Four Scenarios for the Future

A basic theoretical framework of the progress of history

Diversions in History / althist.xyz

originally written in 2021, rewritten in 2025

Looking at the complex and chaotic nature of world affairs, it's easy to conclude that the future state of things is likely to deviate wildly from anyone's expectations. In reality, however, the constraints imposed by resources and who controls them narrow the field to a small set of broad possibilities over the long term. As such, looking at the current state of the world and the historical trends that led to it, we can envision four basic potential trajectories for the future of civilization, which can be summarized as…

- achieving sustainability
- collapse from resource depletion
- salvation by advanced technology
- collapse from a large catastrophe

To put it another way, either civilization will find a way to manage its resources better, they will become scarce, it will find alternative resources, or it will become totally self-destructive. It's hard to see a future that does not fit into one of these four possibilities, each one in some way resulting from or categorically affecting the availability of resources, because survival essentially comes down to whether material needs can be met. One thing that can be said for sure is that modern society grows continuously, using ever more energy and resources, most of which are finite, so it's not possible for the current mode of living to continue indefinitely.

People tend to view civilizations in terms of the kinds of governments or societies they have, but the question of resources is more fundamental. Most glaringly, civilization cannot exist without food, building materials, manufactured goods, and so on, but at a higher level, resource conditions, that is, the resources available and how they are distributed, can also determine how the civilization is organized. A very hierarchical society may result from limited resources or resources that are distributed very unevenly, as such implies an elite that monopolizes them. A more egalitarian society, on the other hand, may result from the wider availability of resources because the ease of acquiring them obviates the stratification that results from competition for access. This gives us an idea of what to expect as material conditions evolve.

What follows are four illustrations, one to represent each scenario and show a potential way it could play out. They will largely focus on the United States as an example but represent trends that could also affect the world beyond.

Sustainability

This scenario envisions industrial society making a transition to a more sustainable mode of operating. By the mid 21st century, the country was in big trouble. As petroleum became increasingly scarce and difficult to extract and refine, the price of a gallon of gasoline was a two-digit number practically everywhere, and in some places, it was approaching the $100 mark. Many areas also suffered from food and water shortages as global warming caused crops to fail and reservoirs to dry up. As a result,

hundreds of millions of Americans faced the kind of poverty previously only seen in the most underdeveloped countries, creating much sharper political and class divides. Militias were forming in rural areas, riots and looting were breaking out in the cities, and even the most conservative prognosticators were envisioning total economic collapse and civil war. It was unclear if the presidential election of 2056 would even be held, and indeed, whether the industrial age was finally coming to an end.

Leading up to the election, however, an enlightened and charismatic CEO announced a presidential run under a new third party. As with any outsider candidate, he was dismissed by the mainstream as having no chance of winning, but almost the entire population was sick of the Republicans and Democrats, both parties by then totally discredited after years of deep crisis. The CEO was also able to bring a plurality of the super rich onboard with his campaign thanks to his captivating rhetoric and reputation as a brilliant entrepreneur. More and more, his ideas looked like a better option than walling themselves away in fortified gated communities. After the CEO won the election, the majority of the rich lobbied their flunkies in Congress to support his policies.

A string of previously unthinkable reforms were quickly enacted, amounting to a Second New Deal. The main points included:

- a new tax and incentive structure designed to encourage lower energy consumption
- taxes on single-use products and requirements for more comprehensive recycling
- diversification of the energy supply and the start of a serious transition away from fossil fuels
- tremendous publicly-funded research projects to find long-term solutions, including new energy sources and new synthetic materials
- massive projects to clean up polluted areas and reforest large swaths of the country
- subsidies for cities to expand mass transit, incentives for more compact zoning, and an expansion of the passenger rail system on a scale akin to the development of the Interstates after World War II
- increased transparency and reduced complexity in the healthcare system with the goal of lowering costs
- reforms of the financial sector toward stabilizing and strengthening the currency, reducing debt, and rolling back the financialization of the economy
- incentives for local, domestic industry along with phased tariffs on imports
- breaking up agricultural conglomerates into smaller and more local farming enterprises
- rolling back the overseas presence of the U.S. military to reduce government spending
- a serious curtailment of illegal immigration to stabilize population growth and improve social cohesion

A very different society started to emerge in the U.S. as consumerism, car culture, and suburbanization, all of which depended on the tremendous use of energy, faded away. Meanwhile, all the labor required to enact the Second New Deal put millions of people to work while freeing up gigatons of resources. As a result, the reforms produced benefits that many people could actually see in their daily lives and set the U.S. on the path toward a sustainable society. At the same time, conspiracy theories erupted in reaction to the radical changes taking place, resulting in a number of domestic terrorist attacks, but these were not enough to stop the growing wave. More and more people developed a lifestyle that more closely resembled that of Europe or prewar America: living in smaller dwellings in walkable towns, working near one’s home, and buying from local shops instead of big-box stores.

