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*MuseLetter #372 / March 2024 by Richard Heinberg*

*The March Museletter is made up of three essays. The first shines a light on the existential risks posed by Artificial Intelligence. Next up is a piece giving my take on the decision by world geologists not to recognise the current geological epoch as the Anthropocene. And finally this month I include a second interview on the issue of population to follow on from last month.*

## **Why Artificial Intelligence Must Be Stopped Now**

The promise of AI is eclipsed by its perils, which include our own annihilation.

### **Introduction**

Those advocating for artificial intelligence tout the huge benefits of using this technology. For instance, an article in CNN points out how AI is helping Princeton scientists solve [“a key problem” with fusion energy](#). AI that can translate text to audio and audio to text is making information more accessible. Many digital tasks can be done faster using this technology.

However, any advantages that AI may promise are eclipsed by the cataclysmic dangers of this controversial new technology. Humanity has a narrow chance to stop a technological revolution whose unintended negative consequences will vastly outweigh any short-term benefits.

In the early 20th century, people (notably in the United States) could conceivably have stopped the proliferation of automobiles by focusing on improving public transit, thereby saving enormous amounts of energy, avoiding billions of tons of greenhouse gas emissions, and preventing the loss of more than [40,000 lives](#) in car accidents each year in the U.S. alone. But we didn't do that.

In the mid-century, we might have been able to stave off the development of the atomic bomb and averted the apocalyptic dangers we now find ourselves in. We missed that opportunity, too. (New nukes are still being [designed and built](#).)

In the late 20th century, regulations guided by the [precautionary principle](#) could have prevented the spread of [toxic chemicals](#) that now poison the entire planet. We failed in that instance as well.

Now we have one more chance.

With AI, humanity is outsourcing its executive control of nearly every key sector —finance, warfare, medicine, and agriculture—to algorithms with no moral capacity.

If you are wondering what could go wrong, the answer is plenty.

If it still exists, the window of opportunity for stopping AI will soon close. AI is being commercialized [faster](#) than other major technologies. Indeed, speed is its essence: It self-evolves through machine learning, with each iteration far outdistancing [Moore's Law](#).

And because AI is being used to accelerate all things that have major impacts on the planet (manufacturing, transport, communication, and resource extraction), it is not only an uber-threat to the survival of humanity but also to all life on Earth.

### **AI Dangers Are Cascading**

In June 2023, I wrote an [article](#) outlining some of AI's dangers. Now, that article is quaintly outdated. In just a brief period, AI has revealed more dangerous implications than many of us could have imagined.

In an article titled "[DNAI—The Artificial Intelligence/Artificial Life Convergence](#)," Jim Thomas reports on the prospects for "extreme genetic engineering" provided by AI. If artificial intelligence is good at generating text and images, it is also super-competent at reading and rearranging the letters of the genetic alphabet. Already, AI tech giant Nvidia has developed what Thomas calls "a first-pass ChatGPT for virus and microbe design," and applications for its use are being found throughout life sciences, including medicine, agriculture, and the development of bioweapons.

How would biosafety precautions for new synthetic organisms work, considering that the entire design system creating them is inscrutable? How can we adequately defend ourselves against the dangers of thousands of new AI-generated proteins when we are already doing an abysmal job of assessing the dangers of new chemicals?

Research is advancing at warp speed, but oversight and regulation are moving at a snail's pace.

Threats to the [financial system](#) from AI are just beginning to be understood. In December 2023, the U.S. Financial Stability Oversight Council (FSOC), composed of leading regulators across the government, classified AI as an "emerging vulnerability."

Because AI acts as a "black box" that hides its internal operations, banks using it could find it harder "to assess the system's conceptual soundness." According to a [CNN article](#), the FSOC regulators pointed out that AI "could produce and possibly mask biased or inaccurate results, [raising] worries about fair lending and other consumer protection issues." Could AI-driven stocks and bonds trading [tank securities markets](#)? We may not have to wait long to find out. Securities and Exchange Commission Chair Gary Gensler, in May 2023, spoke "about AI's potential to induce a [financial] crisis," according to a U.S. News [article](#), calling it "a potential systemic risk."

Meanwhile, ChatGPT recently spent the better part of a day [spewing bizarre](#)

[nonsense](#) in response to users' questions and often has "hallucinations," which is when the system "starts to make up stuff—stuff that is not [in line] with reality," said Jevin West, a professor at the University of Washington, according to a CNN [article](#) he was quoted in. What happens when AI starts hallucinating financial records and stock trades?

