

Engineering the climate could cost us the earth

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Is geoengineering realistic, is it safe - or is it just sleight of hand?

A political technology, geoengineering belongs to the institutional apparatus that is preventing effective climate action and reducing the urgency for structural change.

Engineering the earth's climate is nothing new. Capitalists, in coalition with alien overlords from Andromeda, have been at it for years.

That is the backstory to John Carpenter's 1988 sci-fi classic, *They Live*. An alien race colonises Earth. Disguised as humans they run the world, helped by accomplices among the native business community.

They manipulate the human drones through consumerism and subliminal injunctions: 'Obey,' 'Marry and breed,' and 'Work!' The dutiful masses produce, reproduce and consume, all for the benefit of the Andromedan/capitalist masters.

They Live is celebrated for its cartoonish representation of capitalist ideology: wear the special sunglasses and those ubiquitous injunctions are rendered visible.

But another plot thread is equally original. Andromedans require a hot, carbon-rich atmosphere. So they hacked ours, adapting it to their needs by constructing economic systems that rely on fossil fuels.

In this, *They Live* subverts the approach of so much "[Fabian](#)" sci-fi, with its engineer heroes wielding applied science for the betterment of the world.

The Andromedans are malign terraformers, villainous geoengineers. And when they've exhausted this planet's resources, they'll set their locust eyes on the next.

The Holocene was Eden

Adding CO₂ to the atmosphere as a form of "climate experiment"—the Andromedan mission, as it were—has been dated to [1663](#). Why that year? It marked the founding of the Royal Society.

The Royal Society's structure [was modelled on a sci-fi/utopian novel](#), Francis Bacon's *New Atlantis*, and its mission statement was taken from the Bible: to [rebuild Eden](#).

The Society's associates combed the world, assessing environmental risks and opportunities. They developed systematic meteorology, measured climates and their rates of change, and intervened to alter them.

One of its founders, John Evelyn, advocated the deforestation of England's temperate colonies—Ireland and North America—in order to make their "[gloomy tracts](#)" habitable.

He and his peers were at the centre of England's colonial thrust, which generated unprecedentedly rapid and global ecological transformations.

They carried new mentalities: the world belongs to the European bourgeoisie; natural resources are free gifts for capital; science and technology provide surefire methods of taming and controlling nature.

What Evelyn & company failed to realise was that Eden *is* the Holocene—those brief, lush, ten millennia in which the world's climate was unusually stable and benign for homo sapiens.

Far from creating a new paradise, the social revolution they were spearheading ushered in a new era, the [Capitalocene](#). It guarantees that Eden will wither away, perhaps for ever.

Sulfurous schemes

In recent years the Royal Society has become the [most prominent scientific organization](#) encouraging governments to experiment with geoengineering.

In 2011 it declared that planetary-scale engineering interventions could be "[the only option](#)" for tackling a climate emergency.

But geoengineering had entered the scene half a century earlier. Indeed, ever since governments were notified of the hazards of anthropogenic climate change, geoengineering was floated by generals and technocrats as a response.

Its first appearance was in 1965. US President Lyndon Johnson's Science Advisory Committee issued a report that warned of the [potentially harmful](#) effects of fossil fuel emissions.

Considered the first high-level government statement on global warming, the report raised the possibility of "[deliberately bringing about countervailing climatic changes](#)," including by raising the Earth's albedo.

The method was suggested nine years later by Soviet climatologist Mikhail Budyko. He proposed reversing global warming [by burning sulfur](#) in the stratosphere. And how might we do that? Call in the artillery! Blast a million tonnes of pulverised brimstone [into the heavens](#).

This last was Lowell Wood's proposal, to a NASA conference in Silicon Valley. Wood knew a thing or two about artillery. A former weapons designer at the Pentagon, he had worked on the Reagan-era Strategic Defense Initiative. His mentor, and fellow geoengineering pioneer, was Edward '[Father of the H-bomb](#)' Teller.

In his stated motivations, Teller lays bare the soul of the geoengineer. He was "[pessimistic about human social capacities but optimistic about technology](#)".

