STANFORD BRIEFS

LIMITS

Why Malthus Was Wrong and Why Environmentalists Should Care

GIORGOS KALLIS

LIMITS

Why Malthus Was Wrong and Why Environmentalists Should Care

GIORGOS KALLIS

stanford briefs
An Imprint of Stanford University Press
Stanford, California

2019

CONTENTS

Introduction: Why Limits?

1. Why Malthus Was Wrong

2. Economics: Scarcity without Limits

3. The Limits of Environmentalism

4. A Culture of Limits

5. The Limits of Limits

Epilogue: In Defense of Limits

Acknowledgments

Notes

INTRODUCTION: WHY LIMITS?

"Know no limits." "All limits are self-imposed." "You are your only limit." "With hard work there are no limits." "The only limits that exist are the ones in your own mind." "Don't tell me the sky is the limit when there are footprints on the moon."

These are a few of the maxims one finds in an internet search on the word "limits." Western culture is infatuated with the dream of overcoming limits. At the same time, we are overwhelmed by the ultimate limit, that of our own death, writ large as the death of Western civilization. California's "punishing drought," the *New York Times* tells us, has forced the state to reconsider whether its engine of growth "has run against the limits of nature."[1] "Civilization is at stake if we don't act now" and limit global warming to 1.5 degrees Celsius, warns the United Nations.[2]

How and why have we come to think about limits the way we do? What role has the idea of limits played in the development of modern thought, from economics to environmentalism? Do societies need limits? And if they do, what kinds of limits? These are some of the questions entertained in this book.

In the following pages, I aim to reclaim, refine, and defend the notion of limits. I want to dissociate limits from what in scholarly jargon we call Malthusianism—a set of ideas dating back to 1798 and an essay written by the cleric-turned-economist Thomas Robert Malthus that have come to shape the ways we think about limits. With this book, I hope to make those who invoke limits consider how best to do so; I also hope to make the critics of limits think twice before branding those of us who call for limits as Malthusians.

I would like to begin with an image from the movie *The Legend of 1900* by Giuseppe Tornatore.[3] The movie's protagonist, 1900, was named for the year he was born; the newborn baby had been found on New Year's Day in a box by an engine room mechanic on an ocean liner. Played by Tim Roth, 1900 never leaves the boat, where he develops a gift for piano playing. Famous jazz pianists come to the ship to duel, and he beats them all. When a music producer asks him to record an album, 1900, who has fallen in love with a passenger, decides to leave the ship. In a memorable scene, he is halfway down the ladder and the crew is out saluting goodbye. He stares at the city in front of him and balks. Turning around, he looks back to the top of the ladder and decides to remain forever aboard.

Many years later, 1900 hides in the ship's hold and his friend Max begs him to leave, as the ship will be scuttled and sunk. 1900 responds: "All that city. . . . You just couldn't see an end to it. . . . It wasn't what I saw that stopped me, Max. It was what I didn't see. . . . In all that sprawling city, there was everything except an end." Drawing an analogy to his beloved instrument, 1900 adds:

> The keys begin, the keys end. You know there are 88 of them. . . . They are not infinite, you are infinite. On those 88 keys the music that you can make is infinite. . . . But you get me up on that gangway and roll out a keyboard with millions of keys, and . . . there's no end to them, that keyboard is infinite. But if that keyboard is

infinite there's no music you can play.

Times are hard for those who want to live within limits. Airplanes have replaced ocean liners, and 1900 sinks together with the boat. The limit of death is the stuff of Greek tragedy, not Hollywood blockbusters—1900 sank in the box office as well. But to face global warming, we desperately need a culture of limits.[4] This book is an effort to go in such a direction.

WHY LIMITS?

I am an environmentalist and limits are *the* central idea of environmentalism. "Limits are back":[5] planetary boundaries, secular stagnation, postgrowth, degrowth.[6] For one historian of the green movement, Andrew Dobson, "it seems like Groundhog day."[7] As in the 1970s, he claims, Malthusian environmentalists prophesy that we are doomed; and eternal optimists, like Ronald Reagan, back in the day, respond that "there are no limits to growth because there are no limits of human intelligence, imagination, and wonder."[8]

Born in 1972, the same year that the *Limits to Growth* report was published, I find that the debate between supposed optimists and pessimists has been exhausted. These opposing views are but two sides of the same coin. Without limits, capitalism's quest for endless growth does not make sense. Malthus and other early priests of capitalism constructed a picture whereby unlimited human wants clash with a limited world. Scarcity and growth became an inseparable pair, with limits spurring efforts for growth. My thesis is that it is only when we begin to accept the world as abundant that we can contemplate limiting our wants and delimiting a safe space for our freedom. This notion may appear counterintuitive, but that's because we tend to think of limits in the Malthusian terms of scarcity. This book develops a different view of limits, one of limits as *self-limitation*, a view that I will trace from radical Greens back to the Romantics and even further back to the ancients.

Beginning with a rereading of Malthus's 1798 *Essay on the Principle of Population*, I argue that Malthus discovered not natural limits but unlimited wants. Far from a prophet of doom, Malthus invoked doom so as to galvanize the pursuit of growth. We will see how Malthus is still with us thanks to modern economics, which was founded on this myth of eternal scarcity and a call for perpetual growth. I will explain how some environmentalists got trapped in this Malthusian vision of a limited and scarce world and why this is problematic. And I will make a case for self-limitation—the establishment of self-imposed and deliberately chosen limits—as distinct from the Malthusian limits we attribute to our internal or external world, which we must either overcome or succumb to. I will then turn to classical Greece as a civilization with a culture of self-limitation. There, and in the next chapter, where I deal with the limits of my own defense of limits, I will follow the novelist's advice to write less about what I know and more about what interests me and what I want to know more about.[9] I will close the book, though, more assertively, unapologetically defending the desire for limits.

In my first job, at the European Parliament, I worked on the revision of the EU laws that placed limits on water pollution. I witnessed firsthand the chemical lobby's assault on environmental regulation fueled by an economic discourse that denied the need for limits. Returning to graduate school, I studied ecological economics and learned about limits to growth.[10] Working at the University of California, Berkeley, with economist Dick Norgaard, I came to appreciate how difficult it is to define ecological limits, as limits are always a function of our intentions. As Dick wrote, limits are not about something out there but about limiting our negative impacts on each other and the environments with which we interact.[11] This insight I develop here. From Berkeley's geographers and political ecologists, too, I learned about the violence perpetuated in the name of limits and the power relations hidden behind seemingly innocent claims about nature and its limits.[12]

In hindsight, ever since then my work has been an effort to synthesize ecological economics and political ecology to develop a more nuanced approach to limits. I found what I was looking for in the work of a fellow Greek, Cornelius Castoriadis—bedside reading of my mother's that I rediscovered as an adult. Castoriadis distinguishes between heteronomy—limits that we attribute to God or nature and that restrict our freedom—and autonomy, limits that we consciously set for ourselves. That distinction is the kernel of this book.

The debate about limits has political implications. The green idea that there should be limits to growth seems to choke on the progressive ideal of universal betterment. While many lean toward denial of or indifference to global warming, others place their bets on limitless technology and growth, the forces that have brought us where we are today. In a culture intolerant of limits, limiting fossil fuels and the comforts they sustain seems impossible. My intention here is to open up an intellectual and political space for rethinking limits.

There is another, more personal element to my passion for the question of limits. I grew up in Athens after the fall of a dictatorship and the collapse of harsh prohibitions. My parents made a point of not imposing strict rules at home. My first experience of school was an antiauthoritarian kindergarten self-organized by mothers and fathers. Growing up, I was never told what time to come home, but I did come back in time. I wasn't told not to drink, and I drank, but rarely too much. My moderation became a matter of family and personal pride. The reader might find me guilty here of the intellectual's inclination to universalize a personal truth and turn it into a social principle. But things are not so simple. My moderation, like 1900's ship, is my home and my prison. There are social limits I have bowed to unaware, and limits I have unwillingly put upon my shoulders as I internalized the expectations of my parents and my own idea of who I was supposed to be. As a responsible man in the middle of my life, I find some of my self-limitations stifling. I want to consciously choose which limits to keep because they liberate me, decide which limits are part of our life in common and that I must accept, and determine which limits I or others have imposed on myself unjustly and from which I want to be free. My exploration of the notion of limits is part and parcel of my quest to understand my

own limits.

I dedicate this book to my father for teaching me, discreetly, how to enjoy life with and without limits. To the memory of my mother, Maria: her sudden death drove home the pain of the ultimate limit. To my wife, Amalia, and my sister, Iris, for their love without limits. And as my references to limits reach their natural limit, to my mentors, friends, and colleagues: without them I would never have come up with the thoughts shared in this book.

1

WHY MALTHUS WAS WRONG

I imagine it like this.

Bob stood up and walked out of the office. "Young man," his father sighed, "our conversation is not over."

"I am not young anymore," Bob thought, as he sat later at his desk bending into his books and notes. Thirty-two years old, unmarried, living on the salary of a clergyman, Thomas Robert Malthus felt humiliated—living under his father's roof, having to listen to the same wild ideas he grew up with. It was fine that Father liked Rousseau. Now, however, with the revolution knocking on their door in Ireland, how could he defend this joke, Godwin, who would turn England into France? France which nine years after the revolution had "lapsed some thousand years—debased by such a fermentation of disgusting passions, of fear, cruelty, malice, revenge, ambition, madness and folly, as would have disgraced the most savage nation in the most barbarous age."[1] Come to my parish, Father, to see "the greater number of starving miserable human beings than on any equal portion of ground through the habitable globe."[2] Poor souls with their countless children! They don't need charity, revolution, or Godwin's utopias. They need to work.

Bob took up his pen and began to write. "The following Essay owes its origin to a conversation with a friend."

REREADING MALTHUS

Published in 1798, *An Essay on the Principle of Population, as It Affects the Future Improvement of Society with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers* was an instant success. It brought wealth, fame, and a house of his own to its author, Thomas Robert Malthus. And it settled "the parameters of modern social discussion, bringing onto one frame of reference . . . population, economics, resources and politics."[3]

Malthus wrote the *Essay* as a rebuttal of revolutionary aspirations, but today he is mostly remembered as a prophet of doom, someone who in the words of the editors of *The Economist* predicted "a tragic twin trajectory" whereby the growth of human populations is bound to exceed the limited growth of food supply, resulting in suffering, hunger, and death.[4] Malthus supposedly prophesied overpopulation—that is, that our population will grow to a number that cannot be sustained by the land—and resource limits and shortages, of food especially. Malthus, the story goes, was a pessimist who predicted limits to growth at the precise moment when technology began to enable growth without limits. The adjective "Malthusian" is reserved today for those who believe natural resources are limited and thus put a limit on growth and

on our numbers.

But not everyone agrees with this reading of Malthus and his *Essay*. Frank Elwell is an anthropologist who has studied Malthus in depth. He notes that "while there are self-styled neo-Malthusians and anti-Malthusians in the popular literature of the day, the debate tends to focus on the modern ecological situation rather than Malthus's theory"[5] (indeed, *The Economist*'s editorial was about global warming). Read the original *Essay* on its own terms, Elwell urges, and forget the Malthus of the Malthusians and their critics. You will then find not "a dour writer, unremitting in his pessimism . . . [but actually someone] quite lively, and generally upbeat regarding the future of human societies . . . [with a] healthy respect for the powers of technology."[6]

I came across Malthus while reading about the limits-to-growth debate. As did everyone else, I came to think of him as someone concerned about overpopulation and resource limits. Reading the *Essay* again, however, and leaving behind what I thought I knew, I noticed that, paradoxically, Malthus equated happiness with population growth. "The happiness of a country," Malthus writes, "depends upon the degree in which the yearly increase of food approaches to the yearly increase of an unrestricted population."[7] A happy nation for Malthus is one where population grows—the closer the growth is to geometric, the better. Countries with fast population growth are therefore not doing something wrong, nor are they doomed. Malthus applauds European countries because, with their "industry," they have managed to be "more populous than they were in the past."[8] And he does not want to see limits to population growth either. He explicitly condemns "artificial and unnatural modes of checking population . . . for their tendency to remove a necessary stimulus to industry."[9]

Malthus is likewise supposed to be the first thinker to raise the prospect of resource limits to growth. But in the *Essay* he claims that "for commodities, the raw materials are in great plenty" and "a demand for these will not fail to create them in as great a quantity as they are wanted." "For food," too, "no limits whatever are placed to the productions of the earth; they may increase for ever and be greater than any assignable quantity."[10]

Something doesn't square here. A prophet of overpopulation who wants population to grow? A prophet of limits who doesn't believe in limits? Let's follow Elwell and focus on what Malthus *really* said, not on what *The Economist* says he said.

Make no mistake. My interest is not to revise the history of ideas. I am interested in Malthus because the way that he framed limits is still with us. Understanding what he did and why opens a window onto understanding how we imagine limits—a necessary step if we are to construct a new understanding of limits.[11]

Let's start by what Malthus *wanted* to prove. Malthus's essay was not a prediction of resource limits or of population overshoot. Malthus did not want growth stopped in its tracks. His essay was single-minded in its purpose to "prove the necessity of a class of proprietors, and a class of labourers."[12] Its thesis was that "no form of social

organization can possibly create or preserve a just and equitable society."[13]

Like me, Malthus had intellectual, political, and personal motives. He wanted to put the math and logic he learned at Cambridge to use, to prove the folly of revolutionaries. He believed that a society of equals was logically impossible and that in trying to establish it, revolutionaries would cause more harm than good. Malthus wanted to see the abolition of the Poor Laws—a protowelfare system that provided free food in the parishes. What's more, he wanted to prove that his father was wrong (always a strong incentive), and he hoped to make an extra buck along the way by selling sufficient copies of the *Essay* to be able to marry and move to his own place. Illuminating as this may be, the reasons why Malthus wrote the *Essay* are less interesting than how he made his case. It is his logic, not his biography, that reveals how he structured limits.

POPULATION AND SCARCITY: THERE WILL NEVER BE ENOUGH

The core of Malthus's argument is "the principle of population," the title of his *Essay*. Put simply, the principle is that our ability to produce children will always outstrip our ability to provide for their survival. Humans, Malthus argues, have two basic needs: food and sex. The power of reproduction is "indefinitely greater" than the power of production.[14]

From the facts that humans need to eat and have sex and that it is easier to have children than to provide for them, Malthus concludes that there is not, and will never be, "enough for all to have a decent share."[15] There are always potentially more people than there is food. In other words, there is always a scarcity of food in relation to people. This, I claim, is the second—and unremarked—principle of Malthus's *Essay*: the principle of scarcity. The principle of scarcity follows directly from the first principle of population: if the number of people is always potentially greater than the amount of food they can produce, then there is a scarcity of food—scarcity now, always, and everywhere. Nature's bounty is scarce because our reproductive potential is limitless. Malthus conceives of a world that is naturally limited because the needs of our bodies are naturally unlimited. Here is a conception of nature that lies at the heart of modern economics and, to an extent, environmentalism.

Poverty is a manifestation of scarcity, Malthus then explains. The poor are the excess for which no share is left, and they flock to the parishes for aid. Malthus believes that thanks to mathematical logic and from unquestionable first principles he has proven the necessity of poverty. Poverty, Malthus argues, follows naturally from libido and hunger. This is a natural law. Revolutionary ambitions to eradicate poverty go against science.

Nature, for Malthus, is provident and checks our numbers within the limits of food. Any species left to reproduce unchecked would soon fill the earth with its members. The fact that this hasn't happened demonstrates that something is checking population numbers below their potential—predators, disease, or lack of food. Humans have

freed themselves of predators, but their numbers are being checked nonetheless. Malthus calls “positive checks” those that repress an increase of population already underway. Hunger and famine, infanticide and premature death, war and disease: whatever reduces how long people live is a positive check. “Preventive checks,” in contrast, are those where reason intervenes to reduce the number of offspring in advance. But they are no better than positive checks. Those who practice sexual abstinence suffer too, he wrote, speaking from firsthand experience, for he was celibate until the age of thirty-eight, when he married. And those who have sex without having children are victims of a vice that degrades their morals and causes sexually transmitted disease. There will never be paradise on earth, Malthus concluded against socialists like Godwin. Population checks are inevitable and involve terrible suffering.

What then was to be done?

THE REVEREND MALTHUS, APOSTLE OF GROWTH

Paradoxically, given how he is remembered, the only tentative way out of misery that Malthus envisioned was economic growth:

> Increase the produce of the country . . . and no apprehensions whatever need be entertained of the proportional increase of population. An attempt to effect this purpose in any other way is vicious, cruel, and tyrannical, and in any state of tolerable freedom cannot therefore succeed.[16]

Contrary to his iconic status as a prophet of limits, Malthus was in fact a prophet of growth.[17] He did not claim that population growth must be limited, and he saw no natural limit to food production. He claimed that population growth is limited by the amount of food produced, which can grow without limit. Given that a happy nation is one where population grows without checks, then the only way for a population to be happier is to increase the production of food. Checks will never be completely unavoidable, but life will thereby be a little bit better for everyone.

Neo-Malthusians have struggled to understand why Malthus was against birth control or why he did not invoke diminishing returns in agriculture like his contemporary David Ricardo. Couldn’t he have used such arguments to strengthen his own?[18] But experts on Malthus remind us that Malthus was not a modern-day neo-Malthusian—his argument was very different.[19] Malthus insisted that the only way to reduce misery is to produce more food. Malthus was not an advocate of limits, but someone who invoked the specter of limits to justify inequality and call for growth. As one scholar notes, “In stark contrast to the received stereotype of him, Malthus welcomed population increase as conducive to social and personal good ‘when it follows in its natural order,’ by which he meant when there had been a ‘permanent increase of agriculture.’ ”[20]

Indeed, without growth, Malthus’s theory would not make sense. Friedrich Engels would later joke that if Malthus had been right, then “the earth was already overpopulated when only one man existed.”[21] Adam and Eve would have had more

children than they could provide for. Curiously, this *was* Malthus's point—but with one difference: his story allowed for growth in production. As Malthus wrote, "The world would not have been peopled but for the superiority of the power of population to the means of subsistence." This seems a paradox, but what he meant is that precisely because of the threat from the principle of population, Adam and Eve (so to speak) had to work and produce more food to feed their family. It is this "constancy of the laws of nature that is the foundation of the industry."[22] "Evil exists in the world not to create despair but activity," he explained.[23] Scarcity and productivity go hand in hand.

The suffering brought on by checks, then, propels us to work and produce more, which then allows us to grow our numbers (not at their potential geometric rate but to grow them nonetheless). The labor that allows us to populate the earth and "procure subsistence for an extended population [would] not be performed without the goad of necessity"; that is, without constant pressure from the principle of population.[24] Necessity (scarcity) is the mother of invention, as the adage goes. "The reason that the greater part of Europe is more populous now than it was in former times," Malthus wrote approvingly, "is that the industry of the inhabitants has made these countries produce a greater quantity of human subsistence."[25]

Misery and growth alternate in cycles, Malthus claimed.[26] Population grows and declines cyclically, but in the long run population grows at the rate of food production. When we produce more food, we have more children. At some point, our numbers exceed the available food supplies, and then checks take hold, primarily impacting the poor—by Malthus's definition, those who are in excess and cannot be fed. High prices for food, however, and lower wages for the overly numerous poor are what restore equilibrium, make people more industrious, increase productivity and food production, and lead to a new cycle of expansion.

INEQUALITY AND THE FREE MARKET IN THE NAME OF GROWTH

Helping the poor, Malthus argues, reduces their suffering, but suffering is necessary because this is how God makes us industrious. If we didn't suffer, we wouldn't work. Giving free food to the poor does not do them or "us" any favor. They then have more children, which is against their own interests. Giving to the poor is also unfair: if the poor get access to more food without producing more, this "larger share [they] cannot receive without diminishing the shares of others."[27] We should be concerned with the greatest good for the greatest number, Malthus notes. The Poor Laws, Malthus's political target, make everyone, including the poor, worse off. They entitle the poor to leisure for which they haven't worked. They kill the "spirit of industry" and diminish the will to save and accumulate, because the needs of the poor are now taken care of. Helping the poor is also self-defeating, for when incomes increase without increases in food supplies, prices rise and food becomes more

expensive, not only for the poor but for everyone.[28]

Malthus here rehearses arguments economists would polish in the future. One of these is that redistribution disturbs the equilibrium of a free market. The artificial security provided by the Poor Laws, Malthus claims, "operates to prevent the price of labour from rising" when population falls, keeping people poorer than necessary. And it "keeps it down some time longer" when population grows: high costs of labor do not let food production grow to meet the needs of a growing population.[29] Malthus's proposals are, then, "an attempt to tie population growth itself to increases in the produce of the land."[30] Poor relief kept people tied to the parishes that provided free food, making them less likely to move around and search for jobs. Malthus proposes instead a "total abolition of all the present parish-laws" to "give liberty and freedom of action to the peasantry of England . . . to be able to settle without interruption, wherever there was a prospect of a greater plenty of work and a higher price for labour." "The market of labour would then be free, and those obstacles removed which, as things are now, often for a considerable time prevent the price from rising according to the demand."[31] The *Essay* might well be the first rejection of redistribution and welfare in the name of the growth of free markets.

To illustrate the impossibility of the society of equals described by Godwin in his *Enquiry Concerning Political Justice* (1793), Malthus tells a story. He invites his readers to imagine there is no property or inequality. But what follows is no John Lennon utopia. With subsistence secured, Malthus argues, people will start having as many children as they can. Population will grow faster than food, and the total share available to each individual will gradually diminish. Some will have to live with less than their equal share. Those luckier in their harvest will want to protect their food against the unlucky. Private property will be invented by the lucky to protect their crop against intruders. Once there is a propertied class and a propertyless and hungry lot with nothing to sell but their labor, it will be inhuman and tyrannical to prohibit the latter from doing work for the former. "An administration of property, not very different from that which prevails in civilized states at present, would be established," Malthus concludes.[32] Godwin's society of equals "in a very short period [will] degenerate into a society constructed upon a plan not essentially different from that . . . at present; . . . a society divided into a class of proprietors, and a class of labourers."[33]

Inequality is inevitable, but it is not bad, Malthus nonetheless maintains. It is the motor of growth. We cannot have a society with a middle class alone because

> in society the extreme parts could not be diminished beyond a certain degree without lessening that animated exertion throughout the middle parts. . . . If no man could hope to rise or fear to fall, in society, if industry did not bring with it its reward and idleness its punishment, the middle parts would not certainly be what they now are.[34]

WHY WAS MALTHUS WRONG?