Lethal [autonomous weapons](#) are already being used on the battlefield. Add AI to these weapons, and whatever human accountability, moral judgment, and compassion still persist in warfare will tend to vanish. [Killer robots](#) are already being tested in a spate of bloody new conflicts worldwide—in Ukraine and Russia, Israel and Palestine, as well as in Yemen and elsewhere.

It was obvious from the start that AI would worsen economic inequality. In January, the [IMF forecasted that](#) AI would affect nearly 40 percent of jobs globally (around 60 percent in wealthy countries). Wages will be impacted, and jobs will be eliminated. These are undoubtedly underestimates since the technology's capability is constantly increasing.

Overall, the result will be that people who are placed to benefit from the technology will get wealthier (some spectacularly so), while most others will fall even further behind. More specifically, [immensely wealthy and powerful](#) digital technology companies will grow their social and political clout far beyond already absurd levels.

It is sometimes claimed that AI will help solve climate change by speeding up the development of low-carbon technologies. But AI's [energy usage](#) could soon eclipse that of many smaller countries. And AI data centers also tend to gobble up [land and water](#).

AI is even invading our love lives, as presaged in the 2013 movie "[Her](#)." While the internet has reshaped relationships via online dating, AI has the potential to replace human-to-human partnering with human-machine intimate relationships. Already, [Replika](#) is being marketed as the "[AI companion who cares](#)"—offering to engage users in deeply personal conversations, including sexting. Sex [robots](#) are being developed, [ostensibly](#) for elderly and disabled folks, though the first customers seem to be wealthy men.

Face-to-face human interactions are [becoming rarer](#), and couples are reporting a [lower frequency of sexual intimacy](#). With AI, these worrisome trends could grow exponentially. Soon, it'll just be you and your machines against the world.

As the U.S. presidential election nears, the potential release of a spate of [deepfake audio and video recordings](#) could have the nation's democracy [hanging by a thread](#). Did the candidate really say that? It will take a while to find out. But will the fact-check itself be AI-generated? India is experimenting with AI-generated political content in the run-up to its national elections, which are scheduled to take place in 2024, and the results are [weird, deceptive, and subversive](#).

A comprehensive look at the situation reveals that AI will likely accelerate all the negative trends currently threatening nature and humanity. But this indictment still fails to account for its ultimate ability to render humans, and perhaps all living things, obsolete.

AI's threats aren't a series of easily fixable bugs. They are inevitable expressions of the technology's inherent nature—its hidden inner workings and self-evolution of function. And these aren't trivial dangers; they are existential.

The fact that some AI developers, who are the people most familiar with the technology, are its most [strident critics](#) should tell us something. In fact, policymakers, AI experts, and journalists have issued a [statement](#) warning that “mitigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war.”

### **Don't Pause It, Stop It**

Many AI-critical opinion pieces in the mainstream media call for a [pause](#) in its development “at a safe level.” Some critics call for regulation of the technology's “bad” applications—in weapons research, facial recognition, and disinformation. Indeed, European Union officials took a step in this direction in December 2023, reaching a provisional deal on the [world's first comprehensive laws to regulate AI](#).

Whenever a new technology is introduced, the usual practice is to wait and see its positive and negative outcomes before implementing regulations. But if we wait until AI has developed further, we will [no longer be in charge](#). We may find it impossible to regain control of the technology we have created.

The argument for a total AI ban arises from the technology's very nature—its technological evolution involves acceleration to speeds that defy human control or accountability. A total ban is the solution that AI pioneer Eliezer Yudkowsky advised in his pivotal [op-ed in TIME](#):

“[T]he most likely result of building a superhumanly smart AI, under anything remotely like the current circumstances, is that literally everyone on Earth will die. Not as in ‘maybe possibly some remote chance,’ but as in ‘that is the obvious thing that would happen.’”

Yudkowsky goes on to [explain](#) that we are currently unable to imbue AI with caring or morality, so we will get AI that “does not love you, nor does it hate you, and you are made of atoms it can use for something else.”

Underscoring and validating Yudkowsky's warning, a U.S. State Department-funded study published on March 11 declared that unregulated AI poses an “[extinction-level threat](#)” to humanity.

To stop further use and development of this technology would require a global treaty—an enormous hurdle to overcome. Shapers of the agreement would have to identify the key technological elements that make AI possible and ban research and development in those areas, anywhere and everywhere in the world.

