

# Eco-Pessimism versus Techno-Optimism

06/08/2019 - *Areo Magazine*

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In her 2018 book, [Abundant Earth](#), and her *Science* essay, "[Reimagining the Human](#)," Virginia Tech academic [Eileen Crist](#) describes species extinction and climate change as inevitable consequences of human population growth and "infrastructural incursions into the natural world." These, in turn, are driven by sociocultural belief systems, such as the Western one. She posits that, "the West has arguably developed the most robust and historically sustained expression of human supremacy ... the West has today become the dominant socioeconomic civilization, infecting the entire globe with its particular strand of anthropocentrism." In this context, "human supremacy" can be defined as the

pervasive belief that the human life-form is superior to all others and entitled to use them and their habitats. The core idea of the human-supremacist worldview is superiority, while entitlement describes how that idea is operationalized. This worldview debilitates human beings from being appalled at humanity's bloated presence and impact.

Unfortunately, most people remain "blind to the wisdom of limitations" and indifferent to the necessity of "scaling down and pulling back." Crist offers a simple solution, implied in her *Science* piece and outlined more explicitly [elsewhere](#). She wishes to "pursue actions that will downscale the human factor and contract our presence in the realm of nature." While acknowledging the benefits of "technofixes, technological schemes, and fine-tuning efficiencies," she views reducing "humanity's scale and scope in the ecosphere" as the "surest approach" to addressing the present crises. In other words, Crist advocates strict population control. As novel and radical as this may seem, her take on [economic growth, resource availability](#) and [population control](#) is but a restatement of an older and less pleasant narrative.

## The Eco-Pessimist Narrative

Hints of Crist's worldview—often called *catastrophist*, *eco-pessimist* or *Malthusian*—can be found in many ancient Greek, Roman, Mesopotamian, Indian, and Chinese [texts](#). [Niccolo Machiavelli](#) suggests that "when every province of the world so teems with inhabitants that they can neither subsist where they are nor remove elsewhere, every region being equally crowded and over-peopled" and when "human craft and wickedness have reached their highest pitch" the world will purge itself through floods, plagues and famines so that men, "becoming few and contrite, may amend their lives and live with more convenience."

The first true population catastrophist was arguably the Italian [Giovanni Botero](#) who, anticipating the religious officials [Giammaria Ortes](#) and the better-known [Thomas Robert Malthus](#) by two centuries, stated that human numbers would increase to the maximum extent permitted by human fertility. Botero posited that the means of subsistence

wouldn't keep up with population growth, with the unavoidable results of starvation, war, disease and a population collapse. Malthus, of course, is best remembered for writing, in the [first edition](#) of his *Essay on the Principle of Population*, that, in a world where food production grows arithmetically and population geometrically, hunger and demographic crashes are unavoidable.

From Malthus onward, the more sophisticated [eco-pessimist narratives](#) have revolved around a few key arguments: 1) in a finite world, continued demographic and economic expansion is impossible; 2) everything else being equal, a reduced population will enjoy a higher standard of living; 3) in a world where resources are finite, economic growth will become increasingly expensive and environmentally damaging over time; 4) the risks inherent to new technologies make it preferable to restrict population growth and to live within limits than to rely on human ingenuity.

Let us take a tour of eco-pessimist thought in the first decades of the twentieth century.

In his 1923 bestseller, *Mankind at the Crossroads*, prominent Harvard plant geneticist [Edward Murray East](#) speculates on the state of the world at the end of the century, if development and population growth continue. The result is “not a pretty picture”:

Food exportation had ceased some thirty years before, except for the exchange of specialties; all temperate regions had then reached the era of decreasing returns in agriculture. The tropics are being populated as fast as their submission to the hand of man makes it possible. Gradual reduction in population increase has occurred, due to the intensity of the struggle; yet there are 3,000 million people in the world. Migration has ceased; the bars have been put up in every country. Those nations where there is still a fair degree of comfort wish to retain it as long as possible. Food is scarce and costly. Man works from sun to sun. When crops are good there is unrest but no rest, there is privation and hardship; when crops are bad there is mass starvation such as China and Russia had experienced long before. Agricultural efficiency has risen 50 per cent during the past half-century through the pressure of stern necessity, yet the food resources of each individual are smaller than ever before. Where war occurs, it is war of extermination, for only by extermination can the conquerors profit; where peace remains it is under the shadow of a struggle as grim as war.

In his 1948 bestseller, *Our Plundered Planet*, conservationist [Henry Fairfield Osborn Jr](#) insists that “technologists may outdo themselves in the creation of artificial substitutes for natural subsistence, and new areas, such as those in tropical or subtropical regions, may be adapted to human use, but even such recourses or developments cannot be expected to offset the present terrific attack upon the natural life-giving elements of the earth.” In Osborn's words, the “grand and ultimate illusion would be that man could provide a substitute for the elemental workings of nature” for in the long run “life cannot be supported ... by artificial processes.”