Economists tell us that Malthus was wrong because he didn't see the train coming. In the words of *The Economist*, "Malthus was a false prophet":

> He gave arguably an accurate description of pre-industrial societies, [but] the industrial revolution, which had already begun in Britain, was transforming the long-term outlook for economic growth. Economies were starting to expand faster than their populations, bringing about a sustained improvement in living standards.[35]

Population did not collapse, and food availability increased faster than population. Malthus underestimated technology, the story goes—he undervalued our "intelligence, imagination, and wonder," as Ronald Reagan, or his speechwriter, would put it. The lesson, concludes *The Economist*, is clear: those who today call for limits to fossil fuels and greenhouse gases are also false prophets. Technology will do the job, and there's no need for limits.

But as I have shown here, Malthus did not call for limits to population or resources, nor did he question the prospects for growth. His object was to prove that there is not enough for everyone, not that there are limits to growth. The idea of growth as we understand it today was invented a century after Malthus. At his time, the concepts of welfare, production, and population were conflated. For Malthus and many of his contemporaries, economic growth meant population growth, and growth in agricultural production. And Malthus was optimistic that population could grow in the long term without limits—with discipline, industry, and more food.

Granted, the cycles Malthus wrote about suggested that in the long term the amount of food available per person would be steady: if more food was produced, population would catch up. But this was not a dire pessimistic prophecy. And Malthus did not present it as such; an increasing, fed population was the best a nation could aspire to. Citing Adam Smith, he foresaw that alongside stable food provisioning, a nation could also increase manufacturing and other wealth.

What sense do we make then of Malthus's famous claim that "population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio"? (Geometric growth is 1, 2, 4, 8, 16, 32, 64, 128 . . . ; arithmetic is 1, 2, 3, 4, 5, 6 . . .) Wasn't this a prophecy of overpopulation and hunger?

No, because it was not meant as a prediction. Malthus was only giving an illustration of the potential differences between the two powers. If food grew only arithmetically, then by the time Malthus was writing it would have reached a point of stationary, almost zero-percent growth (say, from one million to one million and one). But this was not what he had in mind, for unlike his arithmetic example, there are various passages in the *Essay* where he clearly foresees continuous, albeit limited growth in food production.

What Malthus was also saying is not that population *grows* geometrically, but that it has *the potential to do so* if left unchecked. If it doesn't, it is because there are checks. Logically, population must stay in line with what the environment provides. This does not mean, at least for Malthus, that population cannot mold its environment to produce more. Population cannot grow faster than food, but food can grow faster than (a checked) population. According to Elwell, Malthus's thesis is that population is bound to grow at the rate of growth of food production, *or less*. The fact that food per person has increased since Malthus's time does not prove Malthus wrong, Elwell argues. What Malthus predicted was that population is unlikely ever to grow for a

prolonged period of time at its *natural* rate, which is much faster than that of food production. If Malthus were wrong, Elwell then claims, assuming "one billion people at the time of the *Essay*, and a 25-year doubling time for unchecked population, today's population would be up to 256 billion."[36] As it is not nearly so high, there have been checks on population. Malthus was right.

If Malthus was not wrong because of his predictions about food and population, then could he be wrong because he did not predict the decline in birth rates?

In the *Essay*, Malthus speaks of fellow Englishmen who delay marriage and adjust their number of children to their financial abilities. This is why he favored the elimination of Poor Laws, so that the poor would do the same. Malthus was also aware of, but against, birth control. He did foresee that as a country gets more "civilized," preventive checks would substitute positive checks and birth rates might decline.

Was Malthus right, then?

Remember, Malthus was not a demographer; he was a priest and a philosopher arguing for the impossibility of a classless society. If preventive checks could control population growth or if it was possible to produce food faster than people, then how could Malthus sustain his argument against equality? Wouldn't it be reasonable to say that under these conditions there could be enough food for everyone to have a decent share?

Yes. But Malthus insisted that this would be an unhappy outcome. What Malthus refused to allow for was not that we could limit our numbers, but that we could limit our numbers *and be happy*. Preventive checks, for Malthus, were terrible. As he put it, "It is difficult to conceive any check to population which does not come under the description of some species of misery or vice."[37] Criticizing the French philosopher Condorcet, who argued that people could both limit their numbers and satisfy their sexual instincts, Malthus responded that this would be possible but only by recourse to a vice like "a promiscuous concubinage, which would prevent breeding, or to something else as *unnatural*."[38] In other words, he saw preventive controls as unnatural.

What did Malthus mean by (un)natural? This is a crucial question if we want to understand the world that Malthus constructed. Malthus was a priest. "Natural" for him meant what God wants, since it is He who makes nature. And God wants people to populate the earth (hence the "natural," geometric, rate of population growth). Sex without children goes against His wish and is therefore unnatural. In the book of Genesis, God told people to "be fruitful and increase in number; fill the earth and subdue it"—not sit idly and enjoy its fruits. God, Malthus implies, is provident and makes sure people naturally follow His orders. Celibacy, the only moral alternative to vice, brings misery. What we might call "recreational sex" was for Malthus an immoral act, "a vice." And this is why it causes disease, increasing the sum of unhappiness.

We can now make better sense of Malthus's opposition to birth control. If he were concerned with keeping the number of people within the limits of available

resources, he would advocate or tacitly approve of contraception. He did not, and he ignored the pleas of his contemporaries to do so.[39] It was not as if, before the invention of modern contraceptives, people could not have sex without having children, or that Malthus was unaware of harmless birth control options. The concubines and prostitutes to whom he referred in the *Essay* did not have innumerable children. Neither did married couples who could not afford to have children, nor those people who had extramarital affairs, a common phenomenon in Malthus's circles. In his opposition to birth control and recreational sex, Malthus donned both his clerical robe and his economist hat. He rejected birth control because it would remove the stimulus to industry that was necessary for populating the earth. And God wants us to work and populate the earth.

Malthus's logical argument is founded then on the theological premise that populating the earth at a geometric rate is what our nature, and God, call for, and that limiting our numbers below that is unnatural, and therefore ungodly. The conclusion of the model is built into its assumption: the world is limited and cannot be shared because God commanded unlimited expansion. We cannot limit ourselves without suffering, but suffering is part of divine providence. God wants us to suffer, because without the incentive to reduce suffering we would not work to populate the earth.

Malthus, I conclude, was wrong not because he underestimated technology and growth, which he did not. Malthus was not wrong because he did not see that we could limit our numbers. He saw it but deemed it unnatural, immoral, and miserable. Malthus was wrong because he did not want to entertain the idea that we could limit our numbers and be happy—that we can have sex, have fun, and enjoy life without having scores of children and without being immoral or unnatural while doing so. Malthus could not imagine a future where women have free sexual relations without having children, without being prostitutes, without being secretive, and without anyone suffering as a result. Crucially, he did not *want* to see this, because if he did, then he would have to admit that there might be enough for everyone to have a decent share.

THE IDEOLOGICAL WORK OF MALTHUS'S *ESSAY*

In the decades before Malthus wrote his *Essay*, England experienced depopulation.[40] According to Silvia Federici, depopulation was the outcome not only of epidemics, wars, and disease but also of women silently asserting control over their own bodies and resisting men and the church.[41] Low population growth placed a limit on early capitalism, keeping the costs of labor high. As Federici's work documents, natalist state policies and the witch hunt unleashed against childless women were part of a misogynist counteroffensive by the church and elites. Malthus was not alone in his advocacy of population growth. Prominent theologian William Paley, Malthus's mentor at Cambridge, wrote in 1790, eight years before the publication of Malthus's *Essay*, that "the decay of population is the greatest evil the state can suffer and the improvement of it the objective which ought to . . . be aimed at in preference to every

other political purpose whatsoever."[42]

Early capitalism needed to grow its workforce, and it required a Protestant ethic of hard work; Malthus provided a narrative that fused the supposed wishes of God with the wishes of factory owners. And he defended the idea that the best thing to do about poverty was nothing,[43] even while maintaining that as a Christian he cared about the poor. The masses of people in the parishes were there not because they had been expelled from enclosed land, but because they had too many children.

Why Malthus was wrong has political implications that remain relevant. Those who claim that Malthus was wrong because he did not predict our capacity for technology and growth reproduce the thinking justified by Malthus's own framework. It was Malthus who imagined a limited world in order to justify growth. He did not see limits to resources but an eternal limit to the satisfaction of our limitless wants. Mill and Keynes, or even Marx and Engels, responded to Malthus's concerns with the prediction that there would be enough for everyone in the future, when we will produce more. Concerned that if Malthus were right, socialism could not abolish poverty but only generalize it, Engels contended that "too little is produced, that is the cause of the whole thing."[44] Mill's stationary state, Marx and Engels's development of the forces of production, or later Keynes's postindustrial future—where decades of growth would allow his grandchildren to work a few hours each week—all share the vision of overcoming scarcity by increasing production, distributing the bounty so that everyone has enough.

But as Nicholas Xenos puts it, "by relying on economic forces to transcend themselves, Keynes, and Marx and Mill before him, are waiting for Godot."[45] The technological forces that will supposedly transcend scarcity increase wants along with production, ensuring that there is not and never will be enough for everyone. To live a dignified life and die a dignified death, the average person today needs to mobilize resources unthinkable even to the royals of Malthus's era. A focus on growth accepts the myth of scarcity, a legitimating metanarrative for dominant institutions, which position themselves as the only ones who can confront scarcity. Criticism of these institutions is possible, "but only on the basis of a point in time that is always in the future, due to the functioning of social need, and so the criticism oddly winds up endorsing the institutions of scarcity while positing a different future because those institutions make that future possible."[46] Marx and Engels, Mill and Keynes cannot be put in the same basket. But their (unintended) acceptance of Malthus's terms might go a long way toward explaining the consensus between divergent intellectual and political streams, all against limits though.

Malthus's world is still with us. It is a limited world, a world of scarcity, where unlimited human wants face an environment that could never be on par with their unlimitedness. Today, "the commonly accepted basis of our economy is the supposed possibility of limitless growth, limitless wants, limitless wealth, limitless natural resources, limitless energy, and limitless debt . . . All are entitled to pursue without limit whatever they conceive as desirable."[47]

Malthus came up with this limited world of limitless expansion precisely as capitalism spurred the production of goods at a scale and rate never before seen. He justified why the new riches could never be shared equally among everyone and why they will never be enough. The genius of his idea was that he managed to make scarcity compatible with growth, limits with no limits. In so doing, he managed on the one hand to argue that there is not enough for everyone and that we have to produce more; and on the other, to maintain that even if we produce more, there will still not be enough for everyone! On planet Malthus, "man cannot live in the midst of plenty."[48] A steady or declining population can only be the result of intense suffering, of misery and vice. In Malthus's scheme there can be nothing abundant about a steady state of affairs.

Malthus therefore did not discover resource limits. He invented the unlimited—and not to be limited—subjects of modern economics, those with an instinct and a call to work and to subdue and populate the earth. For the "homo economicus" that knows no limits, the world is limited by definition. These people can never have everything that they want. And there will never be enough for all of them. Unlike the abundant world imagined and marveled at by the Romantics, the other important predecessors of the environmental movement, the world Malthus invented was stingy. And it was stingy because our wants are always excessive.

It is this dogma of insufficiency, or scarcity, that economics, the science that emerged to explain, justify, and stabilize capitalism, turned into its founding principle. Economists adapted and refined Malthus's ideas to fit the changing times. But the function was the same: explain away the continued presence of poverty amid wealth, and prove the impossibility of an equal society. Justify free markets and limitless growth as the only path forward.

2
ECONOMICS: SCARCITY WITHOUT LIMITS

Robinson Crusoe looked on his estate with pleasure. Years ago, the sea had washed him ashore on this island, and thank God he now lacked for nothing. Like a good Englishman, he had his own house with a fence, plenty of fruit to pick, iron tools for hunting or growing barley and rice, grapes for wine, goats for milk, a parrot to entertain him, and as of late, "Friday," his servant-companion (who reminded him of the slaves from Africa he had lost in the shipwreck—might his estate in Brazil still make a return without them?).

Is he, Robinson, content? Is it time to take it easy?

No! Life is short, and the day has but twenty-four hours. Should he listen to the parrot, or read the Bible? Plough the field, or teach Friday English and the Gospel? Make more spears in case the cannibals come again? He can do only so much in a single day. Maybe next month, after he finishes up with these spears and after Friday utters a bloody sentence in English, maybe then he will have some time to take a break.

THE FABLES OF MODERN ECONOMICS

Genesis inspired Malthus, but many subsequent economists found recourse for their theories in Daniel Defoe's 1719 novel, *Robinson Crusoe*. As Lionel Robbins put it in his landmark 1932 *Essay on the Nature and Significance of Economic Science*, "the examination of the behaviour of a Crusoe may be immensely illuminating as an aid to more advanced studies."[1] Robbins famously defined economics in his essay as "the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses."[2]

The idea behind this postulate of scarcity is that we want unlimited things but have limited time. Scarcity is why we economize. And economics is the science of economizing. The isolated man who maximizes whatever is useful to him became the bedrock of what came to be known as neoclassical economics. Neoclassical economists developed mathematically complex models of the behavior of *homo economicus*, a modern-day Robinson Crusoe who strives to get the most out of his limited time.

Most economists would argue that this new economics has nothing to do with Malthus. Malthus, an economist will tell you, was right about *his* world, but that world faded with the arrival of the industrial revolution and of the new analytical economics, which made sense of a newer world.[3] Malthus, the story goes, described a gloomy world of limits that was in its death throes, while the new world of industrial growth knew no limits. In the old world, nature was the limit; in the new

world, there is no absolute limit, only alternative uses of our time.

That Malthus is treated as an outlier in the history of economics is strange. Malthus was the world's first professor of political economy, if not the first professional economist. The new economics, or neoclassical economics as it came to be known, "owes much to Malthus's little pamphlet: its tone as well as its scope was distinctly Malthusian."[4] The premise of unlimited human wants and of a natural and universal scarcity; the insistence on industry and growth as responses to scarcity; the defense of inequality on the basis that it fosters industry; the supposed concern with a greatest good for the greatest number; the rejection of redistribution because it defeats its own purposes: these Malthusian tenets are mobilized to this day to counter welfare policies and modern laws for the poor.

Malthus's work, like that of many economists today, was *ideo*-logical, "proving" logically the political thesis, or belief, that a society of equals is impossible.[5] It rested on a simplified fable, that of the fall out of Eden, to shape its model. But more importantly, Malthus developed the core idea of the new discipline: scarcity. A prophet of unlimited wants, not limits, he was among those who invented the idea of a perpetual scarcity that cannot be overcome. True, Malthus's obsession with population and food made less sense as production grew and there were fewer shortages. Population growth slowed down, fossil fuels and expansion in the colonies made the world seem limitless again (at least to Westerners). Yet the question Malthus first sought to explain away remained relevant: why is there still poverty amid so much wealth? If there are no limits, why do most of us still experience insuperable limits? When will we have enough for everyone?

"Never" was, and is, the answer of the dismal science. But to maintain this answer, economists had to adapt Malthus's old theory to new times.

SCARCITY, RELATIVE AND ABSOLUTE

Economics retained Malthus's premise of unlimited human wants, but instead of reproduction, an instinct people demonstrated a capacity to limit well, the science posited an unlimited desire to do and to have, or else to produce and to consume.[6] Limits of food became limits of time, capturing the new experience of having too little time that urban dwellers felt.

Lionel Robbins's 1932 essay marks this shift from Malthusian to neoclassical scarcity: "Man wants both real income and leisure," but "he has not enough of either fully to satisfy his want of each."[7] We are "sentient creatures," Robbins continued,

> with bundles of desires and aspirations, with masses of instinctive tendencies all urging us in different ways to action. But the time in which these tendencies can be expressed is limited. The external world does not offer full opportunities for their complete achievement. Life is short. Nature is niggardly. Our fellows have other objectives. Yet we can use our lives for doing different things, our materials and the services of others for achieving different objectives.[8]

In my field of ecological economics—a very different type of economics from neoclassical economics, since we understand the economy as a flow of energy and

matter, not money—we distinguish Malthusian or absolute scarcity, a finitude of means, say food or natural resources, from neoclassical or relative scarcity, a scarcity of means to satisfy limitless alternative uses.[9]

Malthus's scarcity, however, as we have seen, did not stem from limits to food but from the unlimited sexual drive of humans. His scarcity was not absolute. He thought food and resource use could grow without any limit. The scarcity was relative, the result of differing rates of population growth and food production. Malthus postulated a scarcity of limited food to feed unlimited numbers of children; Robbins, a scarcity of limited time to do the unlimited number of things we want to do. For both there is not enough—food or time—to do everything, and we want everything without limits. *Our world is limited because our wants are unlimited*. In this limited world, only scarcity knows no limits.

Robinson Crusoe landed on an abundant island, Robbins tells us, but he still had to choose whether to devote his time to planting crops or talking to his parrot. He couldn't do both at once. Scarcity followed him into paradise. As Malthus claimed, there can never be paradise on earth.

This story of scarcity, however, like Malthus's, is circular or tautological. It begins with an assumption that what people want to do or have has no limits. From this it derives scarcity, which justifies growth, which in turn validates people's wanting and pursuing things without limit. In reality, growth is a particular need of capitalism—a system that requires a compounding of profits. With the invention of scarcity, though, growth was naturalized and sacralized. It was inscribed in human nature (growth is what people, not economists or the owners of capital, want). The origins of this assumption are sacred, be it God's wish for Christians, like Malthus, or the birthright of people to pursue whatever they want, for liberal economists. The underlying assumption is the same: people want as much as possible. And the conclusion is, they should.

Economics perfected Malthus's story of universal and natural scarcity, justifying the perpetuation of limitless growth, an objective that otherwise makes no sense.[10] But the underlying assumption is somewhat absurd. In a semisatirical piece on the economics of the afterlife, Scott Gordon comments that even if time in heaven were infinite and we could do anything we wanted, we would still suffer from scarcity, because we wouldn't be able to do more than one thing at once—we would not be able to play the harp and go swimming simultaneously, as he puts it. To be abundant, heaven should have an infinite width, not length, of time, Gordon argues. Only then would we be able to do an infinite amount of things, all at the same time, suppressing infinity into a unique moment.[11] Short of this infinite moment, we will always face scarcity. (The idea reminds me of Wendell Berry, who in his essay "Hell Hath No Limits" comments that "for those who reject heaven, hell is everywhere, and thus is limitless. For them, even the thought of heaven is hell."[12])

Only from this peculiar perspective, which economists take for granted, does the strange idea of "opportunity cost," a founding concept of the discipline, make sense.

"Every act which involves time and scarce means for the achievement of one end involves the relinquishment of their use for the achievement of another," writes Robbins.[13] In simple words, everything we do has a cost: the cost of not doing something else instead. This makes sense if we assume, as Robbins does, that we want to do an unlimited number of things and we can't be content with doing only one thing at a time. In this limited world of limitless wants, there will never be a break, no paradise, not even after we die.

SCARCITY GETS REAL

No one but economists themselves has ever thought that we want to do an unlimited number of things at every moment of our life, just as no one but Malthus has ever claimed that we want to have as many children as possible. No doubt it is in our nature to want many different things, and doing one thing means not doing another. But it is also our nature to choose or to search for and put up a limit, to be at peace with what we have. (In fact, there is no animal that limitlessly procreates or works to produce more and more.[14]) This frenetic "reality" of the economic model, however, is becoming more and more our lived experience, with time getting shorter and shorter, as the prescriptions of economic models shape in their image the world that they describe.

Milton Friedman infamously defended the assumptions of neoclassical economics on the grounds that an assumption should be judged by testing its predictions, not by its realism.[15] Not everyone is Robinson Crusoe, but to model an economy, one has to simplify. If in assuming that we behave like *homo economicus* we produce a good representation of our world, then so be it, Friedman implied. Models, though, are often not falsifiable. Take Malthus. That population cannot grow faster than food is a truism, a fact, not a prediction. That reality and your model refute an implausible prediction (i.e., that population could grow exponentially, to 256 billion today) does not make the rest of your model plausible. You are simply asserting a fact (an interesting one, no doubt) that if a population were to grow at its natural rate, its numbers today would be unthinkable, which means that something must be keeping it in check. Likewise, the foundational neoclassical assumption that individuals maximize utility is supposedly confirmed by the fact that it is the foundation of a theory of demand and supply that explains prices. But no one has been able to measure utility to test whether indeed it correlates with prices. Claiming that utility is revealed in prices is a tautology if prices are the only way to know how useful we find something.

Unrealistic as these assumptions may be, the story of scarcity resonates with an actual experience of scarcity, which the theory helps to justify, if not produce. Analytical economics appeared with the industrial revolution and capitalism. The notion of scarcity emerged within a context of unprecedented social mobility and wealth.[16] Religion retreated and feudal aristocracies weakened. Wants and material expectations were liberated from the limits of custom, class, and religion. The new

bourgeoisie felt legitimized to want everything, and the rest aspired to live in bourgeois style. Status, signaled by consumption, replaced the fixed social positions of class, especially in the anonymity of cities. The psychological experience of personal scarcity—not having as much as one's neighbor or the people one reads about in newspapers—was very real. But this social scarcity based on comparison was one side of the coin; the other was the very real experience of material poverty, as enclosures dispossessed peasants and sent them to factories or, if not there, to food relief or workhouses.[17]

These two experiences of scarcity—positional inequality and precarious access to basic goods—feed one another to this day. The enclosure of the commons makes us depend more on wage work, while our position in the social hierarchy is signaled by our ability to buy goods. This is not just a matter of inflated, unreal, or conspicuous wants, which is no big deal if they are not met. That is, consuming close to the social average is not a matter of showing off, but one of self-respect, conforming to what counts, according to your peers, as the dignified life. Competition for limited positional goods increases the price of these goods and shifts resources from public or common goods to private goods, eroding the former, making more goods accessible with money. This is how poverty is reproduced amid affluence.[18]

Under capitalism, ever-increasing wealth cannot eradicate poverty or the experience of scarcity. People always experience personal limits in comparison with what others higher up on the ladder have; the promise of the system to expand without limits keeps alive their hope that tomorrow they will have more, closer to what the richer have today. Health treatment for the poor today is much better than what it was for an aristocrat in Malthus's time, yet we experience a real sense of scarcity when we cannot pay to treat the curable lethal disease of a loved one, while a rich person can. Inequality breeds scarcity.

Sharing the commons equitably could alleviate this scarcity, as people would have access to the minimum they needed to survive and as they would compare themselves less to others, having access to the same commons. But Malthus's *Essay* and much of economic theory thereafter theorized the experience of scarcity in a way that prefigured accumulation and growth, rejecting sharing and equality.

On the surface, Malthus's world of limits seems quite different from the world of unlimited freedom and expansion of modern economics. But as I have argued, Malthus's world was one of peculiar limits—it was a world of limits that mainly impacted the poor in the name of limitless expansion of the whole. This is not different from the "we cannot live beyond our means" narrative of those who support austerity today. (And by "we," they mean "you.") By Malthus, poor people should not be helped to live beyond their limited share of food. Only in this way will they limit their unlimited drives to what they produce, and work harder to produce more. Likewise, for contemporary proponents of economic austerity, poor people should not be helped through welfare, because they will consume more than what they produce instead of working harder to produce (and consume) more. Ecologists have criticized neoclassical economists for their "empty world" view, a world with no

resource limits. But paradoxically the economists' world has, ever since Malthus, been a full world, so full that there has never been space in it for the poor. The ship can always get bigger, but it will always remain full.

One question remains: Why then would economists relegate Malthus to the prehistory of the discipline?

I suspect it is because Malthus serves as an excellent bogeyman of a before and an after. Malthus's world of food shortages and famines is supposedly the before of the capitalist world of plenty, a before to which we could return if we took our foot off the pedal. As Paul Krugman puts it, "It was only with the industrial revolution that we finally escaped from the [Malthusian] trap (if we did—for all we know, 35th-century historians will view the period 1800–2020 or so as a temporary aberration)."[19] There is even a field of economics, "unified growth theory," that specializes in the transition from a so-called Malthusian trap to sustained growth.[20] In this literature, civilizations without growth, in the hundreds of years of human history before capitalism, are seen as caught in a "Malthusian trap," victims of "Malthusian stagnation."

These terms suggest an undesirable state from which those who experienced it would want to flee. There is no historical evidence, however, of prior civilizations having seen themselves as trapped in stagnation. In Plutarch or Thucydides, for instance, one finds an ancient Greek world of philosophy, democracy, and sun (with the occasional bloodbath). There is no complaining about stagnation, premature deaths, or low life expectancies. These last are modern preoccupations (though of course women and slaves had different life stories than those told by Plutarch or Thucydides). Limitless expansion—of life, economy, and so on—appears as a central pursuit with capitalism and forms the particular imaginary of modern Western civilization. From the vantage point of economics, then, a steady state can only be understood as stagnation, a condition that must be overcome.

Malthus, I've insisted, is not a precursor or an exception but rather the cornerstone of modern economics. The current power of economics goes a long way toward explaining his continued relevance. This is why, in order to write a book on limits 220 years after the publication of his *Essay*, I still have to start with him. As Mayhew aptly notes, few people think of Adam Smith as proved right by sustained growth or wrong by the Great Depression. The fact that Malthus is seen as "perpetually modern" is evidence that his work is deemed canonical.[21] Unfortunately, environmentalism also inherited Malthus's canon, reducing the ecological question to an economic idiom of wants, resources, and technologies.

THE LIMITS OF MALTHUSIAN ENVIRONMENTALISM

Modern American environmentalism was born in the late 1960s in "a Malthusian moment" of fear about population growth.[22] American and global populations were growing at an exponential rate. The specter of famines in Asia or Africa cascading into revolutions and a nuclear confrontation between the two superpowers created

fears of a "population bomb," and population became a central issue for politicians and the public alike.[23] Garrett Hardin and Paul Ehrlich—academic ecologists who argued that population cannot grow for long at a geometric rate because a disastrous check will keep it at bay—became household names.

These "neo-Malthusians" retained the idea of a limited world that would clash with exponential growth. Unlike Malthus, though, they attributed scarcity to the nature of resources and land, not human nature, which they saw as malleable. Unlike Malthus, neo-Malthusians called for birth control or coercive restrictions on populations by the state. Against neo-Malthusians, economists invoked the other half of Malthus's story, that of growing food production. Seen together, economists and neo-Malthusians played two sides of the *Essay*'s coin: limitless growth in a limited world. Eventually, it was the economists who won the day, as the fossil-fueled green revolution of the 1970s and a reduction in fertility rates in the West and China dampened concerns over population. (Global population has kept growing, but at a slowing rate.)

Environmentalists wanted to limit growth because it destroys the environment. But they ended up arguing that unless the environment is preserved, growth will come to an end, leading prominent economist Robert Solow to joke that the environmentalists are more pro-growth than they realize.[24] In 1972, the Club of Rome commissioned a study that was then published as *Limits to Growth*, the seminal report by Donella Meadows and a group of young researchers at MIT.[25] Behind the report's simulations was a simple idea: compound growth of population and consumption quickly turns to infinity. As infinity is not logically possible, growth must and will be checked.

The report inherited the logic of Malthus, with economy taking the place of population and resources that of food. The economy, Meadows and her collaborators argued, cannot grow faster for long than the rate of resource extraction. Resources are finite, and sooner or later the economy will come crashing down, checked by their availability. Unlike Malthus, though, the MIT team thought we could limit ourselves within the limits of resources and turn the crash into a smooth landing, maintaining the highest possible level of steady population and consumption (basically, by shifting to renewable resources, recycling, and using finite resources at a rate low enough to allow for their substitution). The choice was between limiting growth smoothly or letting it crash badly and limit itself.

Environmentalism in this vein did not accept the Malthusian assumption of limitless wants, but it didn't question the desirability of prevalent wants either. The happy-ending scenario in *Limits to Growth* was one of slowing down growth so as to perpetually maintain the maximum number of people and goods, something quite similar to Malthus's concern with sustaining the highest number of people possible. The reason for slowing down had little to do with aspiring to a different, better way of life. It was rather an adaptation to external limits, limits imposed by the nature of things with which our wants clashed. The drive for change was not desire, but survival in the face of looming collapse.

This Malthusian framing was grist for the mill of economists. Robert Solow, also

from MIT, led the charge with a fiery speech after the publication of *Limits to Growth*.[26] How fast we can extract resources or, given limits, how much output we can extract from a given amount of resources is a matter of technology. Not only are there sufficient resources, Solow argued, but even if these were to be depleted, their prices would rise and we would develop new technologies that use fewer resources or recur to other resources that are not yet limited (through so-called substitution). If food production allowed population growth in Malthus's model, technology could allow economic growth in Solow's.

In his response and subsequent research, Solow moved the ecological question squarely into the domain of economics, a natural fit given the Malthusian framing. The problem was posed as one of relative rates of resource extraction and technological change. If natural resources are finite, as the *Limits* team argued, then, Solow responded, even negative growth—basically, anything above zero use of resources—would eventually deplete these last and bring production to an end. The question became how to allocate limited resources over time to sustain the maximum aggregate number of person-years. This is essentially a question of an optimal allocation of scarce resources between generations. And how to allocate scarce resources optimally is what economics is all about.

Crucially, economists after Robbins had developed the idea that it was not only natural resources that are scarce but also capital, labor, and time. From this perspective it might be better to leave future generations with fewer forests or more polluted oceans if such were the cost for passing on more technological capital with which to do more things. Framing the question as one between, say, using less or more forest moved the matter from ecological limits to an issue of allocation and one of efficiency in prolonging the highest level of satisfaction of wants for the maximum population possible. If by cutting trees today we will be better off economically tomorrow, so be it.

Elsewhere I have given my own opinion as to whether technology can keep up with resource depletion or whether capital can substitute for nature.[27] Compound geometric growth tends to infinity, and as Malthus first noted, it logically must be checked. What will check it, when, or how soon is less clear. A collapse, moreover, may well be followed by renewed growth from a lower level—a limit to the maximum size of the economy is not the same as a limit to growth, strictly speaking. My point here is not to revisit arguments about who is right or wrong in this endless debate about whether there are limits to growth, but rather to question its framing.

Neo-Malthusian environmentalists may have arrived at the notion of a limited world by following a different route than Malthus (resource limits instead of limitless wants), but their vision of limits as naturally inscribed in the state of the world reproduces Malthus's and economists' model of scarcity. Like Malthus, who invoked collapse to sustain the maximum number of people possible, environmentalists, when they invoke the limits to or collapse of growth, imply that what we want is to sustain the maximum output possible for as long as possible. Within this Malthusian framework, the ecological question is reduced to an economic

one of how to sustain optimum output given scarcity constraints, which in turn opens the way to market solutions for problems that are in essence social. The call to limit growth, a call that I will argue expresses an ancestral angst over hubris and a desire to live and find meaning in a different way, is reduced to a sterile scientific dispute, bets included, of how growth can be sustained and for how long.[28]

In adopting Malthus's framework, environmentalists stumbled upon the limits of their own idea of limits. But things didn't have to be that way.

3

THE LIMITS OF ENVIRONMENTALISM

Emma Goldman was the eloquent advocate of an anarchist subculture that flourished in the United States in the late nineteenth and early twentieth centuries. She defended women's equality, free love, workers' rights, and free universal education. Goldman called herself a neo-Malthusian because of her advocacy for birth control, which at that time was erroneously linked to Malthus.[1] But Goldman's life and ideas were the antithesis of Malthus's. She married at the age of eighteen but left her husband two years later. She was imprisoned for "inciting to riot," distributing material about birth control, and, in 1917, for a campaign against the draft, for which she served two years before being expelled to Russia. Disillusioned with the Bolsheviks, she left Russia in 1923. "If I can't dance, I don't want to be part of your revolution," was her motto.[2]

ROMANTIC ANARCHISTS VERSUS MALTHUS

Goldman described the birth control movement as one

> which aims to set women free from the terrible yoke and bondage of enforced pregnancy; a movement which demands the right for every child to be well born; a movement which shall help free labor from its eternal dependence; a movement which shall usher into the world a new kind of motherhood.[3]

For Goldman, the struggle for birth control was one "of many causes central to the coming social revolution."[4] So was the control of population, because

> capitalism cannot do without militarism, and since the masses of people furnish the material to be destroyed in the trenches, capitalism must have a large race. . . . Under no circumstances must the labor margin diminish, else . . . capitalistic civilization will be undermined . . . And so the political economists, together with all sponsors of the capitalistic regime, are in favor of a large and excessive race and are therefore opposed to Birth Control.[5]

Limits here are not a natural property that stems from a clash between our wants and the world. It is not our nature but the system that wants us to want without limits. To free ourselves from the bondage of this system and avert its consequences, we must limit the wants that feed it, Goldman suggests.

Goldman's views on poverty and nature were also very different from those of Malthus. Poverty stemmed not from the nature of things or from the desires of our bodies but from the social arrangements that badly distributed nature's bounty. Nature in Goldman's view is abundant, a source of joy, not suffering. She called her magazine *Mother Earth*, "the nourisher of man . . . man freed and unhindered in his access to the free earth!"[6] She came up with the title one early spring day while marveling at "life germinating in the womb of Mother Earth."[7]

Goldman and the anarchofeminists echoed themes that characterized the Romantic movement. Contemporaries of Malthus, the Romantics were among his fiercest

critics.[8] As Mayhew puts it, in William Wordsworth's "Lines Written a Few Miles above Tintern Abbey," published the same year as Malthus's *Essay*, "nature is bountiful, not mean, and leads inevitably upward toward its creator, not down into misery and penury. Those enmired in the selfishness of calculation, are precisely those who create the world in which charity is undermined, social bonds are broken, urban manufactures thrive, and poverty blights the countryside."[9] In Romantic poetry, humbleness and enjoyment of simple pleasures were the response to abundance, not Crusoe's frenetic pursuit of optimizing the bounty. As Wordsworth wrote, about voluntary limitation:

> Nuns fret not at their convent's narrow room;
> And hermits are contented with their cells;
> And students with their pensive citadels;
> Maids at the wheel, the weaver at his loom,
> Sit blithe and happy . . .[10]

Wordsworth like other Romantics praised the beauty of simplicity and linked freedom to limits. And while Malthus was concerned with the destructive power of our sexual desire, the Romantics, like Goldman after them, questioned the meaning of love and linked free sexual expression to liberation (against "[the Malthusian view that] passion is beyond our control, a physical necessity to whose empires we are all slaves," as William Hazlitt, a notable Romantic, wrote in a rebuttal of Malthus's essay).[11] Birth control was not a calculative practice for living within one's means but a way to enjoy free love.

Malthus's frame is so ingrained in our minds that it seems paradoxical that we would limit ourselves if nature were bountiful. Shouldn't we see that nature is scarce so as to conserve it? No, say the Romantics, because nature is scarce only if there are excessive wants. The innate response to scarcity is relentless conquest and subjugation. Nature becomes abundant when we enjoy what it has to offer, limiting our wants. The Romantics captured this intuitively and poetically.

But this is not only a matter of poetry. There is an anthropological kernel here. Anthropologists who have recently studied hunter-gatherer groups have found among them a similar ethos of living within limits while believing in abundance. Living in the 1990s and 2000s with the Yaka pygmies in Northern Congo, ethnographer Jerome Lewis observed how the Yaka conceive of the forest as abundant. Their trust in their environment, common among many hunter-gatherers, is part and parcel of an ethic of obligatory, nonreciprocal sharing, what the Yaka call *ekila*—for Lewis, "a theory for maintaining abundance."[12] *Ekila* teaches that "by sharing properly, resources will be experienced as abundant."[13] Sharing the bounty, the Yaka limit accumulation of wealth and power, Lewis explains. The forest remains abundant, for the assumption that it *is* abundant comes with institutions and social relations that do not spur conquest and depletion. Western loggers and conservationists, instead, arrive in Northern Congo conceiving of the forest as a scarce resource. Loggers, Lewis reports, want control of precious trees; conservationists, of rare animals. Both see

the Yaka as an obstacle and keep them out of the forest. “The perception of scarcity is the ideological bedrock of both these activities, and a driving force in the enclosure, industrialization, and capitalization of [the forest].”[14] As Wendell Berry puts it, “the life of this world is small to those who think it is, and the desire to enlarge it makes it smaller, and can reduce it finally to nothing.”[15]

I’m not claiming there’s an intellectual continuity from the Romantics to Emma Goldman to hunter-gatherers and the Green Party today (as the Yaka would be happy to hear). Some Romantics advocated population growth because of their religious beliefs; others spoke favorably of colonialism; environmentalists’ views on limits are mixed, too, as we saw. I point here to a *germ* of a non-Malthusian notion of limits, also present in Greek and Roman philosophy as well as in non-Western teachings and ways of living.[16] This yearning for limits is at the heart of radical Western environmentalism. Rachel Carson’s *Silent Spring*,[17] for example, the book that launched modern environmentalism, was not about a scarce nature running out of space to absorb chemicals. Carson wanted us to place a limit on despoiling a nature full of life. Her call to limit the use of pesticides was not a sacrifice from her perspective (and not only because there are organic alternatives); rather, limiting a damaging kind of production was the path to a better future full of bird songs.

The difference between *Silent Spring* and *Limits to Growth* is subtle but important. *Limits to Growth* also pointed to a looming disaster and called for a change of course. But *Limits* did not claim only that growth, like pesticide use, has terrible consequences; rather, it predicted that growth will come to an end, and that *this* would be a terrible consequence. (Donella Meadows and others did, however, push the *Limits* argument in their own work in a direction very similar to that of *Silent Spring*, calling for an end of growth and a change of politics and values. This is in fact closer to the take on limits I defend below.)

SELF-LIMITATION

Cornelius Castoriadis’s notion of *self-limitation* is useful here.[18] As I mentioned in the Introduction, a crucial distinction Castoriadis made is between heteronomy and autonomy. *Nomos*, the law, written and unwritten, defines the limits necessary for a society to function. People make laws themselves but most societies attribute them “to a source outside of society, an imaginary, sacred source that makes them unquestionable.”[19] The Ten Commandments is a case in point.

In heteronomous societies, limits are attributed to an external authority that cannot be questioned. An autonomous society, in contrast, “is one whose attitude toward its own institutions is lucid, reflective and free, one that is not subservient to those institutions.”[20] Self-limitation[21] is autonomy and includes the constraining of political excesses (for example, the protection of minority rights), social behaviors (crime), and the actions of the collective in relation to the external world and the environment.[22]

Castoriadis traces the idea of autonomy to classical Athenian democracy; it's an idea he sees as revived by the Enlightenment but left incomplete. Western democracies increasingly regress to sources of truth that cannot be questioned, whether science, technology, or the free market. Democracy and capitalism appeared together in the seventeenth century, but capitalism's mission is the unlimited expansion of rational mastery, manifest in unlimited and incontestable economic growth. Democracy is at odds with capitalism, because capitalism's imperative to expand cannot be questioned: "One no longer asks whether there are needs requiring satisfaction but whether some scientific or technical exploit or other is feasible. If it is, it will be achieved, and the corresponding 'need' will be fabricated."[23]

Capitalism's "pseudo-mastery" of nature can never be fulfilled, Castoriadis argues, pointing to the unintended consequences of technology. We thought we were mastering nature with fossil fuels, but climate change is the reckoning. This mastery is also "pseudo-rational" because its source is not rational. It stems from a theological duty to subdue nature (which evokes what we saw with Malthus).

All societies, not only capitalism, rest on ad hoc imaginaries. Like religious societies, capitalist civilization has generated a set of wants for its members (mostly economic rather than spiritual), who learn that life is not worth living without satisfying them. The system is stable as long as it satisfies these wants and people do not question their meaning. But questioning what we want is what autonomy and democracy are all about.

Radical environmentalism keeps this democratic spirit alive, Castoriadis insists, because it is the only contemporary movement that questions wants and defends limits. Other movements question the distribution but not the content of capitalism's dreams. Ecologists ask instead what a life worth living consists of (just as the Romantics investigated the meaning of love), revealing the absurdity, according to Castoriadis, of the "humiliating" idea that the only goal in life is to produce and consume more.[24]

This is a defense of self-imposed limits (autonomy), not limits that we imagine are forced on us by nature or the way society supposedly is (heteronomy). The case for self-limitation rests on the negative consequences, or the risks of not limiting ourselves; and on the freedom of setting limits to our own powers and intentions, limits without which freedom loses its meaning.

Recall the story of 1900. When 1900 refuses to leave the ship, he says no to the infinite city before him. It is not the risks of the outside world that 1900 fears but, as he explains with his metaphor of the piano, the infinity of the external world, which disables his freedom.

If a keyboard is infinite, there is no music you can play. Wordsworth, too, linked freedom to voluntary limitation:

> In truth the prison, into which we doom
> Ourselves, no prison is . . . [for those]
> Who have felt the weight of too much liberty.[25]

Artistic freedom is indeed the child of limitation. Limiting is the most important skill a poet can master. And the canvas delimits the field of a painter.[26] Consumer society, in contrast, overwhelms us with a potentially limitless range of options. Rather than liberating, limitless possibility can be debilitating and a constant source of frustration.[27] Simplifying choice by setting our own limits and by choosing "not to," like 1900, can then be liberating. (On a more mundane note, there's the example of "Freedom," an online app that you can use to block yourself from your own e-mail or the websites you regularly visit, so as to dedicate yourself freely to writing. In our productivity-obsessed era, freedom is not the ability to do more, but the power to limit our self-destructive pursuit of more.)

Beyond consequences and freedom lies a third reason for self-limitation, one that is not captured by Castoriadis, Goldman, or the parable of 1900. This is justice, or care for the Other, since limitless expansion inevitably colonizes and assimilates the lifeworld of others, human and nonhuman alike. As the Spanish philosopher Jorge Riechmann writes, "Only self-limitation makes possible alterity, leaves space for the other."[28] We should live simply so that others can simply live, as Gandhi allegedly said.

THE PROBLEM WITH ENVIRONMENTAL LIMITS

It is not that we environmentalists don't justify our case for limits in terms of consequences, freedom, or justice. But we often conflate self-limitation with external limits—Goldman and the Romantics with Malthus, so to speak. Limits, we often claim, are dictated by Mother Nature, and we have to adapt to them whether we like it or not (and then we go on to add that, fortunately, living within limits does not have to be terrible; it can be liberating, do less harm to others, etc.). This is a very heteronomous way of making the case for autonomous limits. As Castoriadis insists, "Ecology isn't 'love of nature': it's the need for self-limitation (which is true freedom) of human beings with respect to the planet on which they happen to exist by chance, and which they are now destroying."[29]

Consider the strange logic of the *Limits to Growth* report, where the reason for limiting growth is that there are limits to growth. If there are external limits, we might ask, why limit ourselves instead of just waiting for the limits to do their job? Because, *Limits* implies, by limiting ourselves we make the eventual limitation smoother, thereby avoiding a collapse. In other words, we can preempt the gods: we can do what they want us to on our own terms before they have to make us do it on theirs. Self-limitation, according to this narrative, is dictated by survival, not by desire. The wants fueling a system that destroys the environment remain unquestioned; what we want to have is what we already have, the argument implies. The problem is that we can't have it, for reasons that go beyond us, so what we should do is protect and sustain as much of it as we can possibly have. To the extent that wants are questioned, they are questioned only instrumentally in terms of our own survival; the calculation is that we will have more if we limit our wants now

before limits limit us.

When I criticize this logic of external limits, *I do not by any means suggest a lack of ecological forces beyond our control*. It is not we alone who decide what our limits are. To take but one example, the measure of 450 parts per million (ppm) of carbon dioxide in the atmosphere is a threshold beyond which the global temperature may increase more than 2 degrees Celsius. This is a physical reality.

But there is nothing natural in framing such external conditions as limits. Gravity is a fact, not a limit. A limit presupposes a goal. Gravity, then, is a limit if you want to jump from the rooftop of a building and arrive on the ground intact. It is not if you want to commit suicide. And gravity is actually helpful if you want to throw down a ball. Seawater is life for fish but death for humans. For a fossil-fueled civilization that insists on continuous growth, 450 ppm is likely to be a limit. The limit resides in the subject and the intention, not in nature, which is indifferent to our intentions. And it is our intentions that should be limited.

A mature, autonomous civilization would be aware that nature is not a strict mother who imposes limits and tells us what we have to do. But this doesn't mean we can do whatever pleases us. We interact constantly with an external world, which we transform in ways that approximate our intentions, often with unintended outcomes, be they good or bad.[30] Nature is what it is. It is our actions that have consequences that we might or might not like, and which we have to limit with an eye to the consequences of not doing so. If we want to reach the ground alive, we'd better not jump from the rooftop, and if we don't want coastal cities to be submerged in water, forests to be burned by fires, and species to go extinct, we should limit the use of fossil fuels. It is we who must stop extracting fossil fuels; the sky is not asking us to stop. Two degrees of warming might or might not limit growth (capitalism is a strange beast)[31]—but growth will have to be limited if we are to avoid global warming.[32] By thinking of limits as something objective out there, we disguise that they are ultimately about us and our own wants, thereby reproducing the Malthusian view that nature doesn't let us do everything we want to.

The very definitions of hard limits, which we have come to think of as carved in nature, are the outcomes of social processes. Take for example the 2 degrees temperature change. There is no reason why we should limit global warming to 2 rather than 1 or 3 degrees Celsius. Each choice entails different adaptation costs and risks of unforeseen impacts, but ultimately the choice is ours. The 2-degree limit is not something that scientists have found out there in nature but a limit negotiated between scientists and elected representatives under the Intergovernmental Panel on Climate Change (IPCC) and at climate agreement conferences. Two degrees is not a limit that resides in nature; it is self-imposed. It is we who decide how much temperature rise we can afford to risk given what we know about the consequences of doing so and what we think we can or cannot achieve.

One might argue that this is but a semantic distinction and that I am overstating my differences with neo-Malthusians or the *Limits to Growth* narrative. Aren't we all saying that limitless growth has catastrophic consequences and should be limited?

Partly yes, and partly no. The *Limits* discourse is not only about consequences; it is also about warning that we are running out of resources and growth will come to an end. It ascribes limits to nature, not to our intentions. And it shares the Malthusian view of a limited world. I instead argue that we shouldn't limit ourselves just because there are limits, but because we want to do so. In fact, if there weren't limits to growth, this would be all the more reason *to* limit it, because limitless growth is catastrophic.

Before moving on, I want to emphasize five core problems with ascribing limits to nature instead of taking full responsibility for them.

First, the fixation with external limits turns environmentalists into prophets of doom, the party-poopers who remind us that it's getting late, calculators of life of the sort despised by the Romantics. Environmentalism becomes more dismal than the dismal science, telling us not only that we do not have enough but also that there is nothing we can do about it. This position will always lose out to its nemesis, prefigured by Malthus—that of mobilizing human industry to surpass all limits. This is the vision that was so well articulated by Ronald Reagan, who shaped his political persona in the 1970s as an anti-Ehrlich who reveled in the flouting of limits.[33] One might conclude that environmentalism needs an aspirational politics that abandons the obsession with limits and endorses technology and growth.[34] But what if technology and growth are part of the problem and not the solution? I recall a student who was disappointed after a class debate about limits to growth, during which the economics teacher placed him in the pessimist camp because he believed in limits. "I am an optimist," he said. "I believe we can change society. I hope we can limit growth. Pessimists are those who think we can't." Is it possible to construct a nonfatalistic politics of limits, one built on an aspiration for limits, rather than one that attributes them to nature?

Whether the politics of my student stand a chance against the politics of "growthmanship" remains to be seen, but optimistic they are, and optimism of will is what fuels politics. An aspirational case for limits can be constructed around ideas of freedom, democracy, and respect for others. There is an old, latent wisdom about the value of limits and a yearning for moderation and simplicity that can be found in many spiritual and religious teachings, one potentially appealing to progressives and conservatives alike.[35] Can environmentalists be the bearers of an aspirational vision of radical simplicity, rather than prophets or managers of the end times?

Second, there is risk in framing climate change or other planetary crises as "environmental problems" that threaten a collective "us." The idea that we are all in the same boat disguises the fact that there are different degrees of responsibility, and radically different ideas about what we should or should not do. As in the case of war or terrorism, the construction of a supposed "us" threatened by an external enemy has time and again been used by those in power to suspend debate—democracy—in the name of urgency or a presumed common interest. Environmental crises can be "de-politicizing," to use some scholarly jargon here.[36] The idea of

limits as an external threat to "us" and our way of living can depoliticize by disguising the fact that we are not all in it equally. Instead, starting a conversation about what we want to limit and what we don't—the essence of self-limitation—is what real democracy is about; that is, a debate over different visions of the kind of world we want to live in. Ecological considerations and consequences are important motivations for this conversation, but ultimately the question is about what world we want to construct and for whom, not how to conform with a pregiven reality dictated by nature.

Third, there is an inherent political danger in invoking external limits: the idea of limited, shrinking space easily morphs into an argument for keeping others out or expanding into their territory. When Hitler read Malthus's *Essay*, he didn't think of birth control but about how to expand and secure *Lebensraum* (living space) for the Aryan race.[37] As the Marxist political economist David Harvey wrote in his critical response to *Limits to Growth*, if there is scarcity then there is not enough for everyone.[38] And if there is not enough for everyone, then someone must be in excess. This someone cannot be "me or you"; it will be "the Other," the foreigner, the immigrant, or the poor person for whom there is no room in "our lifeboat" (the terrible metaphor used by Garrett Hardin).

Of course, "the question of whether or not humanity is presently on a collision course with the earth is largely an empirical question. It is not one that we should deny or affirm on the grounds of political convenience."[39] But Harvey is right in that the way we frame this "collision" is never politically neutral. Behind claims of Malthusian apocalypse in Africa, empirical research has revealed racism in the form of concerns with overpopulation that justify encroachment on the rights and bodies of poor women, or the violence against minorities legitimated in the name of limiting human presence in protected parks.[40] Hardin's hypothetical lifeboat becomes real as nations close their borders because of supposed limits to their territory or economies, leaving refugees to drown in the Mediterranean.

True, unlike Hardin, other neo-Malthusians such as Paul Ehrlich emphasized women's empowerment and voluntary birth control and argued for freer immigration or for redistribution and solidarity between North and South in the name of planetary limits.[41] The world is limited, and this is a reason for sharing it, they argued, not for protecting our own spoils. But the case for sharing, I think, is much stronger if we agree that *we want* the world to be limited, rather than imagining that limits come to us from the outside, like a storm that provokes a shipwreck, making victims of us all, one surviving at the expense of the other.

Fourth, environmentalists have gotten bogged down in endless scientific arguments about the precise definition of ecological limits—how much carbon can we emit or how much can we pollute our air or waters. Determining limits is rife with complexities. My experience at the European Parliament taught me that industrial interests exploit (if not manufacture) uncertainty to avoid regulation. Biophysical processes are complex, and limits cannot be defined independently of a purpose.

There is one limit on pollutants if we want to keep water safe for drinking, and another if we want to use it for irrigation, or for surfing, or for fishing. Defining limits entails choices and trade-offs between different uses and between groups with different powers. These are distributive choices, but they are often treated as mere scientific problems of determining objective limits.

This scientization of the environmental question—inherent in the notion that limits are a property of natural systems that can be deciphered by the experts who study these systems—is potentially undemocratic. In this sense, the fourth of these problems I'm describing is closely linked to the second. Scientization produces a passive public that sees the solution of environmental problems as a job for experts. Environmental limits seem to come from the top down. Ultimately, solving environmental problems requires everyone's participation[42]—people becoming owners of their limits. This is not obvious when we view a limit as something objective out there that only a select few can know or understand.

Fifth, as I showed in the preceding chapter, the idea of scarcity is essential for capitalism. If something is limitless (say, the air we breathe), then no one can be its proprietor and trade it for profit; capitalism cannot operate under abundance. Environmentalist claims of external limits and eco-scarcity unintentionally play into resource and land enclosures. If something is limited, the economic logic goes, then let's delimit it, set a property right, and trade it so as to allocate it as efficiently as possible. Economists apply this logic to river flows, pollution, and conservation. Seemingly innocuous language rebranding nature as capital, ecosystems as services, and the atmosphere as a "limited sink" have created a commonsense way of seeing environmental problems in terms favorable to market solutions. The ideological work going on here is evident in the fact that most of us take for granted and reproduce absurd ideas such as the notion that the atmosphere—the sky, that is—is "a sink"(!), a metaphor whose only function is to frame the problem of pollution in the Malthusian terms of scarcity that economists are comfortable with.

But the ever-growing market is actually an important driver of environmental degradation. In the 1980s, environmental regulation was dismantled as the dominant idiom became one of costs, benefits, and the monetary value of protecting nature, instead of limits, risks, and prudence. Nature became one among many scarce forms of capital to be allocated "optimally" by markets. Nature could be sacrificed for a few more dollars and percentage points of the GDP, justified theoretically in terms of leaving more money and machines to future generations who will be able to compensate for nature's lost services or insulate themselves from their impacts. By the time global warming finally became a prominent issue, economists like William Nordhaus could discard calls to ban fossil fuels and talk instead of balancing the future costs of climate change against the economic damages from present mitigation.[43] Climate change became a matter of discount rates.[44] Twenty-five years later, enforceable limits to fossil fuel use are out of the question, and the planet is heating up.

THE PROBLEM WITH ECOLOGICAL FOOTPRINTS AND PLANETARY BOUNDARIES

The "ecological footprint" is a calculation of how much land it would take to produce the goods and services we consume and to absorb the waste and pollution we create. The indicator is useful because it reminds us that what we do "here" has impacts "there": the environmental costs of our actions are shifted in space and time, and the footprint is a measure of this shift. But the indicator, and especially the way it is communicated, has many problems. Forget for the moment the scientific acrobatics necessary for turning everything into its land-use equivalent. My concern here is with statements such as, "Humanity uses the equivalent of 1.7 Earths,"[45] or, "On August 1, humanity will have used nature's resource budget for the entire year." No matter how good the intentions, this framing reproduces a Malthusian vision of a limited earth.[46] We are too numerous, and we consume too much. But who is this "we"? And why do "we" consume too much? The footprint message makes for headlines, but it is apolitical, as it puts us all in the same boat. It is also disempowering, as our supposed overshooting comes and goes every year, but the world continues to turn.

The "planetary boundaries" framework is scientifically more sophisticated, but it too can reproduce the myth of a limited world.[47] There are nine boundaries of the earth system, planetary scientists tell us, and if we transgress them we risk abrupt, catastrophic, nonlinear change[48] (climate change is one result; there's also the extinction of species and the loss of biodiversity, which could collapse food chains; pollution from phosphorous and nitrogen; the ozone hole; and acidification of the oceans, which could lead to drastic reduction in fish stocks). Supposedly, there is nothing political about these boundaries, which are descriptions of the way the world is. We can release so much phosphorous before polluting ecosystems and so much carbon before bringing on a certain rise in global temperature. But as I have argued, there is nothing natural in framing such facts as limits or "boundaries." They are boundaries only if we want to label them as such (and I agree we should), but there is also no reason why we can't continue living on a hotter earth or survive in a world with polluted ecosystems. Life would be worse for many, perhaps, but it would be life nonetheless. The boundaries, as Kate Raworth argues,[49] are not given; they are boundaries of a collective good life, which we should choose.[50]

The act of making boundaries seem natural, inscribing them in planetary geophysics, has political implications, because it makes the issue seem technical—a matter of geophysics and engineering rather than one of political vision. The underlying assumption is that we can continue living as we do, and grow perpetually, as long as we develop better technologies to use less fossil fuels or phosphorous, staying within the boundaries. This is what has been called "green growth," and it is no coincidence that notable advocates of planetary boundaries have come out recently in support of green growth.[51] Conveniently, the message is that we could keep doing what we are doing (at least in Sweden, the authors' country, which they

praise as a model of green growth) and stay within planetary boundaries. Others go even further and argue that we should grow without limits precisely in order to develop these green technologies. Limits, in their narrative, are used to make the case for no limits. Sounds familiar? It should, because this was also the thrust of Malthus's argument.

There is nothing wrong when planetary scientists make diagnostic statements, as when the IPCC says we have a 50 percent chance of stabilizing the average global temperature at a 2-degree Celsius increase over that of the preindustrial period if we keep concentrations of carbon dioxide under 450 ppm. But economists opened Pandora's box when they argued that this does not tell us whether we should stay within 2 degrees, and that we should instead compare the costs and benefits of staying within 2 degrees versus the costs of surpassing that limit and benefiting from further growth. William Nordhaus, who recently received the economist's version of a Nobel Prize for his work on energy and climate economics, has even claimed that people might "come to love the altered landscape of the warmer world."[52]

A warmer world might be so warm as to be definitely unlikeable, and there may be few left to like it or not. Or it may be that people "like it" because they don't know better. Contrary to what economists like Nordhaus think, climate change cannot be just a matter of tastes and dollar costs and benefits; reducing climate change to a matter of "preferences" is absurd. But economists do capture something by framing their questions in terms of goods and ills. What is at stake is indeed the social worlds we want to create and inhabit, now and in the future; worlds with or without climate change or ocean acidification, which will be better for some and worse for others.

Our relationship to our environments is more coevolutionary than the vision of static boundaries suggests.[53] Consider Kim Stanley Robinson's *New York 2140*, a novel about life after the boundaries have been crossed and the seas have flooded. Downtown Manhattan is submerged, and every now and then poor people die in collapsing buildings. Yet New York is still a city of dreams: women and men fall in love; they marvel at the new Venetian landscape; poor people living in submerged buildings develop new forms of art; cooperatives turn abandoned skyscrapers into communal housing projects. As sea levels stabilize, capitalists bet on new financial schemes by speculating on gentrification and the intertidal housing market. Storms upset the plans of some investors, while others profit by betting against the market. Poverty and inequality are worse in 2140 than now, and social conflict is rife. This is a future both shitty and beautiful, and it is shitty or beautiful for different people and at different moments. History, Robinson's novel reminds us, may not get better, but it definitely does not stop.

The future under extreme climate change may well be worse than what Robinson has imagined. But there will still be a future. The question is what we want to limit now so as to create a better future for the neediest. Planetary studies provide useful information on the consequences at stake and on the limits to our options. But they do not tell us what the limits are.

LIMITS AFTER THE END OF NATURE

It is indeed increasingly problematic to think of civilization and nature as two separate entities, in which an external nature puts boundaries on human activity. We are as much a part of nature as any other species, and our constructs are as natural as those of any animal's. Some scholars have argued that the Anthropocene, posited as the current geological age in which human activity is leaving its trace in the geological strata, marks "the end of nature," or more precisely, since we have never been separated from nature, the end of the *idea* of nature as something external to us. Indeed, there is nothing unnatural about a city, just as there is nothing unnatural about an ant colony. Humans are constantly creating new natures just as do other species.

It would be wrong to conclude from this that we are omnipotent; that if we are nature then we can do whatever we want to nature, or that whatever we do is fine because it is as natural as anything else. A difference still exists between a pristine mountain and a shopping mall,[54] but the difference is not a matter of naturalness; it is a matter of judgment. (We have a tendency to call "natural" whatever we like and don't want to see change. At other times, we use "natural" to describe what we do not like but want to "civilize." In short, we hide our judgments behind versions of the idea "nature.")

It is precisely when there are no obvious external limits that we must be prudent enough to pose our own criteria and limits. It is when we realize that in a certain sense there are no external limits, that we should limit ourselves. It is *because* of our seemingly unlimited power—creative and destructive—and because nature is not something outside of us, that we have to limit our actions and choose not to do everything that seems doable. At times we must choose not to discover what can be discovered, not to develop what can be developed. If there are no longer clear boundaries between humans and nature, then when we set limits we become nature defending itself—as climate justice activists put it—as much as we are humans defending humanity against itself.[55]

But can a society go about limiting itself in the name of the good life? And if so, how? We now turn to that question by looking at one society that did just that.

4
A CULTURE OF LIMITS

Erysichthon was the king of Thessaly. One morning, he ordered his servants to bring the people of his kingdom to his estate. He gathered them around the sacred grove of Dimitra, the goddess of the harvest. In the center of the grove stood an ancient oak tree. "Chop it down," he ordered his servants. "I want to make a banqueting hall." His wise daughter begged him not to. This was madness. But Erysichthon grabbed an axe and struck the tree hard. Dark blood flowed and the spirit of the tree shrilled, threatening Erysichthon with revenge. The king laughed and the tree came crashing to the ground.

At night Erysichthon slept, snoring with his mouth open. Dimitra sent to him the spirit of hunger. Hunger kissed the king and sent a torrent of starvation. The next morning Erysichthon woke up and could taste nothing. He sat down and ate, more than he ever had, more than his entire city would eat in days. Then he asked for more—and more. To assuage his hunger, Erysichthon sold off all his belongings. But this was not enough. He then sold his princess daughter as a slave.

Yet his daughter turned into a horse and escaped from her master. "Sell me again," she begged her father, to save him from his hunger. She fled her new master as a bird, and the next one as a sheep. Every day she played this trick until one day she arrived back too late. As he was cramming food into his mouth, Erysichthon bit his own flesh. He tried his finger, and it tasted good. And so did his arm. And so it was that King Erysichthon devoured himself.[1]

MONEY, DEMOCRACY, AND THE ORIGINS OF LIMITS

"The Greeks had a myth for many of our central concerns," writes classicist Richard Seaford, and the myth of King Erysichthon is apt for global warming.[2] Turning nature into a product leads to an insatiability that sacrifices the future (symbolized by the daughter) and that is self-destructive.

Few other civilizations have been so preoccupied with the question of limits as the Greeks. As Seaford puts it, the ancient Greeks had a "culture of limit."[3] The very creation of the Athenian polis at the onset of sixth-century BCE was an act of legislating limits. Solon called himself a *horos* (ὅρος), a boundary or boundary-marker, between the two opposing classes (rich and poor). Solon instituted limits and professed moderation, a principle of limits he ascribed to the cosmos, and one of the most intensely invoked and admired personal qualities in ancient Greece.[4] Completing his legislative task and at the peak of his power, Solon exiled himself to avoid the temptation of being seduced into excess by his power.[5]

The point of this chapter is not that we need to go back to the ancient Greeks, but

that we can learn from them. Our culture is saturated with the idea of limitless accumulation—of power and riches. A rhetoric of limitlessness goes hand in hand with the imposition of strict limits on those with less power. But in democratic Athens men of all classes experienced unprecedented freedom and political power, while the dominant culture was one of limits. We can learn a lot about limits from Eastern or other cultures, of course, but the classical Greeks "are sufficiently like us to be comprehensible" and sufficiently different to shed light on our historical contingency.[6]

I am not claiming to offer here a history of the idea, much less of the institutionalization, of limits in classical Greece. Other than being Greek myself, and having spent a large part of my childhood daydreaming that I was Achilles, I claim no expertise in Classics. I discovered the relevance of ancient Greece for the question of limits through the work of Castoriadis, whose theory of autonomy, so crucial to my argument here, owes much to the Greeks. More recently I came across classicist Richard Seaford's seminal work on the invention of money. His thesis is that much of Greek culture and philosophy was shaped in reaction to money's seemingly limitless character. I draw amply on both of these thinkers in this chapter, as well as on Michel Foucault's work on sexuality in classical Greece. Through the lens of these authors, I use Greece as a heuristic, with no intention to sanctify it. Major aspects of Greek civilization, not least the position of women and slaves, are not to be admired. But although many other societies before or since Athens also exploited women and strangers, no other society has had a democracy in which the question of self-limitation was so central. And this is what interests me here. How did the Greeks come to have a culture of limit, and what form did this culture take?

The short answer to the first question, of origins, is money and democracy. The Greeks were the first to experience the power of general-purpose money.[7] For Seaford, the potentially unlimited nature of money, described disapprovingly by many Greeks, from Solon to Aristotle, explains the anxiety Greeks had around limits. Greek culture can be read as a reaction to the unlimited power of money that was just beginning to be unleashed.

Aristotle argued that while our needs are limited, there is no limit to using money to make money.[8] The growth of money without limit is unnatural, he contended, because in nature everything has a limit.[9] A tree, for example, does not grow forever. (To be clear, Aristotle does not ascribe limits to nature. Unlike Malthus, for instance, he suggests that along with other living beings, we are naturally predisposed toward limits, not limitlessness. Our needs are limited; it is money that is unlimited.) As Marx, following Aristotle, would write much later, money can be exchanged for anything, and this is what makes our desire for money insatiable. In contrast to physical goods, there is no limit to our desire for money and its accumulation.[10] In Aristophanes's comedy *Wealth* (c. 388 BCE), one character is amazed that whereas one can have enough of sex, bread, music, or honor, one never feels that way about money. He's eager to procure sixteen *talents* (an ancient currency), but once he

obtains them, he "swears that life [will be] unbearable until he obtains forty."[11]

The clash between the old communal world of clans and rituals and the new impersonal world of money was at the heart of Greek tragedy.[12] The tyrant, a common tragic figure, was obsessed with money, which isolated him from the gods and his community. The tyrant "kills his own kin, violates the sacred, and is much concerned with money as a means of power."[13] Tragedy was thus "the prime site for the conflictual synthesis of ritual (social) limit with the monetary (individual) unlimited."[14] As in Aeschylus's *Oresteia* cycle, the limited always wins out over the unlimited; the tragedy concludes with putting an end to "the potentially unlimited cycle of revenge" as well as "the potentially unlimited accumulation of wealth."[15]

Castoriadis, like Seaford, sees in tragedies a reminder of limits, but for him the crucial problem dealt with by tragedies was the ways the polis could impose limits on itself. Athenian democracy was not founded on some sacred scripture; the collective source of Athens's law was the sovereign people. The Greeks elevated their own polis "to the status of a deity . . . more worthy of devotion than the gods of Olympus."[16] The Greek gods were superior forces, but not absolute or wise (quite the opposite, when we consider their adventures and misadventures). In making decisions for the polis, the Greeks did not ask advice of the gods.[17]

But how do people decide on norms in a regime that knows no external norms?[18] "In a democracy," Castoriadis writes, "people can do anything—and must know they ought not to do just anything."[19] Greek culture and cosmology, political and economic institutions, and a personal and political ethos were constructed around this principle of individual and collective moderation, or self-limitation.

The notion of *hubris* is central here. Hubris for the Greeks did not just mean arrogance and overreach. Rather, as Castoriadis points out, hubris was a transgression of previously undefined limits.[20] It was not about disobeying a limit already set by the gods, but about excess—taking too much of something and removing it from its representative gods;[21] Dimitra's sacred grove, for instance. Hubris means that "limits, boundaries, cannot be set in advance—that's why *phronesis*, cautiousness, is required. The boundaries do exist, and when we will have crossed them it will be too late, by definition . . . The heroes of ancient tragedy only learn that they are inhabited by hubris, by excess, once the catastrophe has taken place."[22]

INSTITUTIONS OF SELF-LIMITATION

Tragedy, then, was a core institution of self-limitation. Tragedy was not just a cultural form but a medium through which Greek society gave meaning to its acts and reproduced itself. Tragedies exhibited the effects of hubris, reminding audiences that collective and individual self-limitation was necessary for democratic cohabitation.