There are only a few historical precedents when something like this has happened. A millennium ago, Chinese leaders shut down a [nascent industrial revolution](#) based on coal and coal-fueled technologies (hereditary aristocrats feared that upstart industrialists would eventually take over political power). During the Tokugawa Shogunate period (1603-1867) in Japan, most guns

were banned, [almost completely eliminating gun deaths](#). And in the 1980s, world leaders convened at the United Nations to [ban most CFC chemicals](#) to preserve the planet's atmospheric ozone layer.

The banning of AI would likely present a greater challenge than was faced in any of these three historical instances. But if it's going to happen, it has to happen now.

Suppose a movement to ban AI were to succeed. In that case, it might break our collective fever dream of neoliberal capitalism so that people and their governments finally recognize the need to set limits. This should already have happened with regard to the climate crisis, which demands that we strictly limit fossil fuel extraction and energy usage. If the AI threat, being so acute, compels us to set limits on ourselves, perhaps it could spark the institutional and intergovernmental courage needed to act on [other existential threats](#).

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## No, it's not the Anthropocene

Early this month it was [reported](#) that members of the [Subcommission on Quaternary Stratigraphy](#) (which is part of the International Union of Geological Sciences), who had been tasked with adopting or rejecting a proposal to declare that we are in a new geological epoch called the Anthropocene, declined the motion. This comes after years of lobbying by many Earth scientists to formally acknowledge that humanity is in the process of changing the planet in ways that any future geologist would find obvious and undeniable.

My first reaction to the news was disappointment. I've been using the term “Anthropocene” for years, and had the impression that the main opposition to its formal adoption came from those who believe that humanity is incapable of changing Earth systems in ways that will make a difference for thousands or millions of years to come. Assuming that humans are too puny to alter the planet significantly is a mental pathway habitually trodden by climate change deniers, and it's an excuse for doing nothing to avert a hellish future.

However, it turns out that the dispute among the roughly 20 scholars on the Subcommission was mainly about whether humanity's impact on Earth should be viewed as an event—like a mass extinction or an asteroid impact—or as the start of a new epoch. The majority favored the former; and, even though the legitimacy of their decision is being [questioned](#), I think they're right.

Ripples from human actions during the last few decades will spread far into the future. However, the consequences of the activities that are currently having profound impacts on the climate, oceans, and biota will limit those activities, so that humanity's industrial growth-based economy driven by fossil fuels will be mostly if not entirely gone by the end of this century. There will likely be fewer people on the planet then, and they will have far

less power per capita. Earth simply doesn't have enough resources to enable a continuation of population growth and economic expansion for much longer before a decline commences. We will have the opportunity to shape that decline somewhat—to make it more beneficial by sharing the burden of contraction, or to make it more painful by fighting over what's left—but the techno-optimist vision of a future of ever-increasing human potency is a mere fantasy, and a dangerous one at that.

So, it's probably better to think of the geological moment (a couple of centuries at most) of human techno-transformation and population explosion as an event—like a global conflagration—rather than a durable new regime (geological epochs tend to be several million years in duration). The results of human overshoot will persist: if there are people around 10,000 or even a million years from now, they will be able to discern residue from the 20<sup>th</sup> and 21<sup>st</sup> centuries in the stratigraphy of lake beds around the world. That's when the Earth's climate changed; when toxic chemicals suddenly proliferated through atmosphere, soil, and waters; when glaciers melted; when radioactive particles were dispersed by atomic weapons tests; when untold numbers of animals and plants went extinct; and when ocean currents shifted. The generations to come will inhabit a different world indeed. Earth's new regime, once it has stabilized, will surely be classifiable as a new geological epoch—but currently it's too soon to name it. We're still in the midst of the transitory event that is driving the end of the Holocene and the beginning of something else.

Perhaps it's this event that we should be naming. I hereby nominate “the Anthropic Unraveling” or “The Great Burning” as suitable candidates for the title.

## **Overpopulation Is Still a Huge Problem: An Interview with Jane O'Sullivan**

In February, I [interviewed](#) biochemist Chris Bystroff, whose peer-reviewed [analysis](#) suggests that world population is now peaking. I wanted a contrasting view on the matter, so I reached out to my friend Jane O'Sullivan, an Honorary Senior Research Fellow at the University of Queensland and author of the paper, “[Demographic Delusions](#): World Population Growth Is Exceeding Most Projections and Jeopardising Scenarios for Sustainable Futures.” Dr. O'Sullivan has been active in debates about overpopulation in Australia and the world for many years, as both an analyst and an activist.