Osborn describes environmental collapse as “eventually [more] deadly” than World War II. Failure to change, including the failure to implement population control policies,

would not only “point to widespread misery such as human beings have not yet experienced,” it would threaten “even man’s very survival.” (According to [Crist](#), it would perhaps finally allow one to experience what “human supremacy” masks: the “revulsion at the condition of the human debased to thug or callous user.”)

Osborn’s friend [William Vogt](#) published the 1948 *Road to Survival*, the biggest environmental bestseller of all time until [Rachel Carson](#)’s *Silent Spring* in 1962. Vogt deemed agricultural mechanization “of dubious value to the land, as it is more purely extractive than older methods.” After all, one does “not find a manure pile outside the tractor shed” and machinery is too dependent on “rapidly dwindling” petroleum reserves. Humans “must accept change,” including limits to population growth, and “adjust our lives to it, if we are to survive,” for a failure to do so would “almost certainly smash our civilization.”

Vogt thus predicts imminent famines in countries such as Great Britain, Japan and Germany and even argues that the “flank attack on the tsetse fly with DDT or some other insecticide” carried out by “ecologically ignorant sanitarians, entomologists, and medical men” was going to make things worse because there was no “kindness in keeping people from dying of malaria so that they could die more slowly of starvation.”

Novelist and philosopher Aldous Huxley lays out the same logic in his 1958 essay, [Brave New World Revisited](#):

we go to a tropical island and with the aid of DDT we stamp out malaria and, in two or three years, save hundreds of thousands of lives. This is obviously good. But the hundreds of thousands of human beings thus saved, and the millions whom they beget and bring to birth, cannot be adequately clothed, housed, educated or even fed out of the island’s available resources. Quick death by malaria has been abolished; but life made miserable by undernourishment and over-crowding is now the rule, and slow death by outright starvation threatens ever greater numbers.

Similar arguments continued to be made for decades afterwards. Biologist [Garrett Hardin](#)’s classic 1968 essay, “[The Tragedy of the Commons](#),” expands upon his long-standing interest in the preservation of finite natural resources through human population control. In another famous 1974 [essay](#), in which the rich nations are limited capacity lifeboats and the poor nations swimmers, who will drown if not rescued, Hardin makes a case against helping the poor, in the name of preventing even worse outcomes.

In his bestselling 1968 *Population Bomb*, biologist [Paul R. Ehrlich](#) traces all of humanity’s woes to overpopulation. In his later collaborations with physicist and future Obama administration science czar [John P. Holdren](#), Ehrlich repeatedly argued for [population control](#) as a preferable alternative to technological change. Beliefs in innovative solutions, [Ehrlich and Holdren write](#), “misjudge the present severity of the situation, the disparate time scales on which technological progress and population growth operate, and the vast complexity of the problems beyond mere food production posed by population pressures.” Even under the most optimistic assumptions,

“technology is likely to remain inadequate until such time as the population growth rate is drastically reduced” because “no effort to expand the carrying capacity of the earth can keep pace with unbridled population growth.”

Crist’s essay and book thus join a long line of elaborations on the eco-pessimist, Malthusian view. How have the techno-optimists responded?

### **The Insights and Predictions of the Techno-Optimists**

Over the last two centuries, techno-optimism has [spanned the political spectrum](#), from the orthodox Marxist left to the most *laissez faire* economists. Whatever their school of thought, however, optimists share a fundamental belief that—far from being constrained by environmental limits—valuable resources could become less scarce over time, provided that innovative solutions keep being developed and knowledge, machinery, and infrastructure continue to accumulate. Far from seeing people as thugs or callous users, the techno-optimists are focused on human and environmental flourishing. They believe that, with time, ever more numerous, wealthier and more knowledgeable people will keep finding better ways of dealing with environmental issues, such as pollution, and improving nonhuman and human well-being. As the economist [Julian Simon](#) put it in [1995](#):

More people and increased income cause problems in the short run—shortages and pollutions. Short-run scarcity raises prices and pollution causes outcries. Those problems present opportunity and prompt the search for solutions. In a free society solutions are eventually found, though many people seek and fail to find solutions at cost to themselves. In the long run the new developments leave us better off than if the problems had not arisen. This theory fits the facts of history.

In his 1879 [Progress and Poverty](#)—the bestselling economic text of his time—American economist [Henry George](#) argues that “everywhere the vice and misery attributed to over-population can be traced to the warfare, tyranny, and oppression which prevent knowledge from being utilized and deny the security essential to production.” In any given state of civilization, he argues, “a greater number of people can collectively be better provided for than a smaller,” adding that the “injustice of society, not the niggardliness of nature, is the cause of the want and misery which the [Malthusian] theory attributes to over-population.”

George further asserts that “the new mouths which an increasing population calls into existence require no more food than the old ones, while the hands they bring with them can in the natural order of things produce more.” Other things being equal, he adds, “the greater the population, the greater the comfort which an equitable distribution of wealth would give to each individual.” Given the right circumstances, “the natural increase of population would constantly tend to make every individual richer instead of poorer.”

