

WHAT CAN GIVE US HOPE?

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Industrial civilization is in a hopeless position, an impasse from which there is no visible avenue of escape. It cannot continue moving forward for very much longer, because it is encountering multiple physical, biological, economic, and systemic limits to growth that are already having adverse spillover effects on polity and society, as well as on human health. Nor can industrial civilization stand still, because its political, economic, and social viability requires continuous growth. Above all, economic growth is indispensable psychologically, because “progress” defined as ever-increasing knowledge, wealth, and power has been the secular religion of modern civilization for over three centuries. Hence an end to growth would crush morale. (The impact would be especially severe in the United States, for it is the shared dream of unlimited freedom and universal prosperity embodied in the so-called American Dream—not America’s vaunted, but increasingly dysfunctional, constitutional arrangements—that unites a nation divided by geography, ideology, interest, class, education, religion, race, and ethnicity.) Nor can we easily descend to a previous level of production and consumption, because we have almost obliterated the older skills and less complex technologies that would allow us to beat an

orderly retreat to a simpler mode of existence. Ronald Wright's image neatly captures our plight: "As we climbed the ladder of progress, we kicked out the rungs below."¹

Of course, not everyone sees the situation as hopeless. Some evince a touching faith in technology, blithely claiming without further elaboration that it will solve all of humanity's problems.² After all, it always has up to now, so why worry? Others make a more serious case for a technological solution. For some, renewable energy will seamlessly replace fossil fuels, solving the problem of depletion and pollution and allowing business as usual to continue for the foreseeable future. Others claim that exponential growth in artificial intelligence combined with robotics, nanotechnology, and other developments will lead to a state of technical and managerial perfection, to what has been called the Singularity. Both of these are false hopes.

Taking up the latter first, the Singularity appears not only to violate basic laws of physics and ecology—to wit, the Laws of Thermodynamics and the Law of the Minimum—but it also seems to be more dystopia than

¹ *A Short History of Progress*, 34

² See, for example, "An Ecomodernist Manifesto." available at www.ecomodernism.org. The authors acknowledge particular ecological problems but ignore the general problem of overshoot and ecological footprint. They also rely on fusion and other unproven technologies to make their case.

utopia. For it would be a state in which humanity might continue to exist in some form but would be effectively eclipsed by the Machine.³

Renewable energy as a replacement for fossil fuels seems plausible at first glance, but it also turns out to be a false hope *if it involves the belief that renewable energy will allow industrial civilization to continue more or less as it exists today*. Some renewable sources (e.g., hydroelectric and geothermal) slot relatively easily into the current centralized energy system in that they can produce power continuously. But most do not: solar, wind, waves, and tides are diffuse and intermittent. If they are going to be our chief sources of electricity, then the infrastructure of our energy system will have to change accordingly—that is, be revolutionized at great expense by building local grids and storage systems adapted to power sources that are dispersed and discontinuous.⁴ A primary reliance on renewable energy will also require a revolution in transportation, for without energy-dense liquid fuels derived from petroleum, economies will necessarily become far more local. The ships, trucks, and planes that bring bottled water from the antipodes and allow us to vacation in the Antipodes will not run on

³ See my previous essay, “Is This the End of the Human Race?”

⁴ The difficulties, dangers, expense, and security issues associated with nuclear power are a topic for another time. Suffice it to say that it has not lived up to the promise of “electricity too cheap to meter,” and even its proponents concede that it needs to be made safer and cheaper. Nor is nuclear power a source of *renewable* energy. Fusion power may eventually be demonstrated in laboratories, but it seems very unlikely to scale up in a way that is cost effective, either energetically or financially.

electricity.⁵ In theory, biofuel could partially substitute for fossil fuel, but only at the expense of the crops that supply us with food and fiber, crops that are now almost completely dependent on the energy subsidy supplied by petroleum. Without this subsidy, which electricity cannot realistically replace, we will be hard pressed to feed anything like the current population, much less produce any substantial quantity of biofuel.

Hydrogen is a possible liquid fuel, but it first has to be manufactured and then liquified, stored, transported, and delivered, all of which demand sophisticated technology and a complex infrastructure. Whether it proves to be both practicable and profitable (in energetic terms) remains to be seen. Finally, to build out an energy system based on renewable sources will require massive amounts of up-front capital and, more important, much of the remaining, rapidly depleting stocks of fossil fuel—and the more extensive the build out, the more subject to diminishing returns. Hence, when all is said and done, this colossal investment in diffuse renewable energy, so different from concentrated fossil fuels, would fall

⁵ I am not arguing that there are no technological solutions whatsoever. For example, short-distance air travel with electric power is certainly feasible. Whether it proves to be efficient and economical remains undetermined, and for short or even medium distances trains would seem to be just as convenient and more cost effective. Moreover, to the extent that we do substitute electricity for liquid fuel the demand on the grid will be that much greater.