Lacking any faith in humanity's ability to reduce greenhouse gas emissions, he sought a technical fix that would require no radical political or economic change.

In promising a technofix, with no need for democratic engagement, geoengineering is music to the ears of authoritarians, magnates, and government agencies.

Alongside the Pentagon, Silicon Valley and the Royal Society, its boosters include the CIA and motley magnates, including Bill Gates, the co-founder of Skype, Niklas Zennström, and [Richard Branson](#)—who [co-funded the Royal Society's geoengineering programme](#).

The oil giants and tar sands tycoons are major backers, too. They have long seen carbon capture as a means of [greenwashing "enhanced" oil extraction](#).

There is even talk of hooking geoengineering to carbon trading schemes. This was the plan of [Planktos Inc.](#), [whose ocean fertilization](#) experiments conjure up a [dystopian future](#) in which the global climate is manipulated for corporate profit.

Bombastic elitist bazooka projects backed by oligarchs and shot through with fetishistic and magical thinking—you'd think this would appeal to the Trump regime and you'd be right.

Since Trump entered the Oval Office, geoengineering boosters say the political climate for their agenda "[has warmed](#)." Former Republican House Speaker and Trump confidant Newt Gingrich has hailed geoengineering for its "[promise of addressing global warming concerns for just a few billion dollars a year](#)."

Gingrich was among the first senior political figures to publicly promote geoengineering, and helped launch a geoengineering unit at his think tank, American Economic Enterprise.

Seeds of war

The weaponization of weather has been a feature of warfare since 1947. Its heyday came during the US war on Vietnam. If major geoengineering projects go ahead, it will take another leap.

Their costs and benefits will be uneven. Attempts to reduce solar radiation in one region will likely [have knock-on effects](#) elsewhere, such as droughts and the devastation of [crop yields](#).

Geoengineering raises questions of [sovereignty](#). Who declares the climate emergency, who determines the geoengineering methods and locations, and how will other states react? Conflict is guaranteed.

A likely first-mover would be the US, whether through a state-backed entrepreneur or a government agency. A classic hegemonic stance would be adopted, with Washington presenting its acts as in the global interest while ensuring that the techniques chosen would favour its territories.

Let's imagine the chosen method is ocean seeding. It leads to unforeseen consequences, [shifting Arctic weather patterns](#) which trigger savage droughts across Russia.

In response, Moscow considers torpedoing America's ocean fertilisation vessels but instead launches a cirrus cloud-seeding programme.

It too brings devastating side-effects—to East Asian rice harvests. In its turn, Beijing pushes the button on sulphate-spraying, but this sends the monsoons haywire, imperilling the lives of hundreds of millions.

This trajectory, from geoengineering *démarches* to [counter-geoengineering](#) and international friction or conflagration, is far from implausible.

Crushing olivine

While the above scenario depicts the US as initiator, geoengineering boosters, such as Kim Stanley Robinson in '[The Left's Case For Geoengineering](#),' envisage different actors.

"If a hundred million people die in a heat wave," the sci-fi author argues, and the Indian government sprays sulphates into the stratosphere, "are we going to tell them they can't?" In this we see a rhetorical occlusion.

Obscured is that geoengineers research is centred in the Global North, and China. Robinson also downplays or ignores the thunderous drawbacks of sulfur spraying.

It does nothing to reduce the CO2 build-up, or to mitigate its other consequences such as ocean acidification. And it must be permanent, or risk a [termination shock](#) when switched off—whether by design, accident, or war.

Robinson's intervention follows a raft of pro-geoengineering articles in leftwing publications such as [Jacobin](#) and [Grist](#).

In justification of schemes such as sulfur spraying, Jacobin editor Peter Frase argues that its origins should not deter the left. Geoengineering technologies are neutral.

What matters is not the techniques but “[how they are implemented, and by whom.](#)” Sulfur’s associations with Lowell Wood and his satanic colleagues would, in a socialist system, be swiftly forgotten.