Both tragedy and democracy were instituted around 510 BCE, a generation or so after coinage began to be used in Athens. Athenian democracy was to an extent

founded as a response to the problems created by the unlimited growth of money. Its core institutions were meant to limit the accumulation of money and power. Before Solon, civil strife was building, as peasants who could not pay debts ended up selling themselves as slaves to wealthier compatriots. Growth in agricultural products was limited by nature, but interest and debt were not. The invention of lending money with interest threatened Athenian society with civil war.[23] Solon canceled debts, abolished slavery for insolvency, gave peasants political rights, curbed aristocratic privilege, and limited dowries. His logic was not that of justice but of keeping the rich from excessive accumulation.[24] Solon's maxim was inscribed in the Delphic oracle: "*Meden Agan*," nothing in excess.[25]

Unlike us, the Greeks did not think that individuals create wealth. The gods gave wealth, and the city distributed it to individuals. There were taxes, but private wealth in Athens was less than public wealth, and it was not as concentrated as it is today. Rich men were required to finance some of the city's expenses, mainly festivals and ships, with "liturgies" appointed by the magistrates (if a designated person believed someone else to be richer, he could challenge him to pay the liturgy or exchange responsibilities).

Athenian political institutions in turn controlled the unlimited accumulation of power. The demos ruled, and peasants (if they were male and Athenian) had the right to participate in government. This right was effective, not nominal; on the whole, the Athenian peasant-citizen had no lord and did not have to work for others.[26] Over the course of the fifth century BCE, the city paid citizens for political tasks—such as being one of the city's six thousand jurors, or sitting in the Ecclesia, the Assembly—or for military service, or for helping to construct monuments. Money was given so that people could attend the theater, and meat was distributed for free during sacrifices. In general, such sources of direct and indirect income covered people's basic needs, ensuring that everyone could afford to spend the necessary time on affairs of the polis and no one would have to depend on, and be influenced by, rich patrons.[27] Each citizen could also propose a law to the Ecclesia. But to self-limit abuse, one could always be accused ex post facto of unlawfulness, and citizens could bring each other to trial for inducing the people to vote for a law that turned out to be bad.[28]

For fields requiring specialized knowledge, including the military, expertise was recognized, and the best generals were elected to the army. Politics, however, was not seen as a realm of expertise. Magistrates were selected by lottery and positions rotated,[29] so that no one could accumulate too much power. After Cleisthenes, the founder of Athenian democracy, expelled the tyrants in 508 BCE, ostracism awaited those who were suspected of wanting to rise to power and who lacked the tact of Solon to leave before they were asked to.

THE ART OF LIMITING ONESELF

As Michel Foucault shows in his fascinating study of sexuality in ancient Greece, the

Greek population internalized this political ethos of moderation, which governed personal desire.[30] Moderation did not imply a golden mean or the avoidance of extremes but, as Solon put it, "a hidden measure (of intelligence) that holds the limits of all things." Ideas of both "measure in the cosmos and recommended moderation in behaviour" are common to both Solon and the philosophy of Heraclitus and the Pythagoreans.[31]

The Greeks thought that our urge for money or pleasures like sex, alcohol, and food was excessive. The moral question entertained by philosophers was how to confront these urges, how to control and master them and to regulate their economy.[32] They grappled with a problem similar to that of Malthus but did not think of it in terms of suffering and expansion. The Greeks accepted all desires. In contrast to Malthus, who thought like a Christian priest, the offense was not the desire itself but, to cite Aristotle, the temptation to exceed the natural amount, *to do more*.[33] The Greeks did not distinguish good and bad desires; they worked instead to develop an art of management—controlling, limiting, and apportioning pleasurable activity in the right manner, forming themselves as subjects in control of their conduct.[34]

Personal behavior was not the subject of a moral or religious doctrine, of laws and codes, or of religious bodies with the authority to sanction behaviors. The Greek gods, to put it mildly, were bad examples. Hebraic or Christian sin presupposes a well-defined dichotomy between what must and must not be done; the Greeks were only to avoid excess and hubris.[35] The manner in which pleasures were enjoyed was then "an ethical problem"[36] and a practice that demanded reflection and prudence.[37] No unified, coherent system was imposed on everyone in the same manner. Both philosophers and doctors, for example, wrote guides that recommended regimens of diet and exercise and that offered advice on opportune times for sexual activity. But these were disquisitions on the art of living whose routines were intended to avoid excess and establish measure.

For Plato, self-mastery was an active battle to dominate one's own desires and pleasures. The Greeks had indeed an agonistic attitude toward their desires.[38] The point, though, was not to eradicate but to be aware of desires and, most important, to cultivate control of any desires that were potentially violent or self-destructive. As Aristippus put it, "It is not abstinence from pleasures that is best, but mastery over them without ever being worsted."[39]

In the preceding chapter we saw how the dominant view today, a legacy of economics, is that wants are unlimited and cannot be questioned, only pursued to the fullest extent; and that we should produce as much as possible in order to satisfy them. Anything else impinges on freedom, the freedom to pursue our desires. The Greeks had quite a different view: it was self-mastery that brought freedom—freedom not as the independence of free will, but freedom from pleasure's domination.[40] Control did not mean renunciation or denial of desire, but reflection and the mastery that was a necessary quality for leadership. In Plato's view, the vicious ruler, like the tyrant of tragedies, was incapable of mastering his own

passions and as a result prone to abuse his power and do violence to his subjects. The wise leader is first the master of himself, his self-rule moderating his rule over others.[41]

Reading Foucault, I came to see how my own fascination with self-limitation and moderation was a product of my upbringing and my immersion in ancient Greek culture at a formative stage in life. The morals of the *Odyssey* and the *Iliad*, the myths and the legends I read as a child, influenced my own moral structure. And these morals and stories distilled the imaginary of the Greeks about the world they lived in and the society they were creating.

THE METAPHYSICS OF LIMITS

The Greeks projected their social and personal reality onto the world and the universe. Seaford contends that it cannot be a coincidence that the early sixth-century BCE philosophy of Anaximander is where we first find the idea of a cosmos without anthropomorphic deities together with the idea of a unitary, all-pervasive, abstract, and transcendent substance, quite reminiscent of money. Anaximander hailed from the city of Miletus, perhaps the first fully monetized society. Philosophers, in other words, projected the conflict between social limit and the unlimited power of money onto the universe. Sixth-century BCE Pythagoreans privileged limits at a metaphysical level, arguing that the universe comes into being as a process of limiting the unlimited.[42] For Anaximander, everything comes from infinity and returns to infinity. Each being is subject to a limit and returns to the limitless. One and a half centuries later, Plato would argue that limit should control the unlimited, and Aristotle would denounce limitlessness as bad and champion limits.[43]

I am not trying to claim that the ontology of Greeks was founded on limit while ours was founded on limitlessness. As I showed with Malthus, things are more complicated than that. Malthus's limited world was the result of limitless wants: limits were invoked when it came to redistribution, but limitlessness was invoked when it came to expansion. But the particular relationship that the Greeks saw between limits and the unlimited differed from ours, and these differences may be illuminating.

Some pre-Socratic philosophers envisaged the world as unlimited; Anaximander said that the basic substance of everything is infinity (the *apeiron*), by which he meant the unlimited. And Heraclitus regarded the cosmos as an eternal fire in constant transformation. Each of them also imagined the existence of a cosmic principle that imposes limits in a sort of balancing act or canceling out of forces.[44] Similarly, the early Pythagoreans regarded the world as composed of opposites, the most basic opposition being that between limit and the unlimited; limit is superior to the unlimited, and cosmogony is the limiting of the unlimited.

Indeed, what human culture generally does, as I argued earlier with the example of artworks, is to limit the unlimited. Any kind of ordering or creation (painting, lawmaking, or the building of a table) entails limiting the unlimited. It's just that this

fact acquired special importance in the newly monetized society of the Greeks, where for the first time a humanly created unlimited was threatening to destroy the polis.[45] Solon accepted the idea that there was no visible or easily understood limit, but as the philosophers asserted, there was something with universal limiting power. The Greeks projected onto the cosmos a power to limit, an entity they saw as real and extant. Cosmogony was the limiting of the unlimited by something no less real than the unlimited matter.

If I may be allowed a diversion here, this aspect of Greek ontology and culture has features in common with the egalitarian societies of hunter-gatherers studied by anthropologists.[46] These hunter-gatherers, too, live in a world of limits within limitlessness. They see nature as unlimited, but they respond to it with limits. Like the Greeks, they create institutions to curb the accumulation of resources and power—from reprimanding successful hunters to sharing and consuming all bounty, without allowing themselves to accumulate.[47] Though I may risk overdrawing parallels, they also share an animistic view of the universe. In Greek myth, nature is humanized: gods become animals, copulate with humans, and the like. In older traditional societies, there is no boundary between the human and the nonhuman, a point that we moderns have realized only recently in our theories about the Anthropocene and the end of nature. Interestingly, for the ancients, this unity of the socionatural world was seen not as an invitation to endlessly exploit but as a reason for prudence, given the risk of hubris.

DEATH AND LIMITS

Death, of course, is the ultimate limit, and it is not farfetched to think that the human fear of limits has to do with the fear of dying. Unlike religious societies, the Greeks did not try to beautify or exorcise the abyss of death.[48] For the Greeks, Castoriadis writes, “the fundamental thing is mortality . . . The mortals are the humans: that is what being human is.”[49] Greeks made sense of life and death through rituals, mystic initiations of which we know little but which importantly were called *telos* (completion, or end). Death rituals, like funerals, imposed limits on the subjectivity of death and the potentially unlimited pain the relatives experience. The Greeks experienced and reproduced their social limits, like the physical limit of death, through ritual; many tragedies focused on the perversion of ritual, the perversion of social limits by the unlimited power of money.[50]

Like many people today, the Greeks did not believe in the myth of a happy afterlife. In Hades, the underworld of the dead, even heroes were reduced to miserable shadows.[51] Hades represented the nothingness of death. But having accepted the ultimate limit of death, and having thus been liberated from the desire to transgress a limit that cannot be transgressed, the Greeks were able to accept that it is we who make meaning in our lives. We do not have to search for it in the gods or the afterlife. Heroes in Homer know they are going to die if they act in a particular way, but act this way they do, choosing the conditions of their own death, which is

paradoxically an ultimate act of freedom and of the construction of meaning—including the meaning of their own death.[52]

Now these interpretations that I take from Castoriadis may be wrong, as evidence abounds that at certain points in Greek history there were strong beliefs about a happy afterlife; they even had rituals for it. I cite his work because he helps us think about how a culture of limits must be one that accepts death, not one, like ours, that tries to hide it or push it away. Unlike the Greeks who worried about the unlimited, our principal anxiety today is that we might be reaching a limit. Our ultimate fear, and limit, is death, which we have lost the capacity to accept or to deal with.

I felt that in my skin five years ago when my mother suddenly passed away, hit by a stroke while on the podium about to give a lecture for the commemoration of the seventeenth of November, the day students revolted in Athens—and the beginning of the end of the military junta. In front of an unexpected death I found myself without the rituals and structures that would let me cope with this imaginable, yet impossible to truly comprehend, loss. Unable to deal with an unthinkable limit, our only response is to think it does not exist—until it does. It is no coincidence then that in our supposedly disenchanted world, we still fantasize about immortality, as our obsession with health and the "occultation of death" reveal.[53] This fantasy has been transferred into the idea of indefinite progress and growth.

Our irrational taboo against suicide comes then as no surprise, whereas in the ancient world suicide could sometimes be honorable. Or consider the standard Hollywood plot in which the hero faces a series of threats to life, only to overcome them and live happily ever after. Incapable of finding meaning, because once the gods are gone there is no meaning, our culture has displaced the search for meaning into a struggle for life against death as a meaning unto itself.

Growth for growth's sake is another manifestation of this psychosocial drive. Western societies consider high life expectancy to be the ultimate indicator of social wellbeing, and we use it to justify growth. We are supposed to take care of ourselves in order to live as many years as possible. But why? We do not really know why. Living, for us, *is* the meaning of life, and we aim to extend it indefinitely. The Greeks instead reprimanded "those who in order to keep from losing their hold on life, tried their utmost to delay the term that had been appointed by nature."[54] The idea "was not to extend life as far as possible in time nor as high as possible in performance, but rather to make it useful and happy within the limits that had been set for it."[55] This freedom to act within the limits marked by death is different from our modern idea of freedom as the right to mobilize all forces possible to subdue nature and become immortal, which is to say unhuman.

In *Civilization and Its Discontents*, Freud argued that we each have a drive for life and a drive for death.[56] Hunger, sex, or love are life instincts. But we also have a primordial longing for an infantile stage when we had not yet realized our separation from the environment. This death instinct, a desire for our own dissolution, Freud suggested, gets displaced as an aggressive instinct to destroy others. Civilization

limits this longing for limitlessness, but we suffer from having to limit our instinctive behavior. Influenced as he was by Malthus,[57] Freud concluded that the limits we have instituted and interiorized to control ourselves are as significant a cause of suffering as the destruction that the unleashing of these instincts would cause. For Freud, the suppression of our instincts feeds our discontent. But the Greeks let us see the relationship between desire and death, between instinct and limit, in a different way, one that actually anticipated the evolution of psychoanalysis.

The Greeks too saw the potential destructiveness of our excess energy. But unlike Malthus, Freud, and the moderns, the Greeks did not think of self-limitation as suffering. They saw limitation as normal (and suffering as a part of life). It is obvious that we have to master and craft our instincts; this is the price of civilization. The problem with us moderns is not that we have suppressed the death instinct, but that in refusing death we are only able to react to death through violence: we attempt to overcome it by subduing nature or by shifting death onto others. Accepting death and accepting their violent instincts, Greeks tried to master them.

As it turns out, this dovetails with the project of Freudian psychoanalysis. Psychoanalysis accepts that our struggle with our instincts can never be resolved. Our desires are contradictory and potentially violent. We cannot become saints relieved from all suffering, but we can understand ourselves better—accept our desires and the results of repressing them—and then choose our limits consciously, liberating fantasy and desires without fear. Civilization has a built-in destructive drive, but in contrast to what Malthus and many others thought, it can be controlled. We can have less suffering instead of destruction, to the extent that we can institute mechanisms that help us reflect on our wants and prudently manage those that are excessive. At the level of the individual, this is the mission of psychoanalysis; at the level of the collective, Castoriadis argued, this is the role of democracy.[58] Psychoanalysis helps us come to terms with desire and death and to overcome fear; to live rather than to be paralyzed or turn violent. As for the Greeks, the point was to separate creative from destructive desire, to release desire and to work to craft it.

To return to my favorite allegory (just in case I have not convinced you to see the movie), did 1900 stay in the ship because he saw that he could better express his desires within its limits than in the limitless city? Or did he desire to leave for the city but remain trapped in the ship out of fear or guilt? Did he engage in soul-searching and choose his own limits, or was he limited by his past? Such a view of personal freedom, as a search within one's self, is a world apart from the freedom of Robinson Crusoe and his frantic actions to fill a void through activities at once destructive as well as meaningless and self-oppressive.

RECLAIMING A CULTURE OF LIMITS

Western societies have reflected and instituted important limits, especially since the unthinkable self-destructiveness of the two world wars. Our history of laws and limits is as much the history of Western progress as are bridges, dams, spacecraft,

and computers. After the Second World War, Western countries strove for a time to limit inequality and the accumulation of private wealth by taxing the wealthy in ways that would now seem unthinkable, and they imposed limits on working hours and environmental damage. We have limited the spread of nuclear weapons and the research on new ones; we have limited how fast we drive cars, where and when we can smoke tobacco, how much we poison our food or pollute our water, and what we can do to one another without impunity.

The revanchist tendency from the 1980s onward, however, is one of deregulation, with the removal of limits to money flows and accumulation, or of environmental and social protections. Global warming brings home the self-destructiveness of having no limits. But the reaction by those in power and many of their followers to the reckoning of hubris is denial and a doubling down on the effort to deregulate whatever limits remain—from mining in nature reserves, to digging extra-dirty oil or coal, to working and trading on Sundays—all in the pursuit of limitless expansion; senselessness in search of sense.

We moderns have never needed a culture of limits as much as we do now. At the same time, we may never have been so hostile to limits as we are now. From self-help books on how to overcome your limits, to "no limits" exercise routines, to songs and advertisements telling us there is no limit to what we can achieve, our culture is obsessed with limits, but not in the way that the Greeks were. *Limitless*, the 2011 science fiction thriller film starring Bradley Cooper, offers a case in point. Cooper plays a failed author who suffers from writer's block and has been abandoned by his girlfriend. Enter a new nootropic drug to save the day. In a few hours, Cooper's character completes his novel, which is an instant success that leads to more success still. The catch, though, with the drug is that he needs more and more of it to keep up. Without it, he will collapse and die.

I hail from an older generation than this movie's target audience, and as I watched, I waited for some kind of nemesis or a road to salvation. But instead of dying or giving up the drug, Cooper secures his own unlimited supply, learns to weather the side effects, gets his girlfriend back, and rises up to become a US senator and prospective president. Not only do hubris and immorality go unpunished; they are glorified. The addict-hero walks over corpses to get his dose and cheats on his way to becoming the most powerful man in the country. If the myth of Erysichthon was an ideal myth for a culture of limits, this modern story of a limitless king having it his way reveals the pathology of a civilization obsessed with overcoming limits at any cost. It is the same macho pathology of the new breed of rulers who take pride in their lack of moderation, who want to extract coal and oil at any cost, and are ready to eliminate the last indigenous people in the Amazon to cut more trees and mine more minerals.

The Greeks of course were far from perfect, and their history was hardly a peaceful or ideal one. We can't return to the Greeks, nor should we. And we can't reproduce the conditions that led to a culture of limits in their particular place and time. "We must go further than the Greeks and the Moderns" to establish a genuine

democracy of self-limitation under contemporary conditions.[59] We can take pride in the limits that we have managed to institute that they did not. But progress today, more than ever, may mean stopping—not moving ahead with growth.[60] As Walter Benjamin wrote, shortly before the Second World War, it is time “to pull the emergency brake.”

The omens are not favorable. But there is no alternative but to insist.

5

THE LIMITS OF LIMITS

Until now, I have been arguing for limits as part of a desire for freedom, justice, and sustainability. In this chapter I follow some loose threads in my argument that allow me to examine the limits of my own case for limits. I will be more declarative here than in previous chapters, and I would ask that readers treat my declarations as provocations rather than certainties. The sections that follow are tentative answers to questions that I have faced while defending my case for limits.

LIMITS ON WHOM?

I had much to say about limits that we can put upon ourselves, as did 1900. But I said less about the limits that one group imposes on another. Like Malthus, those with power often single out a weaker group to limit in the name of the common good—be it the poor, the foreigners, those of supposedly different skin color, or the immigrants. Such claims for limiting the Other go hand in hand with power and control, if not violence, exercised by the limiters. In other cases, it is the weak and marginalized who draw limits to stop others from encroaching on their space; think of a community that prevents a multinational corporation from logging its sacred forest. Violence here is often committed not in the name of limits but by proponents of limitless expansion against those who defend limits.[1]

How can we distinguish reasonable and unreasonable claims to limits? One approach might be to focus on justice and power. Do claims for limits come from a position of power or not? Limits that protect a particular interest against the common good are problematic. Are those who call for limits also willing to limit themselves in accordance with the limits they espouse?

But different groups may have different views of what constitutes the common good and who is included in it, of what is just, or who is less or more powerful. Is an indigenous group that wants to protect a sacred grove within national boundaries engaging in NIMBYism or a common-good fight? And if it is a common-good fight what about the fights of those who dislike protected areas or rules that protect endangered species, and see themselves in confrontation with an all too powerful government? Furthermore, even limits “we” set on ourselves may still involve oppressing a minority among “us” who do not want these limits. There is no easy way out here; practices and discourses around limits can be problematic. But this is not a reason for shying away from them.

LIMITS TO WHAT?

Another problem with my account is that I have not specified what precise limits I

have in mind. Liberal democracies already have laws and limits. Do I want limits to everything? Limits to good things like clean energy or education, too? If not, then limits to what?

Indeed, I have made a general case for a culture of prudence—a culture that is reflexively inclined toward limit rather than limitlessness. One area where precaution is necessary is technology. We cannot cease to pursue knowledge, but we can no longer pretend that the limitless pursuit of technology is unproblematic. Ours is the first predominantly secular society that will have to devise institutions to limit the directions that knowledge takes without limiting knowledge itself. How we will be able to achieve this is hard to say, but recognizing that we have to is a crucial start.

What we will also have to limit, in the vein of the ancient Greeks or egalitarian societies, is the limitless accumulation of money and power. Accumulation—economic growth—without limit, itself linked to the pursuit of power, is what threatens us with ecological self-destruction. The Greeks had no inkling of the kind of environmental catastrophe we now face, but they did know the destructive power of money. As in Solon's time, it is the accumulation of money in the hands of the few, who lend at interest to the many, that drives inequalities and civil division. Internal inequality in turn spurs external expansion (the very growth that Malthus advocated), and ultimately ecological breakdown.

Many radical proposals for economic reform today can be read as attempts to limit the accumulation and reach of money: proposals to establish a maximum wage,[2] to tax high income, wealth, and inheritances,[3] to control how much private banks can lend,[4] to constrain the scope of general purpose money,[5] to reduce working hours,[6] or to limit the private money that goes to lobbying or political campaigns. Slowing down the growth of money, and constraining its domain, will slow down resource use and pollution. In addition, we may want to bring back enforceable limits to pollution, like carbon emissions, and to the extraction or use of damaging resources like fossil fuels. Limiting, or rather reshaping, material wants will be part and parcel of such change.

Limits also require more profound democracy to restrict the accumulation of power: shorter terms and more rotation of offices, more elections by lottery (similar to jury selection), direct participation by all citizens. A corollary to these reforms is the idea of a guaranteed basic income or a free bundle of public services,[7] because as the Athenians realized, effective participation requires time and economic freedom.

I will end my list of proposals here,[8] lest you think me mad; yet seeing such proposals as madness is surely an indictment of our dire position, where even imagining limits appears outlandish.

POLITICS OF SELF-LIMITATION

Granted, given the current state of our politics, the above changes seem utopian. The

lack of a viable path to implementation might be seen as a drawback to my case for limits. But the truth or ethical value of an argument does not rest on whether it is politically correct or viable. Political changes are a matter of will and contingency. We will never know if a culture of limits and its institutions are possible if we begin with the premise that they are not.

Things off-limits for previous societies are today allowed in ours, and vice versa. We limit behaviors that are or were acceptable to other civilizations, from rape and domestic violence to driving excessively fast and smoking in public spaces. When we look back at history we see structural change, but we cannot see change as it happens. The Greeks did not fully plan a culture of limits, but they got one. Their culture and institutions resulted from coevolutionary changes—cosmological, philosophical, ethical, political, and technical—in the context of a material substratum (the invention of money). If our substratum is an unraveling ecology and climatic breakdown, we should expect new ways of understanding to emerge and coevolve with new practices. Incipient philosophies of "limitarianism,"[9] or Pope Francis's *Laudato si'*, a strong spiritual plea for limits,[10] are evidence that something might be afoot in the realm of ideas. Coevolution in the direction of self-limitation would involve political battles and the institutionalization of new limits, new philosophical and scientific concepts, new artistic and cultural forms, new ways of thinking, being, and desiring, and new rituals of coming together. But who would push for this?