At the same time, for most people, there was less instant-gratification. Massive portions of processed and fast food, routine long-distance trips, and the constant upgrading and replacing of consumer goods not only came to be seen as excessive luxuries but also as somewhat offensive. Life became less convenient as some tasks required more effort. People had more access to healthcare in general but less access to the most advanced and exotic treatments. Problems like drug use, obesity, and violence lessened as people had to be more physically active and had more opportunities and greater necessity to form closer connections with their neighbors. While life may have been more difficult in some ways, living standards were still generally high, and most people were more satisfied with life than before.

Resource Depletion

This scenario starts out the same as the previous one did, except society never managed to take action to save itself. Prices fluctuated wildly, trending upwards overall, if goods were available at any price. People resorted to barter as hyperinflation wiped out the dollar, while precious metals became more precious than ever. The total folly of the decision to outsource manufacturing became undeniable as global trade broke down, the lack of economical fuel making large-scale transoceanic shipping impossible. At first there was talk that cryptocurrencies or AI would save the economy, but as countless hosts across the Internet went dark in waves, crypto prices imploded, while AI became an intermittent resource at best. Homes became islands rather than units of a community as families tightened their grip on whatever they had left, those that had the means hoarding food and supplies. However, such caches simply became the biggest targets for marauders.

As the situation continued to deteriorate for hundreds of millions of people, the government lost all credibility, becoming increasingly impotent as the public grew more focused on survival than maintaining the veneer of being a law-abiding citizenry. In the end, even the politicians gave up as it became obvious they ruled over nothing, and they instead focused on taking steps to try to secure their own lifestyles. At the same time, employees stopped bothering to show up for work as they realized they were working for free, having week after week received promises rather than paychecks. The result was that the complex web of connections that define modern supply chains unraveled in devastating cascades.

The end point was the total disappearance of centralized, organized, high-tech society, and people were left alone in their communities to fend for themselves. What followed was a massive die-off for lack of food, lack of clean water, lack of medicine, and massive violence as neighbors killed each other for some bit of what remained. As the last fragments of industrial capacity fell away, the knowledge of how to produce many technologies quickly atrophied due to disuse. While it’s possible to imagine pockets of civilization managing to retain more advanced technology, the overall technological trend would point downward.

Gradually, a new social order emerged based on more basic capabilities and across much smaller regions. Without advanced communications and transportation, most of the nations of the world disintegrated into competing territories like the Roman Empire did at the dawn of the Middle Ages. A neo-feudalism developed as the organizing force in society, whereby those who had retained wealth despite the collapse of industrial civilization built themselves fortified enclaves, becoming the new lords, while most of the other survivors worked the surrounding land, becoming the new serfs. James Howard Kunstler describes well in his 2008 novel World Made by Hand the way former republican

ideals would melt before the reality of the new situation: “As the world changed, we reverted to social divisions that we’d thought were obsolete. The egalitarian pretenses of the high-octane decades had dissolved and nobody even debated it anymore, including the women of our town. A plain majority of the townspeople were laborers now, whatever in life they had been before. Nobody in town called them peasants, but in a effect that’s what they’d become. That’s just the way things were” (ch. 21, p. 101).

While there was massive social change in the direction of past eras, the biggest difference from previous feudalism entailed lingering memories of industrial-age scientific discoveries. Even though there were no more tractors or agricultural chemicals, for instance, people retained some knowledge of modern farming techniques. They also knew that germs caused diseases and how to at least slow their spread, such as through cleanliness and quarantines, but lacked the capacity to produce advanced measures to combat them, like vaccines and antibiotics. A working knowledge of the scientific principles behind the weather and other natural phenomena would remain, so religion and other supernatural beliefs did not play anywhere near as great a role as in Medieval times. Moreover, in the new system, the hierarchy was still somewhat colored by the more individualist principles that existed under capitalism, so there was more social mobility, positions were not universally determined by birth, and there were fewer divisions based on gender compared to traditional feudalism.