well short of what is required to support the complex industrial civilization of today.⁶

So humanity would be going all in on a bet that we can preserve industrial civilization in its current form, when the essential nature of renewable energy mandates a more simple, decentralized way of life—viz., a smaller population spread more widely across the land relying mostly on the daily flow of solar energy and consuming goods and services produced locally. In short, an agrarian civilization, however well endowed with sophisticated technologies unavailable to previous civilizations that relied on direct solar energy. True, such a life would not be luxurious. We would have to adapt ourselves once again to the daily and seasonal rhythms of nature instead of commanding her with energy slaves—for example, by substituting sophisticated sailing ships for motor vessels. But it need not be penurious *provided we aim for it now*.⁷

⁶ For more detail on why renewable energy cannot support our current industrial order, see Kris De Decker, “How (Not) to Run a Modern Society on Wind and Solar Power Alone,” September 14, 2017 retrieved at <http://www.resilience.org/stories/2017-09-14/how-not-to-run-a-modern-society-on-solar-and-wind-power-alone/> And for an in-depth explanation of why renewable energy requires a total system change, see Richard Heinberg and David Fridley, *Our Renewable Future*, Island Press, 2016.

⁷ For a description of how such a renewable society might operate, see Kris De Decker, “How to Run the Economy on the Weather,” September 25, 2017, retrieved at <http://www.resilience.org/stories/2017-09-25/how-to-run-the-economy-on-the-weather/> See also my *Ecology and the Politics of Scarcity*, Freeman, 1977, Box 3.4 “The Multiplex Energy Economy of the Future,” 104-105.

We face a stark choice. We can expend our waning stocks of fossil fuels, our scarce capital, and our limited political will in a vain attempt to maintain industrial civilization as it exists, or we can use those same resources to effect a necessary transition to a radically different type of civilization. But we cannot do both, and we must choose reasonably soon. For if we follow the line of least political and societal resistance and wager everything on an attempt to preserve our energy-intensive, mass-consumptive way of life, we will go bankrupt energetically. Without the resources to make the transition, deep collapse will become inescapable.

Alas, we seem almost compelled to make the wager. It is abundantly clear that scientific evidence and rational arguments, no matter how weighty or well formulated, are not enough to overcome sheer inertia, vested interests, ideological blinders, the shortcomings of the human mind, or the extent to which we are all increasingly entangled in the trappings of modern life.⁸ Thus industrial civilization seems destined to continue on its current trajectory until one or more of the limits bites so deeply as to precipitate collapse.

As industrial civilization begins to implode, we will witness an upsurge of prophecy of all kinds—fantastic, salvational, millenarian,

⁸ Even the Amish have taken to smartphones! “In Amish Country, the Future Is Calling,” New York Times, Sept. 15, 2017

apocalyptic, and reactionary. The aforementioned Singularity, a prophecy of salvation through technology, is one early example. But as a preview of coming attractions in a similar vein, consider one Silicon Valley engineer's proposal for a new religion: "To develop and promote the realization of a Godhead based on artificial intelligence and through understanding and worship of the Godhead contribute to the betterment of society."⁹

However, reaction will probably be more common than salvation. We can expect the emergence of revitalization movements exalting old-time customs, values, and verities and seeking a return to some prior state of purity or perfection.¹⁰ Such movements can take various forms—messianic cults, tribal or racial extremism, religious fundamentalism, political rebellion, and so forth. At best, revitalization manifests a stubborn refusal to make a reasonable accommodation to a changed reality; at worst, it can become a violent attempt to change that reality. Although revitalization is fated to grow worse as conditions deteriorate, it is already a significant political force. A veteran observer of world affairs spells out the contents of the "violent reactionary current" of today:

⁹ "Deus ex machina: former Google engineer is developing an AI god," *The Guardian*, September 28, 2017.

¹⁰ A classic example is the Ghost Dance promulgated by the Paiute prophet Wovoka. See my previous essay, "The Perfect Storm."

It is a rightist, nativist, nationalist ... reaction against globalization, against migration, against miscegenation, against the disappearance of borders and the blurring of genders, against the half-tones of political correctness, against Babel, against the stranger and the other, against the smug self-interested consensus of the urban, global elite.¹¹

Virtually all of these movements will fail more or less spectacularly. But the prophetic madness attending the death throes of industrial civilization will also contain a small but significant ray of hope: out of the welter of false prophets there may arise one whose message will effect the metanoia that is the only real way out of the impasse. For only by transcending our obsession with material power and progress and recovering a deep empathic connection to the planet and the life it bears can we hope to reconstruct civilization to be sane, humane, and ecological.

¹¹ Roger Cohen, "Return of the German Volk," New York Times, September 29, 2017