Others have noted that in Frase’s essay his recourse to tropes from sci-fi novels and movies enables the “[technological, ecological, or social feasibility](#)” of his predictions to be passed over.

Similarly, in his Mars series, Robinson stages lengthy debates over terraforming, and he proposes that many challenges of geoengineering, “[both technical and social,](#)” are “much the same” as in the pages of his novels.

But this is, at best, an exaggeration. Few of his fantastic scientists and terraforming projects would survive the leap from Martian fiction to material fact.

One can be a historical materialist novelist or philosopher with little knowledge of chalk, cheese or any empirical substance.

But materials cannot be ignored if, say, carbon sequestration is to be discussed effectively—and not as wishful thinking. If BECCS or charcoal-burying is your preferred technology, [how much land will be appropriated,](#) and [whose?](#) Will it result in [a rise in emissions?](#)

If CO₂ is to be ‘scrubbed’ from thin air, will olivine be the elixir, or calcium oxide, or sodium hydroxide? How will it be produced? Out of rocks plucked from which mountains? Pulverised and processed with energy from what sources? Scattered across which steppes?

In view of the colossal wattage required, what territories will be overlaid with solar panels and where will the aluminium and rare earths be extracted? Is the estimate of [0.55 kWh](#)—at minimum!—to capture a single kilo of CO₂ realistic?

Or do leftist geoengineering fans pray that, in a cunning of chemistry, the molecular forces that bind CO₂ will weaken under a socialist order, easing its capture?

Corrupting the general intellect

Devotees of geoengineering accuse sceptics of a fear of ‘science,’ or of grand projects and decisive action. These charges are farcical.

It is geoengineering projects that are designed to *avoid* the grand and bold decisions based on *proven* science: to sequester carbon through afforestation, to ramp up renewable energy and agroecological farming, to weatherise buildings, forcefully regulate energy efficiency and materials use, reduce beef and dairy consumption, and re-engineer transport systems from aviation and cars to [bicycles, public transport, and ride-sharing.](#)

Scepticism towards geoengineering is itself scientific, not only in its critique of the techniques themselves and their propensity to backfire, but also in that it subjects science—as a social institution—to critical analysis.

The organisation of scientific knowledge (the ‘[general intellect](#)’) has become increasingly subsumed by big business, with all the corruption that entails.

It is well known that Big Oil and other vested interests manipulated the science of climate change. That they were [found out](#) has not given them pause. The same corporations that sponsored climate change denial are now lobbying for [biochar](#) (charcoal-burying).

We can go further. The geoengineering industry thrives on fetishistic thinking, in two related forms. One is the belief that the reigning social order, based on capital accumulation and profit maximisation, is natural and unchallengeable.

The other is [technological fetishism](#), the endowing of technology with magical powers and the belief that it is neutral in relation to its uses and users, and not wrapped up in social relations, institutions [and mentalités](#).

In the fetishist's imagination, technology is a tool separable from society, a wand waved from on high by business and state elites. This holds for most of the kit in the geoengineers' fantasy toolbox.

Highly [unaccountable](#), it depends on hierarchically stratified expertise, the [cult of the expert](#), and rigidly centralised decision making.

A *political* technology, geoengineering belongs to the institutional apparatus that is preventing effective climate action and reducing the urgency for structural change.

Against this, a politics capable of negotiating the rapids of environmental change will require democratic negotiation and collective action, with the exercise of "[collective restraint where necessary](#)" and mobilisation for "shared, sustainable abundance where possible."

How these struggles play out in the coming decade will, given climate [feedbacks](#) and [tipping points](#), powerfully affect human beings (if any exist) in half a million years.

Here the sci-fi imagination can be brought into play. Its sensibility of [deep time](#). Of the geological scales of prehistory, in which the hydrocarbons were slowly compressed, and the swifter demolition of 'Eden' that their usage is causing, which will affect our descendants in 3018 or 30018.

If humans have not perished by then, how will they see us? Will they see that we overcame the Andromedans? That we found the sunglasses?

This Author

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