**Richard: Fertility rates are declining sharply in OECD countries, and China's population is now dropping rapidly. Is world population growth in the rear-view mirror, a problem we no longer have to worry about?**

**Jane:** “Declining sharply” and “dropping rapidly” are emotive terms that exaggerate the trends and distract from the far more rapid growth elsewhere. Globally we increase by somewhere between 70 million and 90 million annually, and that pace has been unrelenting for more than 40 years. We don't have hard evidence that the curve has started to bend, let alone that it is on track to peak any time soon. So, the problem hasn't gone away, and the impacts of the human population get more serious and intractable every year.



It's important because there are things we could do, that we know work because many countries did them in the past, and that we're not doing now. Not doing them is leaving hundreds of millions of women who want to avoid pregnancy without the services and means to do it. It is condemning their children to a world of increasing competition and diminishing opportunities, if not outright collapse of civil order.

What we're not doing is sufficient provision and promotion of voluntary family planning. We're not doing it because we have been taught, since the mid-1990s, that expressing concern about population growth will harm the people in high-fertility countries, as if all birth control programs involve forced sterilisations (very few did) and as if they'd be worse off with fewer children or siblings (they're much better off). The hopeful myth was that women would get better services, and fertility would fall faster, if we only championed their rights and shut up about population. But the opposite happened: without the motivation to reduce population growth for the sake of economic development, the funding and policy support for family planning plummeted, and women were left worse off.

As a consequence, fertility declines slowed or stalled in many countries, but the projections haven't adequately factored this in. In your recent interview with Chris Bystroff, he suggested world population could have peaked already, with birth rates much lower than the UN believes. In fact, the evidence all points in the opposite direction: that the UN has been over-anticipating fertility decline and underestimating population growth.

Every two or three years, the UN publishes an update of their population estimates and projections. Almost every update this century has revised the world population upward. Their mid-2022 release estimated the mid-2022 population to be 7.975 billion. This was 21 million higher than their 2019 projection anticipated it would be, despite more than 15 million unanticipated deaths due to the Covid-19 pandemic. It was 177 million more than the 2010 projection expected, and 253 million people more than was projected in 2000. Despite their consistent underestimation of growth, their model continues to assume all high-fertility countries are experiencing rapid fertility decline, even though their historical data show they haven't.

Other research groups that attempt global population projections include Wittgenstein Centre in Austria, whose projections are used in climate change mitigation models. They anticipate faster and deeper fertility declines than the UN. History is proving them to be more wrong than the UN. This is worrying when all modeled scenarios that keep climate change below 2°C depend on world population growth quickly tapering off, without including any measures to help it do that.

However, the lower projections get a lot of support in the media because it is what people want to believe. They want to be reassured that doing nothing about population growth is safe and sufficient. So, they cling to myths and misrepresentations that fertility is "plummeting" everywhere and China's population is "collapsing."

China's population fell by about 0.14% last year. It is absurd to regard this as a "rapid" decline when 2.9% growth in Canada is presented as unproblematic. Growth is much more costly than shrinkage, economically,

socially, and environmentally.

**Richard: What are the implications for the non-OECD countries that still suffer high rates of population growth? And how could their problems spill over into the rest of the world?**

**Jane:** The main implication is that they are stuck in a poverty trap that can only get worse. Back in the 1960s, when developing country population growth started to gather pace due to better health care, it was obvious to everyone that this would impede development. Everything you do is just running to keep pace, rather than getting ahead. You can improve farm yields, but the farmers' kids get less land each or become landless. When they flock to the towns and cities, there are not enough jobs for them, and it's impossible to house them decently. You struggle to improve education if you have to double school capacity every couple of decades. The situation breeds crime and violence, which makes good governance impossible and political instability virtually inevitable.

In contrast, all the countries that made efforts to reduce birth rates in the 1960s to 1990s are powering ahead economically. These days we're encouraged to believe birth control efforts did nothing but breach human rights, but this is a gross misrepresentation. Almost all national family planning programs were voluntary and based on improving people's lives by delivering better health and contraception services. They also worked to break down many of the patriarchal traditions that relegated women to childbearing, such as child marriages and son preference, and to ensure girls' access to education. By slowing population growth, they were able to improve job prospects and access to services such as electricity and sewage. Gradually, it became a virtuous cycle.

It didn't happen because they were richer or better educated, but because they gave family planning a high priority. For example, Thailand was much poorer and less developed than the Philippines in 1970, but is far better off now, and a major rice exporter, thanks to its family planning program. Bangladesh was the poorest of the poor, but promoted family planning while Pakistan didn't. Now it has overtaken Pakistan, where worsening conditions are leading to political instability.