Further into the future, historians, if there were any, would perhaps look back and say Americans were the biggest fools in human history. Perhaps they would say Americans had the most powerful and advanced civilization ever but threw it all away so they could buy cheap goods made by cheap labor in China. Eventually, perhaps the serfs would sit among the ruins of the highways and skyscrapers telling dubious stories about the lost civilization where people could fly and build thinking machines.

Exotic Technology

This scenario envisions the practical realities that seem to doom the current system being overcome. One way this might happen is by fusion energy turning out to be workable. The International Thermonuclear Experimental Reactor is currently scheduled to begin operating in 2035, so, if successful, perhaps industrial civilization would hold together long enough for the technology to be rolled out commercially. In this world, petroleum came to be used much less for fuel, preserving it for other uses and reducing the effects of global warming. The abundance of energy also made it practical to synthesize various scarce resources and to mine outer space. However, none of this changed the realities of economics, and the various trends we see today continued on, like a growing rich-poor gap, the outsourcing of labor, and the increasing use of AI. Moreover, as technology progressed further, the effects of such issues in fact accelerated.

Four additional advancements that perhaps contributed most to this were hypersonic passenger and cargo planes, low-latency satellite communications, holographic teleconferencing, and advanced telecommuting, which consisted of using virtual reality as the interface for robotic avatars. The result was that it became as easy and practical to operate any kind of business on the other side of the world as in one’s own city. It also meant that even most service jobs could now be outsourced. Imagine, for instance, a robotic waiter or janitor in the U.S. being controlled by a worker in India or China. Perhaps now the whole staff of a restaurant could be hired for as much as a single waiter cost previously. However, even many of those heavily exploited workers overseas went on to lose their meager livelihoods as AI gained the ability to take over more human tasks. Eventually, wages were driven so

low in the U.S. that it wasn't much more expensive to hire domestic labor than to outsource, and the rich wanted to make sure it stayed that way.

The collapse of the economy for workers around the world also left the majority of consumers completely impoverished, but rather than the entire economy collapsing as a result, capitalism adapted as it always has. Businesses reduced production to match demand while raising prices dramatically to make up for the loss in revenue. Since most of the remaining consumers were wealthy anyway, they remained unfazed, especially when they compared their ever-increasing living standards to the devastation all around them. In the U.S., shanty towns rapidly appeared and grew around cities like New York and Chicago, outpacing the ones around Mumbai and Mexico City. Thousands of cities and suburbs across the country turned into ghost towns due to the countless evictions and foreclosures, not to mention all the people who fled the gangs that replaced collapsing local governments. Finally, almost entirely priced out and excluded from essential goods, many people died of malnutrition, starvation, and disease.

As the wealthy grew increasingly worried about the intentions of the millions of impoverished, angry, and desperate people everywhere, any pretense of freedom and democracy quickly disappeared. It was easier to buy laws than ever before, and Congress no longer even pretended to represent the people. The Supreme Court, meanwhile, packed with only the most subservient stooges, conveniently reinterpreted the Bill of Rights to mean the opposite of what it says. As for the executive branch, the President started being summoned to Wall St. every month for an audience with the heads of the Fortune 500 companies, where they made sure he was enforcing their interests. For all of history up to this point, the rich kept everyone else around because people were needed to do all the work. Now that was no longer the case, so all pretensions of morality finally fell away, exposing the naked truth of power. The bulk of humanity was seen simply as using up resources that could have gone to the rich and as an ever-present threat to their designs.

The slums saw hundreds of mass arrests and massacres of would-be protesters, or anyone who looked like a protester, as people's resistance to their destruction became the excuse to destroy them. This eventually developed into forced birth control and sterilizations, and in the end, rumors of direct extermination trickled out, but the few crews lucky enough to find work razing the slums knew better than to ask where all the people went. A few brazen historians looking at what happened to the working class over the preceding decades called it a genocide, and most of them disappeared themselves under the censorship laws that now defended the system. But as with the fate of the Native Americans, the workers were all dead by then, so the point was totally academic anyway.

There would be no hope for meaningful resistance in the new high-tech tyranny. Scientific advancement brought about an apparatus of surveillance and information control that would awe Mark Zuckerberg and exceed George Orwell's worst nightmares. As Marshall Brain surmised in his novella Manna back in 2003, "Eventually, there were video security cameras and microphones covering and recording nearly every square inch of public space in America. There were taps on all phone conversations and Internet messages sniffing for terrorist clues. If anyone thought about starting a protest rally or a riot, or discussed any form of civil disobedience with anyone else, he was branded a terrorist and preemptively put in jail. Combine that with robotic security forces, and riots are impossible." Moreover, the media only reported what favored the rich, taking the propaganda to an even more blatant extreme than seen today, while the handful of tech companies that dominated the Internet could simply tweak their algorithms to make any inconvenient content disappear. Despite the

fears of past conspiracy theorists, there was no reason to bother putting microchips in everyone as they could be tracked just as well without them.

