

Chapter 10

The Next Major Transition

The conventional wisdom among biologists (and many others as well) until quite recently was that human evolution is now somehow “complete”. Typical of this view was the widely quoted remark by the paleontologist/popularizer Stephen Jay Gould some years ago: “There’s been no biological change in humans in 40,000 or 50,000 years. Everything we call culture and civilization we’ve built with the same body and brain.”¹

We now know this conceit is wrong on two counts – no three. In reality, the evolution of our species is still a work in progress – an unfinished symphony. For one thing, it’s clear that our cultural heritage long predates the emergence of humankind, and that it has shaped the trajectory of our biological evolution (see Chapters Seven and Eight). Second, and more important, it’s increasingly evident that our species is continuing to evolve, both culturally and biologically. The evolutionary process may even be accelerating.² And this says nothing about the potentially revolutionary implications of genetic engineering.

For starters, each of us carries with us about 50 new genetic mutations that our parents did not have. In all, it is estimated that there have been more than one million new genetic variations in humankind since the rise of agriculture. But far more significant is the evidence compiled in the International Haplotype Map showing that there are significant genetic differences between contemporary human populations. In fact, there has been recent selection (within the past 40,000 years) across about 20 percent of our genes.³ These biological changes include such obvious things as regional differences in skin pigmentation, thicker subcutaneous fat layers among cold climate populations, respiratory

adaptations in high altitude peoples, adult lactose tolerance in places where cattle and milk-drinking are common, as well as an evolving resistance to various diseases (tuberculosis, small pox, malaria, etc.).⁴

Geneticists also suspect that evolutionary influences are still at work affecting changes in our body stature, dentition, and perhaps even personality traits like mood, tolerance for stress, and reactions to various social conditions. Biologist Kevin Laland and his colleagues have identified eight specific gene sets – ranging in number from 2 to 31 – that are linked to the expression of different cultural traits – from the consumption of cooked foods to local climate adaptations.⁵ Many more genetic changes may be occurring these days as modern humans (and many other species as well) increasingly shift to living in vast urban conglomerates. In short, gene-culture co-evolution is an ongoing process.

The Anthropocene Epoch

Finally, it's now apparent that the growing tide of humanity is rapidly reshaping the entire biosphere and influencing the fate of our own and many other species as well. It seems appropriate to call this the Anthropocene Epoch (the age of human dominance) rather than the Holocene, as some geologists have proposed to do.⁶ Whether you choose to characterize this dynamic as vicious or virtuous, there is a circle of causation at work here that will profoundly affect our destiny as a species. For better or worse, we are on the cusp of another major transition in evolution.

It seems that the law of unintended consequences has a large sub-category that could be called the law of unintended synergies. There should be a rule of thumb which says that for every positive synergy that humankind produces there will be some offsetting negative synergy as well. Garrett Hardin, legendary for “The Tragedy of the Commons” (see below), is also known for his First Law of Ecology: “You cannot do only one thing.”⁷

Economists typically treat such negative synergies as a production cost in their cost-benefit analyses, or preferably an “externality” (a cost for somebody else) that can be excluded from their calculus altogether. Industrial pollution and climate warming, with all their adverse

consequences, are probably the most notorious examples. But equally alarming is the rapid destruction of the world's topsoil (the U.N. projects that, at the current rate of depletion, it could be gone in 60 years),⁸ not to mention the relentless contamination and depletion of precious fresh water supplies, the precipitous decline of marine resources, the tragic loss of biodiversity in vitally important ecosystems, the growing threat to our boreal forests, and the clear-cutting of irreplaceable rain forests. Or consider the recent drought in India, which threatened some 330 million of its people.⁹ There will be many more such life-threatening droughts in the future. Perhaps most menacing is the evidence that sea levels may be rising at an accelerating rate due to climate warming, with potentially catastrophic consequences over the short *and* longer term for the world's coastal cities and their hundreds of millions of inhabitants.¹⁰

A Cul de Sac

It's not exactly news that these and other negative synergies are now beginning to overwhelm us, just as Walter Lippmann predicted so many years ago (recall his words in Chapter One) and as many others have repeatedly warned since then. The awe inspiring technological niche that we have constructed for ourselves has become a cul de sac, and we now find ourselves in mortal peril. But there is no going back. We've lost the cultural know how required to survive as foraging bands or hunter gatherers, not to mention the wild resources needed to sustain them.

While it's true that every species is always theoretically at risk of extinction, life is all the more precarious for our own high-impact, high-maintenance species, with a global population that is still growing and a survival strategy that is unsustainable. Humankind has already exceeded its viable long-term limit, yet we continue to pursue economic growth as if it were the Holy Grail – the all-purpose solution to our numerous problems. This strategy will no longer work. It can only hasten our ecological judgment day. To paraphrase an old saying, if growth can't go on forever in a finite world, it won't.¹¹

A recent article in the *Proceedings of the National Academy of Sciences*, co-authored by biologist Paul Ehrlich (a leading environmental advocate who is famous for his 1968 best seller *The Population Bomb*)

together with the environmental scientist John Harte, concluded that “To feed the world in 2050 will require a global revolution... Anything less is a recipe for disaster.”¹² Their alarming prognosis was based on a report from the United Nations’ Food and Agriculture Organization. The report estimates that at least 2 billion people world-wide (roughly one out of four) are currently going hungry or are malnourished and that a 70 percent increase in global food production will be needed to adequately feed the projected global population in 2050.¹³

Green Shoots?

An important two-hour documentary film about our current predicament, “Humanity from Space,” which aired in 2015 on the public television network, ended on a positive note. After acknowledging that we cannot for much longer continue our present course (for one thing, our fossil fuel reserves will only last for the remainder of this century, even if burning them all would cause no harm the environment), the film stressed that our unique inventiveness as a species and our growing inter-connectedness are advantages that will ultimately enable us to solve our formidable problems.

To illustrate this optimistic conclusion, the film highlighted a pioneering “food factory” in Chicago that gets multiple harvests each year from vertically stacked indoor growing beds with LED grow lights. The film also highlighted a solar farm in the California desert, where thousands of mirrors are arrayed around a central tower that generates enough steam to produce electric power for 140,000 homes.

These and other green shoots are hopeful signs, but they could all be too little, too late. More to the point, our primary challenge is *not* about finding technological solutions but about how we govern ourselves – or fail to do so – as Lippmann observed so long ago – and as Plato before him first pointed out. