduction of urban traffic would be a gain worth retaining, and the move to communication by methods such as Zoom may make a crucial difference and tip some people into deciding to work from home, either completely, or for several days per week, unlike what they did before the epidemic. If this change takes some amount of traffic off the roads, then it will be a gain well worth continuing.

Further Changes That Are Urgently Needed

Yet changes to the way that buses, cars and lorries are fuelled would not be sufficient for the degree of mitigation that is needed, because of the other sources of carbon emissions, such as for heating flats and houses, and for generating electricity supplies for homes, factories and offices. The boilers that heat our homes are going to need to be replaced by boilers fuelled by electricity, and the electricity-generating stations that are currently fuelled by coal, gas or oil are all going to need to be replaced by the powering of electricity systems by electricity generated by wind, tide-power, wave-power, by solar panels or by hydro-electric systems; and this needs to be done not just in Britain or in Europe, and not just in developed countries, but worldwide, and thus in developing countries as well.

All this will require a huge international undertaking over the coming decades, and will involve much technology transfer from countries having suitable technology to those that do not, and large schemes of international funding to allow these changes to be put into effect before it is too late. There is expert evidence that the cut-off date is in the mid-2040s, if the increase in average temperatures is to be limited to 2 degrees (Celsius), and that this cut-off date will arrive even earlier still if the target becomes 1.5 degrees (Meinhausen et al 2009), as IPCC now regard as necessary (Intergovernmental Panel on Climate Change 2013).

There is a strong ethical case for making these changes, despite their far-reaching nature. There are grounds both of benevolence and of duty, both to fellow-human beings and to non-human creatures, to prevent the flooding of coastlines and of islands as sea-levels and ocean-levels rise, to prevent increases to the severity and the frequency of extreme climate events, such as wild-fires, storms, hurricanes, floods and droughts, to prevent the spread of tropical diseases to (hitherto) more temperate regions, to prevent millions of climate refugees being forced to move within their countries or across international boundaries, and to prevent the migrations of species away from the equator and towards the Earth's two poles, as their previous habitats become inhospitable. This ethical case has been set out by Donald Brown in his 'White Paper' (Brown et al.2006), by Steve Vanderheiden (Vanderheiden 2006) and by myself in several books (Attfield 2014, 2015, 2018). It is a case that can be recognised whether one's favoured normative ethic is

consequentialist (like mine), deontological, virtue-ethical or contractarian, and whether one's religion is Islamic, Christian, Jewish, Zoroastrian, Confucian, Daoist or Hindu. The whole of humanity can recognise this ethical case.

Back To Birdsong

These, then, are among the other changes that are needed to mitigate climate change. However, Frank Kelly's revelations prompt, by contrast, reflections on road transport, and relatedly about the audibility of birdsong, and about the prospects of it being sustained into the future. Here it should be acknowledged that, in comparison with the prospects for changes to the powering of road transport, the prospects for birdsong to remain enjoyably audible in urban centres and suburbs across the world are less good. But they are not negligible, if reductions in road transport persist to some degree. During the lockdown, even industrial cities such as Manchester, which has many trees as well as many factories, turned out to be places where people discovered that they still have birds as fellow-inhabitants. And such an ongoing reduction of road transport remains possible, if the increased use of bicycles continues, and continues to reduce usage of cars. Besides, if (as must be likely) oxides of nitrogen are detrimental to birdlife, any significant move away from diesel-powered vehicles would directly benefit birds, which might be expected to sing appreciatively, or at least proportionately more.

The BBC disclosed recently that the veteran environmentalist Sir David Attenborough has survived the lockdown by listening to the birdsong in his garden. Birdsong raises human spirits, as has been recognised by composers from Ludwig van Beethoven to Frederick Delius when they incorporated allusions to birdsong in their music. If birdsong is increasingly heard, we can look forward to an epoch of further great music, with the songs of birdlife central to its themes and cadences.

Gains to Health from Changes to Road Transport

But, birdsong aside, gains to human health, and respiratory health in particular, are very much in prospect just from the widespread introduction of electric buses (omnibuses) and cars. There are also other gains to human health, further down the line. At present, climate change and global warming are driving the insect vectors of diseases such as malaria and dengue fever to higher altitudes and (more importantly) higher latitudes, as they find new territories further way from the equator and closer to the northern and southern poles warmer and more hospitable than before. Thus malaria is poised to spread from Africa to southern Europe and from Central America to the southern United States. Let us imagine, then, the difference that would be made if emissions are significantly mitigated, and the vectors of such tropical diseases cease to migrate in the manner just indicated. For the risks of malaria and other tropical diseases to millions of additional people would be greatly reduced. The gain to future generations would be immense, even if, like the dog that failed to bark, it goes largely unnoticed. It does not matter if people in Spain and in Texas fail to notice a continuing absence of mosquitoes; rather it would be a sign that climate change is at last under control.

Such a gain to human health would be an unlooked-for benefit to flow from the coronavirus pandemic, with premature deaths being reduced as an indirect result of the onset of a disease (CoViD-19) that much more directly causes such premature deaths. But stranger things have happened.

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