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## **Out of the ashes, a new world**

Walt Patterson on how a greener future could emerge after the pandemic

We humans base our activities on the stories we tell ourselves. The story we have related for the past century has seen humanity slide into ever deeper trouble. We have created a world of acute inequality, where the opulence of the few contrasts sharply with the desperate poverty of the many. Our air and water have been poisoned, making city smog unbreathable, rivers and lakes toxic and oceans acidified and awash with plastic. What scientists call the sixth extinction is accelerating as thousands of species, from butterflies to rhinos, vanish from the Earth. Our way of life is overheating the planet, melting icecaps, triggering droughts and wildfires and making storms more frequent and destructive.

Now we face a pandemic whose origins lie in part in our failure to respect the environment. The toll is already grim and will get worse. No one with a trace of humanity would unleash a lethal pandemic as a way to a better future. Nevertheless, as we grapple with COVID-19 and the collapse of the global economy, we must also ask ourselves where human society goes from here.

The pandemic has shown that dramatic change can be brought about rapidly. Even as the death toll mounts, people are seeing clearer skies and cleaner waterways, and hearing birdsong instead of the din of traffic. Can we not preserve these benefits without destroying people's livelihoods?

Many powerful people, governments and companies are eager to return to 'normal life' after COVID-19. Others, however, think we can do better. Much better. They want to write a new story about how human society works, that addresses the many threats our former way of life inflicted on the planet.

This former narrative which guided our activities was very old indeed. It even predates our species, *Homo sapiens*. The story begins when one of our precursors, what we now call a Neanderthal, sees lightning strike a tree and start a fire. At first a terrifying spectacle, no doubt, it nevertheless had a surprising side effect. It produced warmth and light. Somehow our Neanderthal precursors found a way to sustain the fire, and even to ignite one, a skill passed on to their successors, *Homo sapiens*. No other living creature can start a fire. This was the spark that was to create our modern world. At the same time it was to divorce human society ever more widely from the natural systems on which all life depends. The cumulative consequences grow more alarming daily.

Until very recently, the use of fire was seen as an unqualified boon. It gave us light after sunset, warmth from the cold, allowed us to cook our food, glaze pottery, smelt metals and eventually power the engines that set us free to travel the globe.

But fire itself is always a destructive process. We have always known that fire is dangerous. It can destroy what you value – your crops, your home, your life. But now it is apparent the risks are far worse. The fumes from power stations and car engines are the reason you struggle to breathe in Delhi or Beijing. Fire, and the carbon dioxide it releases, is relentlessly raising the Earth's temperature with dire consequences.

We accepted these dangers because we wanted the benefits fire offered. Arguably, the greatest of these was the ability to produce and control electricity. Now we can do with electricity most of what we used to do with fire. We can adjust temperatures with electric heaters and air-conditioning. We can make light and we can even produce electric cars. Perhaps most important of all, we can manage information, with electric sensors and computers. For most human activities, we can now replace brute force fire with elegant electricity.

One central problem nevertheless remains. We still make far too much of our electricity from fire. We don't have to. We can make it with moving water and air, and even with sunlight, harvesting these natural processes with infrastructure. We are on the way to being able to store this fire-free electricity to use when we want to; and these processes are all becoming cheaper and more reliable. But too many powerful entities still want us to use fire. Large companies and entire countries get revenue from feeding fire. Within the past century we have created a global economy modelled on fire, a 'consumer society' in which natural resources are rapidly transformed into waste, frequently toxic or pernicious.

Our indifference to natural systems has now brought us COVID-19. If and when we get the pandemic under control, we shall need to tell ourselves a better story about the way we live. The rise of fire-free electricity offers us the key: a transition from a fire economy to an electric economy. But a fire-free electric economy will function very differently.

In financial terms, for fire-free generation you invest in a piece of infrastructure such as a wind farm or solar array, and it then delivers electricity throughout its working life, with no fuel cost or fuel price risk.

Commodity trading in fuels fades from the picture, and commodity trading in electricity disappears. Electricity becomes a service based on access to infrastructure and paid for like rent. Billing for kilowatt-hours disappears.

Traditional electricity suppliers fiercely oppose these developments and we are already caught up in a power struggle between fire and fire-free electricity which will intensify. The way through this is to evaluate policies by asking if they help or impede the move to cleaner energy.

The World Bank and other financial institutions have to stop funding fuels and fire, and all subsidies for burning fuel must cease. Governments, pension funds and other financial bodies need to get out of fire-based investments and transfer support to fire-free, infrastructure-based systems. Three overall policies and measures are interlinked. We need new businesses and business models based on minimizing waste, the so-called 'circular economy'; we need to shift from fire to electricity; and we need to shift from fire-based to fire-free electricity. Company law, taxation and regulation need to support the shift.

For employment, an essential criterion is a 'just transition' for those whose fire-feeding jobs disappear. Many key skills are transferable; when they are not, retraining will be crucial. In financial jobs, the shift will be away from commodity trading to investment. System maintenance and upgrading must deliver the services people and society actually want. Moving to a circular economy will entail designing for repair, reuse and recycling. Minimizing waste and maximizing utility of resources will require appropriate skills, regulations and standards.

We need to anticipate the changing nature of ‘work’. Social transactions will move away from the ‘fire economy’, in which people are ‘consumers’, towards an ‘electric economy’ in which people interact by offering and accepting, selling and buying access to processes: access to comfort, to illumination, to motive power, to mobility, to information and communication – all delivered as equitably, cleanly and efficiently as possible.

The effect on political relations will be profound. Fire-feeders, both companies and countries, have long exerted leverage in favour of fire on policy at every level. Fortunately the electric economy has a growing constituency of influential players, including insurance and reinsurance companies, pension funds, manufacturers, installers and operators of fire-free generation and high-performance service technology, health maintenance institutions, climate scientists and institutions and a growing band of climate activists, especially among the young.

The effect on international relations would be dramatic. Throughout the past century the need to feed fire has been a key determinant of international affairs, especially cheap petroleum from the Middle East, but also coal from Australia and natural gas from Russia. The fire-feeders are still trying to derail intergovernmental efforts to reduce carbon emissions. How the power struggle evolves will have a profound impact on the future of humanity.

After COVID-19, no one yet knows how fast the use of fossil fuels will decline. But even before the pandemic, influential figures in the European Union and the US were advocating a Green New Deal. Analysts such as Amory Lovins, of the Rocky Mountain Institute, and Mark Jacobson, of Stanford University, put forward detailed programmes for 100 per cent renewable energy by 2050. Now politicians such as Frans Timmermans, the EU vice president, and Joe Biden, the Democrat presidential candidate, are calling for a ‘green recovery’. COVID-19 could accelerate the transition.

Moving from fire to electricity will change humanity’s narrative for the better. As Lovins has said, we know three ways to make a good building material out of limestone: you can cut it into blocks; you can calcine it at over 1,200C, to make cement; or you can feed it to a chicken. Weight for weight, eggshell is a very strong material. But we don’t yet know how a chicken does it. And it does it at a chicken’s body temperature. Trees make wood. Animals make bones and teeth. Chickens make eggshells. For its constructive processes nature does not need or use the high temperatures. But we still have a lot to learn.

Over time, as the fire story gives way to the electric story, human activity could converge towards constructive natural activity, functioning entirely at low temperatures and without fire. We humans could at last reinstate our membership of a wholly interdependent nature. But time is short. Let’s change the story.

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