There may be a sizeable minority of people who see the wisdom of simple living.[11] A common sense of limits and sufficiency is widespread; it is found in religious and spiritual teachings, even if it is marginalized in today's prevalent way of life.[12] Partly this is because living within limits collides with the imperative of the current system to expand. Legal interventions, for example, have curtailed people's ability to limit the number of hours they work, and advertising makes sure that people do not limit how much they consume.[13] Those who downshift risk social marginalization and being moved about by those who accumulate limitless power in a society where money rules. As these reasons suggest, self-limitation cannot be a project of individual or small-group change; it must have a universal, political ambition to change the structures that prevent people from living within limits.

A project of self-limitation would be impossible without the working class and all those who live within limits that are not of their own choosing. But for those who suffer every day under the limits of the existing system and are on the receiving side of patronizing Malthusian or austerity discourses, it is hard to mobilize in the name of limits, much less understand why others in better circumstances may opt to live within limits. As Emma Goldman saw, to escape its entrapment, the working class must master those wants that fuel the system of exploitation, not insist that they should be satisfied. Limiting oneself so as to be liberated from oppression is different from accepting unjust limits. How, or whether, Greens and others who advocate limits can create coalitions in the working class (that are not coalitions for continued, greener

growth) can be answered not in the abstract but only in relation to the concrete efforts of building such coalitions.

LIMITS, SHARING, AND EQUALITY

Malthusian limits go hand in hand with inequality: Malthus told the poor that there is not enough for everyone. Self-limitation, in contrast, rests on equality. If we decide to limit the pie, then the case for sharing it more equally is stronger. By the same token, equality is necessary if people are to accept limits. As Seaford notes, "People will not give up their annual holiday overseas when the sky is full of private jets. . . . Self-limitation . . . will be generally acceptable only when there are limits on everybody (as has occurred in wartime), when the currently absurd 'we are all in this together' becomes a reality."[14]

Malthus's limits explained away enclosures; self-limitation instead justifies sharing the commons. Sharing, as we know from egalitarian societies, precludes the accumulation of power and the competition for position that drives expansion. And if surplus is shared and expended instead of accumulated, then there is less expansion. Limits, that is, are an outcome—intended or not—of sharing. Malthus claimed that there is not enough for everyone to have a decent share. The self-limitation thesis instead is that there will be enough for everyone *only* when we limit ourselves to our fair share. Without limits, there will never be enough. And without sharing, there will always be those who will have less and feel they do not have enough.

Self-limitation for sharing a limited resource is the essence of the theory and forms of organization called "the commons." Against neo-Malthusians like Garrett Hardin who argued that users of a commons will free-ride without limits at the expense of others, scholars studying actual commons have shown how users come together to devise collective systems that limit their use of a common resource, given the consequences of not doing so.[15]

LIMITS AND FREEDOM

Do limits intrude on freedom? Liberalism holds that an individual should be free to do anything provided it does not cause harm to others. But an individual who rides free in a commons harms the freedom of others. In complex globalized societies that run on fossil fuels, almost everything we do harms others sooner or later (think of carbon emissions) as we free-ride in the global commons.

A "limitarian" as opposed to a liberal or libertarian approach begins with a principle of prudence and moderation. I have argued that this does not go against personal freedom, which is not the freedom to do whatever you want but freedom from want. Freedom in a limitarian sense is not the unobstructed pursuit of desires, but the conscious reflection on, mastery, and liberation of them.

Who is to tell us, though, that our desires are wrong and that we should limit them? To this standard concern of liberalism our answer should always be no one. Not, however, in the sense that we should not be limited, but that it is we who should

judge and limit ourselves.

Any project in common, including a state, involves rules and self-limitations.[16] Participants must internalize rules or the costs of enforcement make it impossible to govern. The subjects being governed must also govern themselves. Freedom cannot mean the liberation of the self from all internal and external constraints, because without such limits a society cannot function. In a functional society, members must see as legitimate the limits that society demands of them. But as Freud noted, such limits often reside in the unconscious, becoming a constant source of frustration and bad behavior. Law and prohibition fuel desire. My hypothesis is that the more we come to reflect on the law and accept its logic as our own, the less likely we will be to desire to transgress it. But transgressing it also we must, occasionally at least, unless the law is to ossify into oppression (more on this below).

WHEN AUTONOMY BECOMES HETERONOMY

If a government is our collective representation, charged with the enforcement of limits, then the distinction between technocratic, heteronomous limits and autonomous self-limitation is less clear.[17] That a government may separate itself from its people and begin to impose limits that favor a privileged class does not mean that all administrative limits are heteronomous. If government is government of the people, then administrative limits are limits of the people. Not only does democracy need limits; limits also need democracy.

Indeed, self-limitation requires institutions at higher levels to secure the endurance of agreed limits. People organize—from families and clans to towns, regions, nations, and international organizations. It is a matter of scale. Limitations at one level are often enforced by an authority at a higher level charged with the power to sanction those who defy the limits lower down the chain. Users of a forest commons, for example, will reach agreements as to how to limit their logging and then establish an authority or mechanism at the group level to ensure that everyone respects these limits. Likewise, to combat climate change, nations agree at the international level on limits to their carbon emissions.

Scaling up limits controls free-riding and absolves individuals from having to be ever vigilant of their conduct. I don't want to wonder constantly whether I should consume this or that; I want government to tell me what we have agreed not to consume. But when limits come to us from higher up, they appear heteronomous, imposed by the higher-level authority. It seems as if it is the United Nations that forces us to reduce carbon emissions or the European Union that keeps us from smoking or eating sugar.

We are also faced with limits as a result of the commitments of our predecessors. Each new generation should have the opportunity to question and appropriate preexisting limits, lest they appear arbitrary. But each new generation also has a propensity to shred the limits of its forebears, and if it does so, then no limits will be durable. If every ten years we discuss which forests we should protect, we will soon

find ourselves without any forest at all.

Good parents set boundaries within which their children can act freely. Without limits, children find themselves in an infinite world where their freedom turns into fear.[18] But all children inevitably react and question the limits set by their parents, which to the children may seem arbitrary. Child development is a process in which children find and appropriate their limits, and the external, heteronomous authority of the parent is an essential ingredient in this process.

One might then have more sympathy than Castoriadis did for religion, tradition, and the doctrines and rituals so reminiscent of parents that human communities have devised to pass limits from one generation to the next. True, these can become heteronomous forces that perpetuate unreasonable limits of bygone eras, as he argued; but they can also function as a repository of ecological wisdom and awareness of limits,[19] codifying and preserving limitations. What is more effective for conserving a forest than declaring it sacred?

Castoriadis recognizes that religion reminds "humans of their limits" and that "we are not the master of the world"; it personifies and gives a name to the abyss of death, to something beyond our limits "called taboo, totem, Amon-Ra, Olympian gods . . . or Jehovah."[20] He insists, though, that in our times we "must simultaneously mark that human limitation and . . . that it is we who create meaning at our own risk (including in the form of religion)."[21] Rather than "invent" a heteronomy to ensure the endurance of limits, Castoriadis thinks we should constantly call limits into question; that is, we should not be afraid to risk hubris. By questioning limits, we can decide to dismantle or transgress them, and this is the price we must pay for our freedom.

Even Castoriadis's beloved Athenians paid this price, eventually succumbing to hubris. Unable to limit their imperial adventures, Athenians saw their entire seafaring force destroyed in the disastrous expedition to Sicily during the Peloponnesian War. The Athenians limited the accumulation of power within the polis but not their polis's power abroad. More troubling for my argument, I confess, the imperial overreach of Athens may have been a corollary of its democracy: internal limitations were sustained and subsidized by an external, ultimately self-destructive, expansion.[22]

Today the global character of capitalism presents a considerable barrier to polities that want to set, and live within, their own limits. First, there is a conflict between political borders and borderless capitalism: set your own limits to money as a city, region, or country, and money will flee elsewhere, while you will be left sorting out the ruins rather than living within carefully crafted limits. Second, geopolitical competition among nations leads to arms or economic races, similar to those of the Greek times. Those who limit themselves risk falling behind and being eaten up or bullied by those who know no limits. The setting of limits is then partly a problem of global, collective action: can we set up the higher-level international institutions that can control, say, carbon emissions or aggression or competition, and let nations and lower-level polities set up their own limits?

Given the current erosion of institutions such as the United Nations, the lack of global action on climate change, or the tendency of international institutions like the World Trade Organization to focus on how to open up borders for money, rather than how to coordinate protections, the answer to that question is not hopeful. On the other hand, self-limitation and the negation of the temptation to overreach may make sense for individual polities, even when it seems that competing without limit is necessary for their survival. Paul Virilio gives an intriguing historical example, that of the ancient Spartans, who had perfected their war power but refused to go to war for fear of the forces their victories would unleash, which could bring about their own undoing.[23] The Spartans, Plutarch notes, "might date the beginning of their corruption from their conquest of Athens, and the influx of gold and silver among them that then ensued."[24]

THE DISPOSSESSED, OR USING SCIENCE FICTION TO THINK ABOUT LIMITS

The best way I have found to ponder questions of limits, their institution, and their transgression is through Ursula Le Guin's science fiction novel *The Dispossessed*,[25] which I will use to illustrate some issues touched on here.

The book's protagonist, Shevek, is a physicist in pursuit of a unified theory of time. His planet, Anarres, was colonized generations ago by anarchists who fled capitalist Urras, and Shevek is the first to dare cross the planets' border in order to undertake a reverse trip. Anarres is a society of limits. The planet is small, dry, and barren, but revolutionaries moved there to found a colony of freedom. The civilization they constructed is a scaled-up, technologically more advanced version of the egalitarian hunter-gatherer societies that Le Guin, daughter of the first professor of anthropology at Berkeley, Alfred Kroeber, was familiar with growing up. The Anarresti lived abundantly amid what to us would seem scarcity, by sharing the little that they had.[26] No one was allowed to die of hunger while another had enough to eat. The founders of the colony had an ethos of sharing, self-limitation, and democratic self-organization. This ethos, personified in the teachings of the semimythical female leader of the revolution, was passed from generation to generation through education and rituals. Young Anarresti learned to want little and govern themselves without police. And like the Spartans, they kept themselves out of trouble with neighbors—not by developing a strong army but by refusing to have an army and conceding to Urras a substantial share of their mineral wealth each year, in exchange for their peace. If the Urrasti wanted the minerals, they could have them; the Anarresti could live modestly without them.

Over time, though, shared norms and limits in Anarres had ossified into doctrine. The ugly side of self-governing without police was that the Anarresti kept a constant watch over each other, ostracizing anyone accused of selfishness and limiting their own thought. The ethos of the founders was losing its original meaning and its enforcement had become a locus of power around which a shadow bureaucracy

emerged. Like the Spartans and many precapitalist societies that kept the genie in the bottle, not because they wanted to live within limits but because elites were afraid that expansion could upset internal hierarchy, the Anarresti now risked becoming "a people without a history"[27]—a place where nothing much changes socially.

Shevek believes in the ethos of his revolutionary ancestors, but his scientist's quest for truth makes him challenge authority and limits that no longer make sense to him. Limits, in his view, are there to be questioned—that was the spirit of his ancestors' revolt. Despite the threats of his compatriots, Shevek insists on crossing the ultimate physical limit of the planet and traveling to Urras in search of his theory. He makes the trip and finds in Urras a society that like our capitalist present is materially rich but socially unequal and full of poor people. His arrival fuels a new revolt. But back in Anarres his travel risks corrupting the planet's limitarian ethic by bringing it into contact with a capitalist world of opulence for a few or, worse, by triggering an authoritarian closure led by the new bureaucrats and a regression into an authoritarian society of imposed limits.

Is Shevek's traveling an example of hubris? Is it the equivalent of the Athenian expedition to Sicily or the Spartans' war with Athens—the crossing of the limit from which there is no return? Le Guin's book is not about the consequences of hubris, but about the irresolvable drama of limits and their transgression. Inconclusive, the novel does not tell us what happens to Anarres; it ends just before Shevek lands back home. I understand Le Guin to be suggesting that a project of autonomy inevitably involves the risky process of renewing an initial commitment. If a commitment to limits survives a temporary transgression, then it is worth it. Anything else would be a closing off, a regression to the heteronomy that, for example, the founders of Anarres rebelled against.

With the passing of time and the need for stability, autonomy inevitably tilts toward heteronomy. Rather than viewing autonomy and heteronomy as polar opposites, one good and the other bad, we might need to think in terms of a synthesis—not of an in-between state but rather of processes that sustain a creative tension, a contradiction.

ADVENTURE AND LIMITS

When I was nine years old I had a bicycle. I lived in Maroussi, a suburb at the outskirts of Athens's center, an old rural town engulfed by the expanding metropolis. Parents back then were not as scared as they are now, and my friends and I would roam free around the neighborhood, take our bicycles, and wander. One day my friends Dimitris and Michalis and I biked farther and farther out from the imaginary boundaries of our hood. Exhilarated by the new places and people we saw, we biked faster and faster. It all seemed like a hazy dream. A few hours later we stopped. It was getting dark and we did not know where we were. When we asked people for directions they laughed: we were miles away from home. We started biking back, lost in the side streets of Athens's periphery, scared to the bones, relieved only when

after hours we started recognizing the landscape. We arrived home after midnight and found our parents on the brink of collapse, with a policeman at their side. We had to grow up a few years before we would cross the boundary again.

Adventure begins when limits are crossed. In Le Guin's novel it is the limit, literally the crossing of the physical limit of the planet, that signals Shevek's adventure. And like Odysseus, Shevek completes his adventure with a return to the limit of his home. If I have one reservation about 1900, it is that he says no to adventure. Why not go out for a few crazy nights in the city and come back to the ship later? I do not mean here the facile critique that limits stifle fun, or that they are for those who enjoy hair shirts and sacrifice. 1900, from what we know, and until his psychoanalyst were to tell us otherwise, did not think he was making a sacrifice; he thought to protect his freedom. Fun for him, maybe even adventure, was associated with being inside the ship, not outside. But why, unlike Shevek, does 1900 refuse to transgress the limit and risk his commitment? Does his refusal suggest he wasn't in control of his own fears?

Temporary transgression of a fixed frontier is not the same as capitalism's imaginary of the permanent transgression of a constantly expanding frontier. An adventure that is constant is no adventure. Odysseus needs Ithaca; his adventure would be pointless if he had to fight Cyclops and Sirens for the rest of his life. It is the temporary transgression in "limit experiences"—experiences at the limit, experiences that presuppose the presence of a limit—that brings joy. Dionysian outbursts and feasts make sense if your normal life is sober.[28] The dream of a constant Dionysian delirium, a hidden desire that fuels our civilization, is not only self-destructive; it is not fun.

AN ANTHROPOLOGY OF LIMITS

Moderation then "is not wisdom or balance, but deeply set in passion and contradiction."[29] The Italian sociologist Franco Cassano, following Albert Camus finds an anthropology of limits in subjects from the global and European "South" who refuse a logic of calculation and benefit, embracing and surviving contradiction.[30] Moderation, Camus argued, is not the golden mean but the ability to live with contradiction.

The archetype of self-limitation is not a miser who counts how much he has spent and saved, but a Mediterranean woman or man who, having liberated desire and embraced contradiction, leads a sober life punctuated by wasteful outbursts.[31] Nikos Kazantzakis's fictional hero Alexis Zorbas, widely known as "Zorba the Greek," comes to mind here as an unlikely model of moderation with his excessive outbursts of laughter and dance and his contradictory character: sobriety and the simple life coupled with outbursts of uncalculated giving and spending. Moderation does not have to mean the negation of life and the suppression of desire in expectation of a future return, a Protestant ethic, that is, at the heart of accumulation and expansion; it can be a practice of reflecting on, mastering, and living with our contradictions, as

we learned from the Greeks and as the psychoanalysts remind us.[32]

Advocating periods of excess in the name of limits may seem paradoxical at first. Why would wasteful spending be aligned with limits, and careful restraint with expansion? This is because accumulation is at the heart of growth, and restraint and saving are crucial for accumulation. Precapitalist societies expended surplus periodically in monuments, religious ceremonies, or potlatches. Religious or ceremonial institutions soaked up surpluses; in contrast, market institutions direct surpluses to investment, catalyzing growth. Power and money begin to accumulate with no apparent limit. Limitation requires an occasional release, an unproductive expenditure that exhausts the potential for growth.[33]

LIVING WITHIN LIMITS

Limits, I have argued, are something to be sought as part of the good life. What would such limits look like at the personal level? How might they be shared and spread? What kinds of practical engagements (beyond democracy) might enable or promote them?

One observation is that we should liberate our imagination from the countercultural downshifter living off the grid as the stereotype of living within limits. Such down-shifters often live within self-imposed limits that respect the limits of the planet and restrain their encroaching on the space of others—and for this they merit our respect. But it is even more interesting to think of the more mundane people and places where one can find seeds of a full life lived within limits: the believer who practices a sober life, sharing his or her time and resources in solidarity with others in the church or the mosque; the urban dwellers who are content with their work, family, or friends and do not seek power and ever-higher salaries; the peasants who produce enough to feed their families; the pensioners who become environmental activists after retiring, working together to restore a river and protect its banks from flooding.[34]

The ability to limit oneself, in a society that pushes us to pursue without limit lest we fall into a condition of limits that are not of our own choosing, is a *privilege*. Think of the unemployed worker in an industrial rust-belt, the peasant in a countryside hit by free trade and cheaper imports, or the child in Africa working in the stone-breaking industry. They do not have an option to limit themselves—society limits *them*. To be able to live well off the grid, to enjoy your family and friends without having to overwork and compete with your colleagues, to live off your farm or retire in peace: unless you are rich or born into a rich family, all these depend on hard-won rights of access to public commons, such as public health and retirement funds, education, or subsidies for farming. Living within limits then is not an individual endeavor but a collective project. Personal action is necessary, because unless we want something and can demonstrate that it works, we will not organize to get it—but organize to get it we must.

Le Guin's *The Dispossessed* gives me the images to convey what my words and

concepts alone cannot. The Anarresti live within limits of their own choosing; they chose to move to a barren planet because they wanted to create a different society. In Anarres, they face more physical hardship than they did in Urras. But they work less, because they want less. And no one goes hungry while another has something to eat, because they share everything, in good times and in bad times. The ethic of limits is a political and cultural project that formed the bedrock of the Annaresti's imagined society, which they then created; it is part and parcel of sharing the commons. For limits to be shared and spread, one needs both a personal and an ethical stance, like that of the early Christians, which creates a culture of limits; then too is needed a political project that secures the conditions and the institutions which make living within such limits possible.

I'll close this chapter by turning some attention to the two most common critiques of the case I make for self-limitation: first, that there *are* external limits, whether we like it or not; and at the other extreme, that there are no limits and should not be any whatsoever.

ECOLOGICAL LIMITS, ONCE AGAIN

I admit that I have often found it difficult to convince fellow environmentalists of my thesis, which, as I argued in Chapter 3, is in favor of self-limitation and against the idea of external limits. "You surely cannot mean that there are no ecological limits?" friends have asked me repeatedly. "What about climate change? What about contaminants in rivers and drinking water? Aren't these nonnegotiable limits?" "The case for self-limitation will be stronger if there are external limits," others argue. "Without limits, why would you limit yourself?"

Let me offer a recap of what I respond. No, I do not think there are external limits Not in the sense that climate change is not real or that we can emit as much carbon as we like, but that the limit resides in our intention to live a life fueled by carbon, and it is the intention that we should limit. Water contamination is a limit if we want a clean public supply available to all; it is not a limit if we are fine with a world where everyone has to buy expensive bottled water because rivers are contaminated. If we want to have clean public water, *then* we must put a limit on contamination. The limit is a matter of choice, determined by the type of world we want to create and pass on to our children. We do not gain anything by ascribing this choice to nature.

Fellow environmentalists think that if we accept the idea that we are the ones to choose a limit, we risk losing the aura of scientific objectivity. But the claim to objectivity with regard to questions that are fundamentally political has not worked well with the public, which has come to distrust scientists for telling them what they have to do. By shifting to the idea of self-limitation, we're not abandoning science or the duty to make a case for limits. We may want to limit ourselves to avoid certain consequences and create certain worlds rather than others; science can provide valuable information about consequences and the limits to the types of worlds we can

create. The key though is to see science not as a privileged domain but as part of a social and democratic process of collective deliberation.

The case for self-limitation is not stronger if we postulate external limits. Ever since Malthus, the response to the idea of a limited world has been to keep the weaker out of that world, or to try to make it bigger at their expense. A world that is limited is by definition scarce. If it is abundant and we have enough, then it is not limited. If we no longer use oil, then the limits of oil supplies are irrelevant. The Greeks wanted to limit money not because there was a limit to the growth of money, but precisely because there was no limit. *It is when there are no limits that we have to limit ourselves*. And it is when we truly believe that the world is abundant that we *will* limit ourselves.

LIMITS WITHOUT LIMITS

I have argued that independent of whether there are limits to growth or not, limitless growth has undesirable consequences. But many would disagree, contending that the accumulation of wealth or power can, and should, continue, and that it is compatible with or even necessary for environmental sustainability and social betterment.

Whether this is so is partly an empirical question to be settled by facts.[35] My case for limits, however, does not rest on the social or ecological consequences of growth alone. The Greeks did not espouse limits to save forests and rivers or to leave space for the Phoenicians, but because they saw how self-destructive and devoid of meaning the unlimited pursuit of money was. I too have argued for self-limitation as a prerequisite for freedom and the search for the good or meaningful life.

Some so-called postenvironmentalists argue there is no reason to go out of our way to set limits.[36] As we get wealthier and wealthier, they say, we naturally turn our backs on material wealth and pursue "postmaterial" values. New technologies will also quite naturally substitute dirty or expensive resources like fossil fuels with cheaper and cleaner ones like fusion or solar power. They claim that forced limits can only derail a natural progression that will lead to the end of fossil fuels.

Again, whether limits to material consumption will come naturally is an empirical question. My reading of the evidence says they will not, and even if they did they would be too little too late. Young people may stop buying cars, but they buy resource-intensive iPhones every two years and take Uber and Lyft more than they use the bus. Limits to our total material consumption will require an ethos of limits and accompanying institutions. We may add cleaner energies to the mix of our energy system, but I doubt we will take out fossil fuels without legal and enforceable limits.