Another [short overview](#) of the anti-Malthusian stance was published anonymously in 1889 in the prestigious [Westminster Review](#):

The Malthusian theory does not accord with facts. As population grows, instead of production being less per head, statistics clearly prove it to be greater. The intelligence which is fostered in large communities; the advantages of the division of labour; the improved transit, which increases in efficiency with an enterprising people in proportion as numbers become large, and is impracticable until population has developed—are more than a match in the competition of production for any advantage a thinly scattered community may in some respects gain on a virgin soil. Malthus and his followers, while bringing prominently forward the needs of an increasing population, keep out of view the increasing means of supply which the additional labour of greater numbers will produce.

The same year, American entrepreneur, inventor and economic writer [Edward Atkinson](#) observed that the “mind of man when applied to the direction of natural forces is the principal agent in material production, in fact, the controlling element. Those who claim that labor is the source of all production are utterly misled because they do not admit this fundamental principle.” The basic Malthusian hypothesis was thus “utterly without warrant either in fact or in experience” because “Malthus appears to have had no imaginative faculty, a very essential quality in dealing with economic questions.” Atkinson further discusses the case of land that “itself may be exhausted when treated as a mine,” but “may be maintained when worked as a laboratory.”

Optimists use two basic arguments to make their case. The first is that the more human brainpower is available, the greater the likelihood of beneficial new inventions. As British political economist [William Petty](#) observed [over a century](#) before Malthus’ *Essay*, it was “more likely that one ingenious curious man may rather be found out amongst 4,000,000 than 400 persons.” The second is the cumulative nature of technological development: the fact that present and future advances build on past ones and that, therefore, the more has already been invented, the easier it becomes to invent even more. As a young [Friedrich Engels](#) expressed it in [1844](#):

science increases at least as much as population. The latter increases in proportion to the size of the previous generation, science advances in proportion to the knowledge bequeathed to it by the previous generation, and thus under the most ordinary conditions also in a geometrical progression.

Building on such arguments, techno-optimistic writers also ventured future predictions. For instance, American diplomat [Alexander Everett](#) suggested in [1823](#) that “because labour productivity depends almost entirely on skill and science, the introduction of new skills would in time deliver an abundance of products in ways that are “unbounded and incalculable.” Over six decades later, [Edward Atkinson](#) proposed that “as the mental faculties of man are more developed and are more intelligently applied to the conversion of the forces of nature into material products, the general struggle for life will become less and not greater.” One result of these advances would be the elimination of the most important wants and problems, at least in peaceful times. The author of the anonymous 1889 *Westminster Review* article [argues](#) that, while famines were “objects of terror in the early stages of social growth when numbers are numerically weak,” in his own late nineteenth-century Europe “with a population in round numbers eleven times greater”

than that of the fourteenth century, a famine is “so exceedingly improbable that such a calamity is no longer feared.”

Noting that optimistic “predictions are so certain because the very same predictions, made at all earlier times in history have turned out so” and that “sound theory explains these benign trends,” Julian Simon [forecasted](#) in 1994 that “people in the future will live longer lives than they do now, with higher incomes and better standards of living, and the costs of natural resources will be lower than at present.” His broad outlook is arguably best summed up in his “[long-run forecast in brief](#)” of the following year:

The material conditions of life will continue to get better for most people, in most countries, most of the time, indefinitely. Within a century or two, all nations and most of humanity will be at or above today’s Western living standards. I also speculate, however, that many people will continue to think and say that the conditions of life are getting worse.

## **Conclusion**

Interestingly, one positive outcome not forecast by the techno-optimists is the increasing [greening](#)—through reforestation and afforestation—and [re-wilding](#) of all advanced and many developed economies, a process ultimately [made possible](#) by the [replacement](#) of resources extracted from the surface of the planet by resources extracted from below it and by the recently increased carbon dioxide concentrations in the atmosphere.

As science journalist [Matt Ridley](#) puts it: “Amid all the talk of an imminent planetary catastrophe caused by emissions of carbon dioxide, another fact is often ignored: global greening is happening faster than climate change. The amount of vegetation growing on the earth has been increasing every year for at least 30 years.” Another optimistic science journalist, Ronald Bailey, [observes](#): “Humanity isn’t destroying the natural world. We’re changing it. And in many ways, our changes are creating richer and more vibrant ecosystems.”

Regardless of the predictive power, or alignment with evidence, of the arguments made by techno-optimists and of the repeated failure of pessimistic narratives over the last two centuries, people like Crist confidently claim that belief in “human supremacy” can only be the product of minds infected by virulent social conditioning. To them, the idea of a growing, healthier and wealthier population coexisting with resource abundance and environmental remediation is an oxymoron. Far from “[Reimagining the Human](#),” however, Crist offers us the tired eco-pessimist “scaling down and pulling back” as the “most farsighted path forward.”

*This essay builds in part on the authors’ book, [Population Bombed! Exploding the Link Between Overpopulation and Climate Change](#).*

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