The media rarely comment on it, but population pressure has played a large part in the recent conflicts in the Middle East and Africa. The Arab Spring uprisings were triggered by a world food price spike hitting hard in poor countries dependent on imported food. Others are coming close to famine conditions again. In Madagascar last year, hunger was blamed on climate change, but few if any media commentators mentioned that there are now seven Madagascans for each one the country had to feed in 1950.

Whether in war or peace, population pressure generates high demand for emigration. Gallup polls now show a billion people want to emigrate to a richer country, including more than half the adults in sub-Saharan Africa. Western countries are already seeing increased inflows, and people who complain are labelled racist and xenophobic. But if these countries really had open borders, welcoming all comers, their welfare systems would instantly be overwhelmed. They will inevitably tighten border controls, but they will almost as inevitably have higher inflows anyway because the demand is



growing so rapidly. This will be an ongoing source of social tension.

Beyond that are the environmental impacts. This is a difficult area to model, because every country that reduced fertility also got richer, so bigger footprints outweighed fewer feet, at least in the short run. But if we were able to reduce the energy demands of middle-class lifestyles, and to generate that energy without greenhouse gases, we'd still be left with the sheer scale of the food system. All the modeling suggests that we can't draw down carbon dioxide without expanding forests, and we won't reverse deforestation if global population keeps growing.

It's not about blaming poor people of color, it's about creating the conditions needed to end poverty. It's about acknowledging all the ways humanity is unsustainable, and that we have to address every one of them. Family planning in Africa is no substitute for reducing the footprint of the rich countries, but even if we do the latter perfectly, we'll still fail if world population is too high. And it would be people in high-fertility countries who'd suffer most.

**Richard: In your opinion, why have world leaders failed for so long to take this issue seriously?**

**Jane:** In the post-War decades, leaders took the issue very seriously. Developing countries begged for family planning assistance, and several donor countries gave it high priority. But from the mid-1970s, in response to clear statements from the US Presidency in favor of population stabilization at home and abroad, a concerted campaign started to build to undermine these commitments. It was mainly driven by leaders of the Catholic church, who wanted to defend their ban on contraception: if contraception is the only way out of poverty, then they are morally compromised. So, they worked hard to promote alternative economic theories that population growth is neutral for development—"every extra mouth comes with a pair of hands." They exerted political leverage on American politicians, particularly Republican presidents, to defund family planning activities. They got Catholic countries to veto attempts to get family planning onto the World Health Organization's agenda. They recruited evangelical churches to escalate the campaign against abortion. Then they cunningly linked family planning to abortion via the Mexico City Policy, announced by the Reagan administration in 1984 at the UN's population conference in Mexico City. It put a ban on US funding going to any entity that even gave advice to women about abortion. Despite modern contraception being the most effective way to reduce abortions, many family planning agencies refused to comply with this rule because they would not refuse women life-saving advice, so they were defunded.

The next line of attack was to escalate moral outrage about cases of coercive birth control, so that it seemed as if all family planning programs were coercive by default. In fact, coercion had been rare outside China, and never condoned by family planning agencies. The International Women's Health and Rights Movement was recruited to oppose birth control programs as an attack on women's bodily autonomy. The opposite happened—discouragement of birth control actually harmed women's rights.

This moral crusade against family planning has not been the only barrier to action. Big business wants to ensure cheap labor and fears a declining

population, where employers have to compete to attract workers. They have concocted a barrage of myths about population aging causing recession and bankrupting the welfare system. It makes for strange bedfellows when the moralizing Left insists population growth is not a problem because that would be blaming the poor, and big business says population decline is a crisis because it wants to pay lower wages and charge higher rents.

**Richard: How can nations use population decline to their advantage?**

**Jane:** They don't have to do anything to reap the benefits of population decline, other than stop resisting it. It means not having to build so much infrastructure every year just to keep pace with growth. It means more affordable housing and less household debt. It means we can retreat from the most ecologically valuable or fragile places, and see them restored and rewilded.

Most people believe the scare-mongering about aging populations and think we'll keep getting older and older until there are no young people left. That's not how it works: at the moment, we're in a transitional phase where we have very high proportions of so-called "working-age" adults, by historical standards. After the transition, that proportion will stabilize at historically normal levels, around 54% if we have a stable population, and maybe just under 50% if the population is shrinking "rapidly" at a little over 1% per year. This isn't a problem, because workforce participation will be higher. We have to adjust to having more retirees and fewer children in the community, but that won't break the budget. The extra we shell out for pensions and health care is offset by less spending on infrastructure, childcare, and education and, in all likelihood, unemployment benefits, rent support, crime, and correctional services. We just need different measures of success than aggregate GDP and stock market earnings.