Ultimately, the population of the earth dwindled to some hundreds of millions, nearly all millionaires, billionaires, trillionaires, and whatever slaves still served some purpose. The latter were the fragments of the former middle class that had managed to hang on, mainly scientists and engineers whose expertise had been needed to expand corporate power. The poorer rich people, meanwhile, were gradually being crushed by the richest of the rich, winners in the biggest and bloodiest success story in evolutionary history. As a result, qualities like empathy, love, and compassion were mostly bred out of the human soul, since only the most ruthless had a chance to survive. By that point, the narcissism of the capitalists had ignited a new space race, with the leadership of each aerospace company scrambling to be the first to set up a colony on a new world or to send the first manned mission out of the solar system. Even with a dramatically reduced population, the new god-like lifestyles of the wealthy still took a toll on the earth's resources and environment, so it was decreed that humanity—what was left of it—would inevitably need to spread into space. While it was still unclear if humans would ever make it, as the capitalists were now consuming themselves with the same vigor they had everyone and everything else, before too long, the first interstellar mission was planned. Construction began in orbit on a fleet of massive, fusion-powered starships, the scope of the project creating the first multi-trillionaire, and they floated above Earth poised to spread the virtues of capitalism to the universe and to strip it of its limitless resources.

Total Destruction

Approaching the middle of the century, China was by most measures close to achieving superpower status, while the U.S. was close to losing it. Having spent the preceding 80 years or so gutting its own industry and shipping it off to its biggest rival, the U.S. threw almost 300 years of struggle building the republic in the garbage so 800 people could become billionaires. It also continued to squander its remaining resources by building unsustainable suburban sprawl, highways, and vanity projects, as well as going to war with whatever small country stepped out of line, all while economic inequality became more pronounced than ever. The decline caused increasingly erratic and ineffectual governments to be elected, while mass poverty and unemployment led to riots. As the federal budget deficit reached a quarter of a quadrillion dollars, the dollar itself became a total farce, completing the country's economic collapse.

Smelling death on its adversary and flushed with confidence at its own successes, China started more aggressively taking the initiative. It had fully occupied Hong Kong and the South China Sea years ago, and now it began final preparations for an invasion of Taiwan. Moreover, with the Middle East's economic dependence on China reaching a peak, the latter also demanded that the nations of the region sell their oil to it and no one else. This increased the mayhem in the U.S. to a new extreme as the resulting shortages made the 1970s energy crisis look like a brownout.

An incident near Taiwan between the American and Chinese navies resulted in the sinking of a U.S. aircraft carrier, and both countries immediately went to their highest military alert statuses. Chinese early warning systems detected multiple ICBM launches from the U.S. and didn't realize the alert was the result of a computer error before launching a full retaliatory strike. The U.S. in turn launched its strategic missiles against China, several of which early warning systems in Russia miscalculated as being targeted at its far east regions, thus initiating a nuclear strike against NATO. This cascaded into

an all-out global exchange among all the nuclear powers as alliances tripped and leaders feared being destroyed with all their ordinance still on the ground. India and Pakistan blew each other away as if mutual suicide were an autonomic response, North Korea wiped out its former countrymen in the south, finally unifying the peninsula, and Israel enacted the Samson Option, obliterating what was left of Europe and the Middle East. Worst of all, the targeting of nuclear power plants and other radiological sites resulted in hundreds of simultaneous Chernobyls. Within hours, 400 million people had been incinerated and few large cities were still intact across the northern hemisphere.

In the cities, with almost all medical capacity destroyed, squads of soldiers were sent out to shoot the thousands of hopelessly burned and maimed. Billions more would die in the following years from radiation poisoning, disease, famine, and ongoing violence. The southern hemisphere remained mostly intact but degenerated into a similar kind of chaos due to radiological contamination, the devastation of the biosphere, and the loss of major trading partners. Larger and wealthier countries in the south like Australia, New Zealand, Argentina, Brazil, and South Africa maintained something resembling functioning societies, but these were left as just a fraction of what they used to be and limped along under staunch authoritarian rule. Conditions got even worse, however, as nuclear winter set in, global warming no longer a cause for concern.