Finally, there is the socialist argument that dates back to Engels's response to Malthus, according to which the limits that we face are only limits of capitalism. Under socialism we would not encounter limits, that argument goes. This may be interpreted in two very different ways. The first is that socialism would be better than capitalism at setting and sharing limits—and indeed Engels argued that a state governed by the working class would be better positioned to control population than

a state controlled by a capitalist class in whose interest it is to have cheap labor. But Engels combined this with a second argument, and that is that socialism can somehow develop production more rationally than capitalism, because capitalism is driven by an irrational pursuit of profit. Socialism, on this view, would supersede the land, resource, or population limits faced by capitalism because it would be rational and superior technologically. With this second argument, I have a problem.

True, limits are relative, defined in relation to a society's wants. The limits we currently encounter are related to material wants constructed under capitalism. A different economic system with different wants would not necessarily face the same limits. But if that system wanted to satisfy material wants similar to those of capitalism, there is no reason why it would do so without the same catastrophic consequences. The atmosphere is indifferent to whether a carbon-emitting factory is owned by workers or by capitalists.

A further problem with the idea that socialism would face no limit is that it reproduces the dream of limitless growth. The need for a culture of limits holds independently of the organization of society. Ancient Athens or the hunter-gatherers were not capitalists, but they did put limits on themselves. No system, socialist or otherwise, can exist without limits; the question is what limits it will have, and how such limits will be set. Those who think they have found the secret to a society of eternal luxury that will know no limits can only be fooling themselves.

EPILOGUE: IN DEFENSE OF LIMITS

My own relationship to piano is very different from that of 1900, but equally instructive of my take on limits. Five years old, I tinkered joyously with a piano at the house of my sister's godmother. My mother thought I had an inclination and enrolled me in a conservatoire. As I grew up, and my period of grace as a joyous toddler banging out notes ended, I found myself trapped in a strict regimen of two evenings of piano classes every week, a Saturday 8 a.m. class on theory and solfège, and countless hours of practicing. I hated it; my friends were going out biking or playing football, and I had to bend down and head to the conservatoire. Had I told my parents, they would have taken me out of the conservatoire on the spot; their children were supposed to live their lives the way they wanted to. But I did not want to disappoint my piano teacher or, in hindsight, my mother or her expectations for me as a talented piano player (I did not turn out to be a 1900, but then again, 1900 did not have a mother and did not go to a conservatoire). Inventing subconsciously my own limits, I kept going to piano classes, grudgingly, for thirteen more years. I could play Mozart and Beethoven reading the piano sheets, but if you asked me to pick out a tune or play my favorite Bruce Springsteen song, I would have stared frozen at the piano keys. When university gave me the excuse to stop the classes, I did not look back. I vowed not to touch a piano key again. I thought I was liberated of an undesired limit.

Fast-forward thirty years. I am in a process of coping with the loss of my mother, trying to come to terms with the limits of my own life (I haven't yet, but it's worth trying) and striving to sort out my desires and chosen limits from the limits I developed for myself as the son I imagined my parents needed me to be. I am staying at a friend's house in Athens, and there stands a long black concert piano. Curious, I sit down, free from any expectation or obligation to play. I start touching the keys. Suddenly, strange melodies start coming out of my hands, tunes I never imagined I could play. Today I take piano classes again and I write my own music. I devote hours each week to it, hours I can't do other things in. But unlike Robinson Crusoe, I am satisfied. These are my limits, the limits of my own making, within which I can express my creativity.

The issue in this book is of course not me. The planet is warming. By 2030 we should cut carbon emissions in half, and by 2050, down to zero. There are few signs though that we are willing to do anything like the "rapid, far-reaching and unprecedented changes in all aspects of society" that are needed.[1] In 2015 nations agreed in Paris to limit climate change to a temperature rise of 1.5 degrees Celsius, but scientists who quantified the actual pledges concluded that these would amount to a catastrophic 3-degree rise[2] or more (and this assumes the voluntary pledges would be kept, which seems less and less likely).

While climate breakdown is on the horizon, a new breed of elected autocrats denies the veracity of scientists' predictions, doubling down on economic growth,

removing remaining limitations and administrative infrastructures, and persecuting those who defend the environment. Silicon Valley's wealthiest, in turn, are preparing their bags for the day after what they call "the event." They buy land in New Zealand because it is less exposed to climate change (never mind the earthquakes and the volcanoes).[3] They wonder how their bunkers and security forces will fare under social collapse. And they fantasize about colonizing Mars or uploading their minds to supercomputers to survive the impending disaster.[4] As the endgame of two centuries of limitless expansion nears, no one is willing to pull the emergency brake, and many are happy to push the accelerator instead.

The billionaires' vanity would be funny if it were not so tragic and if it were not at the expense of the rest of us. This book dissects one of the seeds of this predicament: the way we have come to think about limits and our place in the world. Ever since Malthus, we think of our wants as unlimited and the world as limited. Our mission is to conquer the world without limit, and the imposition of limits is equated with suffering. There is not enough for everyone, we have come to believe, waging war on the world to subdue it and to secure more to relieve our suffering.

This idea of limitless expansion in a limited world is a fantasy peculiar to our civilization. The fantasy is a particular construction of capitalism, because capitalism needs expansion, and expansion needs a frontier. Limits are part and parcel of limitless colonization. It is the system's inability to share the abundance it produces that creates a constant impetus to move outward in the direction of more. Future expansion justifies current inequality, and inequality makes everyone work hard for expansion.

If we agree that this path has become self-destructive, then our response cannot be to expect a future when we will have more and share it better, because that day will never come and the belief that it will perpetuates the current fantasy that drives expansion. The only response is that everyone will have enough once we limit ourselves and share what we already have. Only when we accept that our wants are limited and can be satisfied will we finally enjoy an abundant world.

My case for self-limitation is not only, and not principally, environmental. It is also an ethics of care, a case against colonizing other humans and nonhumans. It is also anthropological, resting on the intuition that a life without limits does not make sense. Limiting and shaping our wants and desires is what makes us human. The Greeks were not the only civilization that may have found, temporarily, a wisdom of limits. Seeing civilization as the art of limiting the unlimited can help us to revisit other civilizations that we have dismissed as stagnant or characterized as suffering from religious oppression and superstition, to ask why and how they limited themselves.

Granted, the wisdom of limits is not easy. The thought of death and our own limit is unbearable. It is easier to shred our internal limits and react to them, like I did when I stopped playing piano, than reflect on, reshape, and embrace them. Each new generation wants to transgress the limits posed by its ancestors. Institutional or parental limits fuel the desire for transgression. Once the genie of limitless expansion

is out of the bottle, it is not easy to put it back in. Those who know no limits accumulate power that allows them to dominate, violently if need be, those living within limits. And the enforcement of limits becomes a locus around which rulers consolidate power, invoking limits to keep the ruled in check. Time and again, the oppressed will revolt against unjust limits. Precisely for this reason, embracing limits is now so difficult; as in Malthus's time, a growing number of us are being told that there is not enough for everyone and that we should learn to live within limits while the fat cats do not. But it is necessary, I insist, to find a way to defend collective limits, without accepting unjust ones.

The role of the environmental movement in keeping alive this plea for limits has been vital. Environmentalism has flirted with Malthusianism and has reproduced Malthus's vision of a limited world. But the environmentalism I espouse here is emphatically not Malthusian. It is not the environmentalism of those who revel in predicting disasters, telling us that the earth is shrinking, but of those who desire and struggle for limits. It is the environmentalism of people who do not want to step off the boat or escape to Mars.[5] Of people who have the wisdom to love and care for the planet they live in, embracing its limits and the limits of their own lives, not fleeing from them, leaving behind ruin. That spiritual leaders such as the pope are adding their voices to this call for limits is a reason for hope.[6] So are the multiple movements and peoples defending the commons or setting up new commons by the arduous process of negotiating and defining collective limits.[7]

Malthus was wrong. Our wants are not unlimited, and unlimited wants are not our nature. Our ability to reason and to reflect on and respond to what it is we desire is essential to our humanity. We liberate ourselves by controlling those instincts that would enslave us or threaten to destroy us. Like women and men who mature in life when, coming to terms with their own limits, they find their true desires, civilization will have truly progressed when collectively we come to know and respect our limits. Now more than ever, to progress may mean to stop, think, and act differently. Let us use human intelligence, imagination, and wonder to help us find our limits, rather than burying our brains in bunkers.

ACKNOWLEDGMENTS

Emily-Jane Cohen, my editor at Stanford University Press, embraced this projec from the very beginning and helped me bring it to a conclusion. Her careful editing polished my text and made it much more readable than it would otherwise be. Amy Thomas edited in depth the first draft of the book and helped me improve not only my English but also the content. Gareth Dale and Jason Hickel commented on previou drafts, and Richard Seaford helped me write the chapter on Greece. My ideas o limits have benefited from numerous conversations over the years with Giacomo D'Alisa. Antonio Verdasca-Cardoso helped me think about my own limits and my relationship with limits. I conceived the project while in London, during a coaching session with Amalia Cardenas. Aaron Vansintjan helped me write the book proposal. In London I was hosted by Rosaleen Duffy at SOAS, University of London, with Leverhulme professorship. I presented this work and got useful feedback during my Leverhulme lectures at SOAS, the Open University, and the University of Cambridge and later at the University of California, Berkeley, at the Energy and Resource Group Colloquium. The book was completed under an ICREA professorship a ICTA, the Institute of Environmental Science and Technology at the Autonomou University of Barcelona—benefiting from support from the Spanish Ministry o Economy and Competitiveness (MINECO) under the "María de Maeztu" Unit c Excellence (MDM-2015-0552) and the COSMOS (CSO2017–88212-R) grant.

NOTES

INTRODUCTION: WHY LIMITS?

1. Adam Nagourney, Jack Healy, and Nelson D. Schwartz, "California drought tests history of endless growth," *New York Times*, April 4, 2015. www.nytimes.com/2015/04/05/us/california-drought-tests-history-of-endless-growth.html

2. Eric Holthaus, "U.N. climate report shows civilization is at stake if we don't act now," *The Grist*, October 8, 2018. https://grist.org/article/scientists-calmly-explain-that-civilization-is-at-stake-if-we-dont-act-now/

3. The film is inspired by "Novecento," a monologue by Alessandro Baricco. Giacomo D'Alisa pointed out to me the relevance of the movie for thinking about limits.

4. On this point, see Richard Seaford, *Ancient Greece and global warming: The benefits of a classical education* (Exeter, UK: Credo House, 2011).

5. Andrew Dobson, "Are there limits to limits?" in *The Oxford handbook of environmental political theory*, ed. Teena Gabrielson, Cheryll Hall, John M. Meyer, and David Schlosberg (Oxford: Oxford University Press, 2016), 289.

6. See, for example, Kate Raworth, *Doughnut economics: Seven ways to think like a 21st-century economist* (White River Junction, VT: Chelsea Green, 2017); Tim Jackson, *Prosperity without growth: Foundations for the economy of tomorrow* (Abingdon, UK: Routledge, 2017); Johan Rockström and Mattias Klum, *Big world, small planet: Abundance within planetary boundaries* (New Haven: Yale University Press, 2015); Giacomo D'Alisa, Federico Demaria, and Giorgos Kallis, *Degrowth: A vocabulary for a new era* (Abingdon, UK: Routledge, 2014); and Robert J. Gordon, *The rise and fall of American growth: The US standard of living since the civil war* (Princeton: Princeton University Press, 2017).

7. Dobson, *Oxford handbook*, 301.

8. Ronald Reagan, commencement address at the University of South Carolina, September 20, 1983.

9. Combining quotes here from Valerie Sherwood and Eudora Welty.

10. For an introduction to ecological economics, see Giorgos Kallis, *Degrowth* (Newcastle upon Tyne, UK: Agenda, 2018); Herman Daly and Joshua Farley, *Ecological economics: Principles and applications* (Washington, DC: Island Press, 2011); and Joan Martinez-Alier, *Ecological economics: Energy, environment and society* (Hoboken: Wiley-Blackwell, 1991).

11. Richard Norgaard, "Metaphors we might survive by," *Ecological Economics* 15 (1995): 129–31, 131.

12. I studied political ecology at Berkeley in classes with Nancy Peluso and Michael Watts and by attending the colloquia of their Luce project on green governance. For the uninitiated, the best introduction to political ecology is Paul Robbins, *Political ecology: A critical introduction* (Hoboken: Wiley, 2011). I came across political ecology in the late 1990s through the work of Erik Swyngedouw, Maria Kaika, and Karen Bakker at Oxford, with whom I collaborated for research on water; see Nick Heynen, Maria Kaika, and Erik Swyngedouw, *In the nature of cities: Urban political ecology and the politics of urban metabolism* (London: Routledge, 2006); Karen Bakker, "Privatizing water, producing scarcity: The Yorkshire drought of 1995," *Economic Geography* 76 (2000): 4–27. On the question of limits and scarcity, I have learned a lot from Lyla Mehta; see *The limits to scarcity: Contesting the politics of allocation* (Abingdon, UK: Routledge, 2013).

CHAPTER 1: WHY MALTHUS WAS WRONG

1. These are Malthus's own words, as quoted in Robert J. Mayhew, *Malthus: The life and legacies of an untimely prophet* (Cambridge: Harvard University Press, 2014), 66. My imaginary reconstruction of the episode is based on information provided in chapter 3 of Mayhew's book, and especially pages 61–65. In the preface to the *Essay*, Malthus mentions a friend with whom he had an argument, and it is well known that it was his father.

2. Words of the tutor of Malthus describing the situation in Surrey's parishes, as cited in Larry Lohmann, "Malthusianism and the terror of scarcity," in *Making threats: Biofears and environmental anxieties*, ed. Betsy Hartmann, Bano Subramaniam, and Charles Zerner (Lanham, MD: Rowman & Littlefield, 2005), 81–98.

3. Robert J. Mayhew, *New perspectives on Malthus* (Cambridge, UK: Cambridge University Press, 2016), 18.

4. "Malthus, the false prophet," *The Economist*, May 15, 2008. www.economist.com/finance-and-

economics/2008/05/15/malthus-the-false-prophet

5. Elwell has written a book, which is out of print and which I couldn't access: Frank W. Elwell, *A commentary on Malthus' 1798 essay on population as social theory* (Lewiston, NY: Edwin Mellen Press, 2001). I cite here from extended excerpts of the book, which Elwell has made available online as F. W. Elwell, *Malthus' social theory*, 2001, www.faculty.rsu.edu/~felwell/Theorists/Malthus/Index.htm.

6. Elwell, *Malthus' social theory*, 2, 6.

7. Thomas Robert Malthus, *An essay on the principle of population, as it affects the future improvement of society with remarks on the speculations of Mr. Godwin, M. Condorcet and other writers* (London: printed for J. Johnson, in St Paul's Church-yard, 1798), 92. In this book I refer to the first edition. Later editions focused more on empirical illustrations, which are not important for my claims here and which left out the more religious last chapters of the first edition, which are much more relevant for my purpose.

8. Malthus, *Essay*, 17.

9. This is my only citation from the fifth edition of the *Essay*, published in 1817 in London by Johnson, p. 393. By the fifth edition, Malthus had reacted to many critiques and amended some of his arguments. That he introduced for the first time in the fifth edition a clear statement against birth control is proof of his conscious and strong view on the matter.

10. All quotations in paragraph are from Malthus, *Essay*, 8.

11. Gareth Dale is the first and until recently only one, to my knowledge, to claim that Malthus's *Essay* rejected natural limits. See Gareth Dale, "Adam Smith's green thumb and Malthus's three horsemen: Cautionary tales from classical political economy," *Journal of Economic Issues* 46 (2012): 859–80. Another seminal contribution on Malthus and scarcity is David Harvey, "Population, resources and the ideology of science," *Economic Geography* 50 (1974): 256–77. More recently, and after I finished this book, I came upon a relevant essay by Anthony Galuzzo, "The singularity in the 1790s: Toward a prehistory of the present with William Godwin and Thomas Malthus," published at b2O, the online community of the boundary 2 editorial collective, 2018, www.boundary2.org/2018/09/galluzzo/.

12. Malthus, *Essay*, 92.

13. Elwell, *Malthus' social theory*, 2.

14. Malthus, *Essay*, 4.

15. Malthus, *Essay*, 24.

16. Malthus, *Essay*, 42.

17. Dale, "Adam Smith's green thumb."

18. See Garrett Hardin, *Living within limits: Ecology, economics, and population taboos* (Oxford: Oxford University Press, 1993), 98.

19. See Elwell and Mayhew, as cited above.

20. Mayhew, *Malthus*, 121.

21. Cited in Roland L. Meek, *Marx and Engels on Malthus* (London: Lawrence and Wishart, 1953), 59.

22. Malthus, *Essay*, 114.

23. Malthus, *Essay*, 124.

24. Malthus, *Essay*, 47.

25. Malthus, *Essay*, 17.

26. Malthus, *Essay*, 9–10.

27. Malthus, *Essay*, 25.

28. Malthus, *Essay*, 25–27.

29. Malthus, *Essay*, 11.

30. Elwell, *Malthus' social theory*, 14.

31. Malthus, *Essay*, 30.

32. Malthus, *Essay*, 62.

33. Malthus, *Essay*, 64–65. Malthus in this thought experiment might have had in mind the Americas, from which he drew his empirical examples in later editions of the *Essay*. See Alison Bashford and Joyce E. Chaplin, *The new worlds of Thomas Robert Malthus: Rereading the principle of population* (Princeton: Princeton University Press, 2016). I am not convinced by Bashford and Chaplin, though, that Malthus wanted to make an intervention against slavery and colonialism. More likely, if my interpretation is correct, is that he wanted to prove that even in the Americas, with favorable environmental conditions, the law of population rendered equality impossible and the American Revolution would result in a regime not very different from that of England.

34. Bashford and Chaplin, *New worlds*, 116.

35. “Malthus, the false prophet.”
36. Elwell, *Malthus’ social theory*, 7.
37. Malthus, *Essay*, 34.
38. Malthus, *Essay*, 48. Emphasis added.
39. Donald Winch, *Malthus* (Oxford: Oxford University Press, 1987).
40. Robert L. Heilbroner, *The worldly philosophers: The lives, times and ideas of the great economic thinkers* (New York: Simon & Schuster, 1999).
41. Silvia Federici, “The devaluation of women’s labor,” in *Eco-sufficiency and global justice: Women write political ecology*, ed. Ariel Shalleh (London: Pluto Press, 2009).
42. Cited in Heilbroner, *Worldly philosophers*, 76.
43. Harvey, “Population,” 260.
44. Friedrich Engels, “The myth of overpopulation,” from *Outlines of a critique of political economy*, reprinted in Meek, *Marx and Engels on Malthus*.
45. Nicholas Xenos, “Liberalism and the postulate of scarcity,” *Political Theory* 15 (1987): 225–43, 239.
46. Xenos, “Liberalism.”
47. Wendell Berry, “Hell hath no limits,” *Harper’s*, May 2008.
48. Malthus, *Essay*, 57.

CHAPTER 2: ECONOMICS: SCARCITY WITHOUT LIMITS

1. Lionel Robbins, *Essay on the nature and significance of economic science* (London: Macmillan, 1932), 18.
2. Robbins, *Essay*, 16.
3. Paul Krugman, “Malthus was right!” The conscience of a liberal, *New York Times*, March 25, 2008. https://krugman.blogs.nytimes.com/2008/03/25/malthus-was-right/
4. Michael Perelman, “Marx, Malthus, and the concept of natural resource scarcity,” *Antipode* 11 (1979): 80–91.
5. Not all economics or all economists want to do this, and there are variations between different schools of thought as well as nuances in specific contributions. By overgeneralizing, I point to a core tendency in what has come to be called neoclassical economics.
6. Dale, “Adam Smith’s green thumb.”
7. Robbins, *Essay*, 12.
8. Robbins, *Essay*, 12–13.
9. Adel Daoud, “Robbins and Malthus on scarcity, abundance, and sufficiency,” *American Journal of Economics and Sociology*, 69 (2010): 1206–29.
10. Robert Skidelsky and Edward Skidelsky, *How much is enough? The love of money and the case for the good life* (London: Penguin, 2012).
11. Scott Gordon, “The economics of the afterlife,” *Journal of Political Economy*, 88 (1980): 213–14.
12. Berry, “Hell hath no limits.”
13. Robbins, *Essay*, 13.
14. Malthusian ideas have influenced ecology and are behind the notion of “carrying capacity,” the hypothesis that if a species finds ample food or energy resources, it will multiply its numbers until it reaches a maximum number and then collapse. Populations, however, overshoot and collapse only in controlled laboratory conditions; overshoots are rare in real life, where ecological interactions keep populations within bounds. Animals control their numbers also through genetically inherited mechanisms; see Vero Kopner Wynne-Edwards, *Evolution through group selection* (Palo Alto: Blackwell Scientific, 1986). For a history of the idea of carrying capacity and its Malthusian origins, see Nathan Sayre, “The genesis, history, and limits of carrying capacity,” *Annals of the Association of American Geographers* 98 (2008): 120–34.
15. Milton Friedman, “The methodology of positive economics,” in *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953).
16. Nicholas Xenos, *Scarcity and modernity* (London: Routledge, 1989).
17. Dale, “Adam Smith’s green thumb.”
18. John Kenneth Galbraith, *The affluent society* (Boston: Houghton Mifflin Harcourt, 1998; 1958). For similar arguments about positional consumption and its negative effects, see Robert H. Frank, *Luxury fever: Money and happiness in an era of excess* (Princeton: Princeton University Press, 1999); and Fred Hirsh, *Social limits to growth* (London: Routledge & Kegan Paul, 1976).

19. Krugman, "Malthus was right."
20. Oded Galor and David N. Weil, "From Malthusian stagnation to modern growth," *American Economic Review* 89 (1999): 150–54.
21. Mayhew, *Malthus*, 234.
22. Thomas Robertson, *The Malthusian moment: Global population growth and the birth of American environmentalism* (New Brunswick: Rutgers University Press, 2012).
23. Paul Ehrlich, *The population bomb* (New York: Ballantine, 1968).
24. Robert Solow, "Is the end of the world at hand?" *Challenge* 16 (1973): 39–50.
25. Donella Meadows, Dennis Meadows, Jorgen Randers, and William W. Behrens, *The limits to growth* (New York: Universe Books, 1972).
26. Printed as Solow, "Is the end of the world at hand?"
27. I engage with these and other questions of ecological economics in Kallis, *Degrowth*.
28. I imply here the infamous wager between the biologist and neo-Malthusian Paul Ehrlich and the economist and techno-utopian Julian Simon, as retold by Robertson in *The Malthusian moment*. Ehrlich lost the bet to Simon because the prices of minerals ten years after the bet were lower than he had predicted (though prices did increase in the 2000s to the levels predicted by Ehrlich, only to fall down again later). The price of minerals depends on so many other factors than their scarcity that this was hardly a test of limits. What I find striking in this story is how by following a Malthusian logic, the environmentalists' desire to limit the conquering of earth and the senseless pursuit of growth for growth's sake was turned into a bet about prices.