Within a generation, most of the world resembled prehistoric times, except events were now playing out in an irradiated hellscape. Local warlords controlling bands of marauders sought to seize remaining resources for themselves. Wearing animal skins, the surviving humans fought with rocks, sharpened sticks, and scavenged scraps of metal. Art, philosophy, science, and anything associated with civilization were basically gone, while oral tradition was mostly limited to which of the most contaminated areas to avoid. Some uncontacted tribes continued on as they had for tens of thousands of years, oblivious to what had taken place outside their hunting grounds, except for the unusual weather patterns.

What's Actually Going to Happen?

The futures where civilization is destroyed either in a nuclear holocaust or by resource depletion seem to be the most likely. The progress of history, in fact, can be seen as a race between the two. Will the resources that underpin industrial civilization and thus allow nuclear arsenals—or whatever other means of self-annihilation—to be maintained run out before someone tries an attack? It wasn't unthinkable to develop nuclear weapons, and it wasn't unthinkable to amass arsenals of thousands of warheads, "booby trap[ping] the planet" as Carl Sagan observed, so why is it unthinkable that eventually someone will take that one final step and launch? People were stupid enough to build this whole infrastructure in the first place, so why wouldn't they be stupid enough to use it? What precedent is there for some venture to consume countless billions of dollars of investment only to sit idle forever?

The reason nuclear destruction is one of the most likely outcomes of human history is that nuclear weapons exist, no country is taking sincere steps to get rid of them, and it wouldn't even take a very big exchange to devastate the world. Every day, the weapons are perpetually sitting and waiting to be launched, so all it takes is the order. At the same time, nuclear deterrence requires constant high readiness so the enemy perceives that a preemptive strike can't succeed, increasing the risk further by reducing the time to react. As Martin Hellman put it, "These weapons are ready for use. There are plans for how to use them, so every day there is a small probability they will be used. In the metaphor of nuclear roulette, every day, we pull the trigger of the many-chambered nuclear gun pointed at the head

of civilization." As long as the odds of nuclear war in a given period are greater than zero, even the smallest chance of atomic destruction becomes an inevitability given enough time. Whatever anyone thinks might mitigate the risk is inadequate because the final consequence of any such risk is total destruction.

As far as resource depletion, it's not even a hypothetical scenario; it's in the process of happening right now as finite resources are being used up and irreplaceable ecosystems are being degraded. Therefore, predicting our destruction by such means is just a matter of extrapolating out the trends we already see, like carbon dioxide levels, deforestation, or economic inequality. Similar to the threat of nuclear war, the only question is whether we will last long enough for them to destroy us. Even if there were, for instance, oil in the ground sufficient to keep civilization operating and expanding indefinitely, the world would fry long before they could be depleted anyway. People could in theory make massive changes to their lifestyles to prevent resource depletion and environmental devastation, but they're not doing it despite the dire threat that's already clear. As a result, larger catastrophes notwithstanding, it looks like nature will decide our fate for us, and we will simply continue to live the way we do now until processes beyond human control make it impossible.

Societies have been destroyed by the depletion of resources in the past, such as on Easter Island, and it's far from clear that the global civilization would be immune. At the same time, it's difficult to make a definite comparison because the current civilization is so unprecedented. Humans never before had anything close to the level of technology they achieved since the Industrial Revolution, and it may be that this changed the rules of the game in a fundamental way. However, it can't change the fact that civilization needs energy and other resources. We also cannot yet know whether it's even possible to have an industrial civilization without fossil fuels because the only example is almost totally dependent on them.

Probably the least likely of the scenarios presented is that civilization will be saved unexpectedly before the final collapse. Even if some technology to solve all our problems did emerge, however, it would be used for more destruction rather than good if the past is anything to go by. Likewise, hoping for some individual to come along and save us probably suffers from the same wishful thinking. Again, if history is any guide, we're far more likely to get a bloodthirsty dictator than a wise savior. While it's possible some black-swan event could completely disrupt the timeline, such as a comet hitting the earth, making contact with an alien civilization, or developing a superintelligent AI, clinging to that is about as likely to save the world as praying for a miracle.

As far as the time frame for getting the answer to how history will play out, the best I can say is that if it happened within five years, I wouldn't be shocked, and if it hasn't happened by the end of the century, I would be. The most important lesson historical trends seem to teach is that we can only rely on helping ourselves because our institutions are not likely to be there for us, serving instead the few who control most of the resources. In order to survive and maintain some semblance of human life as we know it, we need to make preparations for ourselves and our local communities. Otherwise, the only hope is for enough people to somehow wake up in time to change the course of civilization as a whole.