CHAPTER 3: THE LIMITS OF ENVIRONMENTALISM

1. In the 1870s the word "Malthusianism" came to be synonymous with advocacy for birth control, an irony given that Malthus vehemently opposed birth control. For a history of early twentieth-century birth control activism, see Joan Martinez-Alier and Eduard Masjuan, "Neomalthusianism in the early 20th century," in *Encyclopedia of Ecological Economics*, 2005, available at Isecoeco.org. I find it very unlikely that Emma Goldman was familiar with Malthus's biography and work. She thought, for example, that "a great man conceived a great idea, Robert Thomas Malthus, the father of Birth Control," and that "if Malthus would live today he would agree with all social students and revolutionists that if the masses of people continue to be poor and the rich grow ever richer, it is not because the earth is lacking in fertility and richness to supply the need even of an excessive race, but because the earth is monopolized in the hands of the few to the exclusion of the many"; see Emma Goldman, "The social aspects of birth control," *Mother Earth* (1916): xi, reprinted in Peter Glassgold, *Anarchy! An anthology of Emma Goldman's Mother Earth* (Berkeley: Counterpoint Press, 2012).
2. Goldman never used this phrase attributed to her in various versions. She did, though, write in her autobiography of a story where a young comrade took her aside to reprimand her for dancing too much. She responded that if the Cause expected her to become a nun, then she wanted nothing to do with it. See the full account in Emma Goldman, *Living my life* (New York: Knopf, 1931), 56.
3. Goldman, in Glassgold, *Anarchy!* 140.
4. Glassgold, *Anarchy!* xxix.
5. Goldman, in Glassgold, *Anarchy!* 135.
6. Glassgold, *Anarchy!* xvii.
7. Glassgold, *Anarchy!* xvii.
8. Mayhew, *Malthus*, ch. 4.
9. Mayhew, *Malthus*, 77.
10. William Wordsworth, *Selected poetry*, ed. Stephen Gill and Duncan Wu (Oxford: Oxford University Press, 2008), 137.
11. Mayhew, *Malthus*, 90.
12. Jerome Lewis, "Managing abundance, not chasing scarcity: The real challenge for the 21st century," *Radical Anthropology* 2 (2008): 11–19, 13.
13. Lewis, "Managing abundance," 13.
14. Lewis, "Managing abundance," 16.
15. Berry, "Hell hath no limits."
16. Emrys Westacott, *The wisdom of frugality: Why less is more—More or less* (Princeton: Princeton University Press, 2016).
17. Rachel Carson, *Silent spring* (Boston: Houghton Mifflin, 1962).

18. Cornelius Castoriadis was born in 1922 in Constantinople, his family moving the same year to Athens. In 1945 he fled to Paris on board the boat *Mataroa*, which rescued intellectuals who were persecuted during the Greek civil war. He worked as an economist at the Organisation for Economic Co-operation and Development (OECD) until 1970, but he wrote under pseudonyms (“Pierre Chaulieu” and many others) for the revolutionary “Socialism or Barbarism” group, which he helped to found. He studied and taught philosophy and psychoanalysis, which he practiced, combining them with a deep understanding of Marxism and economics.

19. Cornelius Castoriadis, *A society adrift* (New York: Fordham University Press, 2010), 186.

20. Castoriadis, *Society adrift*, 231.

21. Self-limitation means setting your own limits rather than limiting yourself. In my native Greek we have a particular word for the act of setting limits: *oriothetisi*, where *orio* means limit. It is no longer popular to baptize new scientific concepts with Greek words, but if it were, I would call self-limitation *auto-oriothetisi* to capture this emphasis on the act of setting your own limits, as opposed to just limiting yourself. For example, the point of self-limitation is not to eat less, but to decide how much you want to eat, and not eat more.

22. Castoriadis, *Society adrift*, 196, 205.

23. Castoriadis, *Society adrift*, 195.

24. Castoriadis, *Society adrift*, 199.

25. Wordsworth, *Selected poetry*.

26. Jorge Riechmann, *Gente que no quiere viajar a Marte* (Madrid: La Catarata, 2004).

27. William Leis, *The limits to satisfaction* (Marion Boyars, 1978).

28. Riechmann, *Gente que no quiere*, 54.

29. Castoriadis, *A society adrift*, 203.

30. See Ted Benton, “Marxism and natural limits: An ecological critique and reconstruction,” *New Left Review* 178 (1989): 51–86.

31. I discuss this in Kallis, *Degrowth*, ch. 3, 75–82. Whether (and when) growth will come to an end due to resource limits, environmental disasters, exhaustion of new technologies and investment outlets, or limited consumer demand is hard to tell. Capitalism also fares well in disasters, and growth may rebound from lower levels of output after environmental disasters.

32. Kevin Anderson and Alice Bows-Larkin, “Avoiding dangerous climate change demands de-growth strategies from wealthier nations,” 2013, kevinanderson.info. See also Jason Hickel and Giorgos Kallis, “Is Green growth possible?” *New Political Economy* (2019): 1–18.

33. Robertson, *Malthusian moment*, ch. 9.

34. Ted Nordhaus and Michael Shellenberger, *Break through: From the death of environmentalism to the politics of possibility* (Boston: Houghton Mifflin Harcourt, 2007).

35. Westakott, *Wisdom of frugality*.

36. See Erik Swyngedouw, “Apocalypse forever?” *Theory, Culture and Society* 27 (2010): 213–32.

37. Mayhew, *Malthus*, ch. 7.

38. Harvey, “Population,” 273.

39. John Bellamy Foster, “The scale of our ecological crisis,” *Monthly Review* 49 (1998): 5–16.

40. Betsy Hartmann, *Reproductive rights and wrongs: The global politics of population control* (Boston: South End Press, 1995); Betsy Hartmann, “Converging on disaster: Climate security and the Malthusian anticipatory regime for Africa,” *Geopolitics* 19 (2014): 757–83; Michael Watts and Nancy Lee Peluso, *Violent environments* (Ithaca: Cornell University Press, 2001).

41. Robertson, *Malthusian moment*, ch. 9; Paul Ehrlich, Leo Bilderback, and Anne Ehrlich, *The golden door: International migration, Mexico, and the United States* (Malor Books, 1979).

42. Norgaard, “Metaphors we might survive by.”

43. William Nordhaus, “To slow or not to slow: The economics of the greenhouseeffect,” *Economic Journal* 101 (1991): 920–37.

44. The higher the assumed discount rate, the smaller future damages from climate change seem.

45. See the Global Footprint Network, www.footprintnetwork.org/our-work/ecological-footprint/.

46. Global Footprint Network, www.footprintnetwork.org/our-work/ecological-footprint/.

47. Betsy Hartmann, “Shrinking spaces, resource races,” plenary talk, Conference on Resource Politics: Transforming Pathways to Sustainability, STEPS Conference 2015, September 7, 2015, Institute of Development Studies, University of Sussex, UK.

48. Will Steffen, Katherine Richardson, Johan Rockström, Sarah E. Cornell, Ingo Fetzer, Elena M. Bennett, Reinette Biggs, Stephen R. Carpenter, Wim de Vries, Cynthia A. de Wit, Carl Folke, Dieter Gerten, Jens Heinke,

Georgina M. Mace, Linn M. Persson, Veerabhadran Ramanathan, Belinda Reyers, and Sverker Sörlin, "Planetary boundaries: Guiding human development on a changing planet," *Science* 347 (2015): 736.

49. Raworth, *Doughnut Economics*.

50. To be fair, Rockström and colleagues define planetary boundaries with respect to preserving Holocene-like conditions, which they call humanity's Garden of Eden, i.e., something deeply desirable. But this desire is not political; it is a desire displaced to nature and the natural conditions of the Holocene—who, after all, would not want a garden of Eden? Pretending to be a mere scientific statement about the way things "are" (i.e., Holocene's boundaries), it silences the important question, which is about what type of society we want to be.

51. Per Espen Stoknes and Johan Rockström, "Redefining green growth within planetary boundaries," *Energy Research and Social Science*, 44 (2018): 41–49.

52. William D. Nordhaus, "A review of the Stern review on the economics of climate change," *Journal of Economic Literature* 45, no. 3 (2007): 686–702, 693.

53. Richard B. Norgaard, *Development betrayed: The end of progress and a co-evolutionary revisioning of the future* (Abingdon, UK: Routledge, 2006); Giorgos Kallis and Richard B. Norgaard, "Coevolutionary ecological economics," *Ecological Economics* 69, no. 4 (2010): 690–99.

54. I refer here to Steven Vogel's *Thinking like a mall: Environmental philosophy after the end of nature* (Boston: MIT Press, 2015), alluding to Aldo Leopold's phrase "thinking like a mountain," coined in *A Sand County Almanac* (1949).

55. Castoriadis, *Society adrift*, 205.

CHAPTER 4: A CULTURE OF LIMITS

1. The myth and its relevance to the question of limits was brought to my attention by Professor Richard Seaford during a talk in Barcelona. I found a version of the myth at http://classictales.educ.cam.ac.uk/stories/metamorphoses/erysichthon/explore/Erysichthon_transcript.pdf.

2. Seaford, *Ancient Greece*, 6.

3. Seaford, *Ancient Greece*, 9.

4. Michel Foucault, *The use of pleasure: The history of sexuality*, vol. 2 (London: Penguin, 1992).

5. Luigi Zoja, *Growth and guilt: Psychology and the limits of development* (London: Routledge, 1995), 58.

6. Seaford, *Ancient Greece*, 4.

7. Richard Seaford, *Money and the early Greek mind* (Cambridge, UK: Cambridge University Press, 2004).

8. Aristotle, *Politics* (Indianapolis: Hackett, 1998), 17.

9. Aristotle, *Politics*, 19.

10. Karl Marx, *Economic and philosophical manuscripts of 1844 and the Communist Manifesto* (Amherst, MA: Prometheus, 1988; 1844).

11. Aristophanes, *Frogs*, *Assemblywomen, Wealth* (Cambridge: Harvard University Press, 2002).

12. Seaford, *Money*.

13. Seaford, *Ancient Greece*, 5.

14. Seaford, *Ancient Greece*, 6.

15. Seaford, *Ancient Greece*, 8.

16. Zoja, *Growth and guilt*, 56.

17. Cornelius Castoriadis, "The Greek and the modern political imaginary," *Salmagundi* 100 (1993): 102–29, 112.

18. Castoriadis, "Greek and the modern," 112.

19. Castoriadis, as cited in Sophie Klimis, "Tragedy," in *Cornelius Castoriadis key concepts*, ed. Suzi Adams (London: Bloomsbury, 2014), 205–21, 209.

20. Castoriadis, "Greek and the modern."

21. Zoja, *Growth and guilt*, 39.

22. Castoriadis, *Society adrift*, 196.

23. Robert Wallace, "Revolutions and a new order in Solonian Athens and Archaic Greece," in *Origins of democracy in Ancient Greece*, ed. K. Raaflaub, J. Ober, and R. W. Wallace (Berkeley: University of California Press, 2007), 49–82.

24. Zoja, *Growth and guilt*.

25. Zoja, *Growth and guilt*, 47.

26. Ellen Wood, *Democracy against capitalism: Renewing historical materialism* (Cambridge, UK:

Cambridge University Press, 1995).

27. Karl Polanyi, *The invention of trade: Market, money and democracy in Ancient Greece* (in Greek) (Athens: Enallaktikes, 2017). This volume is unpublished in English. It includes unfinished essays and notes of Karl Polanyi from his research about trade in classical Athens.

28. Castoriadis, "Greek and the modern."

29. Castoriadis, "Greek and the modern."

30. Foucault, *Use of pleasure*.

31. Seaford, *Money*, 166.

32. Foucault, *Use of pleasure*, 50.

33. Aristotle, *Politics*, 16.

34. Aristotle, *Politics*, 139.

35. Castoriadis, "Greek and the modern."

36. Foucault, *Use of pleasure*, 36.

37. Foucault, *Use of pleasure*, 57.

38. Foucault, *Use of pleasure*, 64–66.

39. Diogenes Laërtius, *Lives of eminent philosophers* (Cambridge, UK: Cambridge University Press, 2013), book 2, pp. 8, 75.

40. Laërtius, *Lives*, 79.

41. Laërtius, *Lives*, 80–81.

42. Seaford, *Money*.

43. Seaford, *Ancient Greece*, 8.

44. Richard Seaford was kind enough to respond to my questions about Anaximander and Heraclitus.

45. Seaford, *Ancient Greece*, 8.

46. James Woodburn, "Egalitarian societies," *Man* 1 (1982): 431–51; Marshall Sahlins, *Stone Age economics* (Chicago: Aldine, 1972).

47. David Graeber, *Fragments of an anarchist anthropology* (Chicago: Prickly Press, 2004).

48. Cornelius Castoriadis, *What compounds Greece: Volume A from Homer to Heraclitus* (in Greek) (Athens: Kritiki, 2007).

49. Castoriadis, "Greek and the modern," 117.

50. Seaford, *Money*.

51. Castoriadis, *What compounds Greece*, 158.

52. Castoriadis, *What compounds Greece*, 185.

53. Castoriadis, "Greek and the modern," 117–18.

54. Foucault, *Use of pleasure*, 104–5.

55. Foucault, *Use of pleasure*, 105.

56. Sigmund Freud, *Civilization and its discontents* (New York: Norton, 1962). I thank Antonio Verdasca-Cardoso for bringing to my attention the relevance of Freud's book for my argument.

57. See Mayhew, *Malthus*, 153, on the inspiration Freud got from Malthus, linking neurasthenia to the suppression of the sexual instinct, a precondition for civilization.

58. Cornelius Castoriadis, *Crossroads in the labyrinth* (Cambridge: MIT Press, 1984).

59. Castoriadis, "Greek and the modern," 119.

60. Susan Buck-Morss, "Sometimes to progress means to stop, to pull the emergency brake," Committee on Globalization and Social Change, Graduate Center of the City University of New York, https://globalization.gc.cuny.edu/2012/01/susan-buck-morss-sometimes-to-progress-means-to-stop-to-pull-the-emergency-brake/.

CHAPTER 5: THE LIMITS OF LIMITS

1. In 2017 alone, 207 environmental defenders were killed; see data from National Geographic, www.nationalgeographic.com/environment/2018/07/environmental-defenders-death-report/. The global map of environmental injustices keeps a record of the conflicts and violence perpetuated against defenders of the environment; see https://ejatlas.org/.

2. Sam Pizzigati, *The case for a maximum wage* (Cambridge, UK: Polity Press, 2018).

3. Thomas Piketty, *Capital in the twenty-first century* (Cambridge: Harvard University Press, 2014).

4. Mary Mellor, *The future of money: From financial crisis to public resource* (London: Pluto, 2010).

5. Alf Honborg, *Nature, society and justice in the Anthropocene*, (Cambridge, UK: Cambridge University Press, 2019).

6. Juliet Schor, "Work-sharing," in *Degrowth*, ed. Giacomo D'Alisa, Federico Demaria, and Giorgos Kallis (London: Routledge, 2014).

7. David Raventós, *Basic income: The material conditions of freedom* (London: Pluto, 2007).

8. For more details, see Kallis, *Degrowth*.

9. See Ingrid Robeyns, "Having too much," in *NOMOS LVI: Wealth. Yearbook of the American Society for Political and Legal Philosophy*, ed. Knight and M. Schwartzberg (New York: New York University Press, 2016). Philosopher Ingrid Robeyns is one of the main developers of the "limitarian doctrine," which is the view that it is morally objectionable to be too rich, making a fundamental case for limits to wealth. My use of the term "limitarianism" in the text is broader and less rigorous than hers: I imply a fundamental stance in favor of limits not only to wealth but also to power and resource extraction.

10. Pope Francis, *Praise be to you. Laudato si': On care for our common home*, Our Sunday Visitor (San Francisco: Ignatius Press, 2015).

11. One opinion survey about growth, for example, suggests that 15 percent of Spaniards are in favor of "degrowth"; see Stefan Drews and Jeroen van den Bergh, "Public views on economic growth, the environment and prosperity: Results of a questionnaire survey," *Global Environmental Change* 39 (2016): 1–14.

12. See Westakott, *Wisdom of frugality*. Westakott examines why, whereas the sages have emphasized in different places and times the benefits of frugal living, this has never become dominant.

13. André Gorz, "Political ecology: Expertocracy versus self-limitation," *New Left Review* 202 (1993): 55–67. Gorz explains how in England in 1910 strict new regulations decreed that jobs were reserved for those who worked full-time, taking away from workers the freedom to put limits on how much they work.

14. Richard Seaford, "Green Plato," review of Melissa Lane, *Eco-republic*, and W. Ophuls, *Plato's revenge, Times Literary Supplement*, May 11, 2012.

15. See Garrett Hardin, "The tragedy of the commons," *Science* 162, no. 3859 (1968): 1243–48. Hardin's article started with an image of a pasture free to all, where each herder increases his cows, only for the pasture to be overgrazed and collapse. As he writes in the article, Hardin got the idea for his fable when failing to find parking in UC Santa Barbara's campus after parking meters were removed. Hardin was an admirer of Malthus, and his "tragedy" is a retelling of Malthus's fable of limitless population growth. The fault in his model is the same as in Malthus's—the assumption of limitless wants, that is the assumption that humans, aware of the negative consequences of pursuing their interests without limit, will keep pursuing them. Instead, as scores of researchers on actual existing commons have shown, in many (though certainly not all) cases users of a commons communicate and come to agree on mutually enforceable ways of limiting their use of the commons. See the work of Elinor Ostrom, Nobel laureate in economics: *Governing the commons* (Cambridge, UK: Cambridge University Press, 2015).

16. Ostrom, *Governing the commons*.

17. Gorz, "Political ecology."

18. Rebecca Wild, *Libertad y limites: Amory respeto* (Barcelona: Herder, 2009).

19. Franco Cassano, *Southern thought and other essays on the Mediterranean* (New York: Fordham University Press, 2012).

20. Castoriadis, *Society adrift*, 205.

21. Castoriadis, *Society adrift*, 205.

22. Polanyi, in *The invention of trade*, argues that Athens expanded to control the trade routes and the prices of the grains essential for feeding a population of peasants who had left their fields and dedicated themselves to the affairs of the polis. This led to colonial wars and eventually the demise of Athens.

23. Paul Virilio, *Speed and politics* (Los Angeles: Semiotexte, 2006), 88.

24. Plutarch, *Agis*, in A. H. Clough, *Plutarch lives*, part 2 (Frankfurt: Outlook, 2018), 298.

25. Ursula Le Guin, *The dispossessed* (New York: Avon, 1974).

26. I explain this in more detail in a full article on Le Guin's book and its take on limits and scarcity; see Giorgos Kallis and Hug March, "Imaginaries of hope: The utopianism of degrowth," *Annals of the Association of the American Geographers* 105, no. 2 (2015): 360–68.

27. Virilio, *Speed and politics*, 88.

28. See Giacomo D'Alisa, Giorgos Kallis, and Federico Demaria, "From austerity to dépense," in *Degrowth: A vocabulary for a new era*, ed. Giacomo D'Alisa, Federico Demaria, and Giorgos Kallis (Abingdon, UK: Routledge, 2014), 215–20.

29. Cassano, *Southern thought*, 75.
30. Cassano, *Southern thought*, 75.
31. see Onofrio Romano, "How to rebuild democracy, rethinking degrowth," *Futures* 44, no. 6 (2012): 582–89.
32. Cassano cites Cesare Muratti, an Italian psychoanalyst who joked that psychoanalysis was invented by Jews to convince Anglo-Saxons to live like Italians; *Southern Thought*, 113.
33. I explain these ideas further in ch. 2 of Kallis, *Degrowth*; and in D'Alisa, Demaria, and Kallis, "From austerity to depénse." The inspiration comes from Onofrio Romano's work on Georges Bataille's theory of *depénse*. See Onofrio Romano, *The sociology of knowledge in a time of crisis: Challenging the phantom of liberty* (Abingdon, UK: Routledge, 2014); and Georges Bataille, *The accursed share*, vol. 1 (New York: Zone Books, 1988; 1949).
34. See, for example, Mary Geary, "The nowtopia of the riverbank: Elder environmental activism,." *Environment and Planning E* (forthcoming).
35. See Kallis, *Degrowth*.
36. Nordhaus and Schellenberger, *Break through*.

EPILOGUE: IN DEFENSE OF LIMITS

1. Summary for policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments, October 8, 2018, www.ipcc.ch/news_and_events/pr_181008_P48_spm.shtml.
2. Joeri Rogelj, Michel Den Elzen, Niklas Höhne, Taryn Fransen, Hanna Fekete, Harald Winkler, Roberto Schaeffer, Fu Sha, Keywan Riahi, and Malte Meinshausen, "Paris Agreement climate proposals need a boost to keep warming well below 2 C," *Nature* 534 (2016): 631.
3. Marc O'Connell, "Why Silicon Valley billionaires are prepping for the apocalypse in New Zealand," February 15, 2018, www.theguardian.com/news/2018/feb/15/why-silicon-valley-billionaires-are-prepping-for-the-apocalypse-in-new-zealand
4. Douglas Rushkoff, "How tech's richest plan to save themselves after the apocalypse," July 24, 2018, www.theguardian.com/technology/2018/jul/23/tech-industry-wealth-futurism-transhumanism-singularity
5. This is the translation of the title of Jorge Riechmann's book, *Gente que no quiere viajar a Marte*.
6. See Pope Francis, *Laudato si*. The pope writes: "If we approach nature and the environment without . . . openness to awe and wonder, if we no longer speak the language of fraternity and beauty in our relationship with the world, our attitude will be that of masters, consumers, ruthless exploiters, unable to set limits on their immediate needs. By contrast, if we feel intimately united with all that exists, then sobriety and care will well up spontaneously." And: "Whenever these questions are raised, some react by accusing others of irrationally attempting to stand in the way of progress and human development. But we need to grow in the conviction that a decrease in the pace of production and consumption can at times give rise to another form of progress and development."
7. See David Bollier and Sielke Helfrich, *The wealth of the commons: A world beyond market and state* (Levellers Press, 2014); and David Bollier and Sielke Helfrich, *Patterns of commoning* (Commons Strategies Group, 2015).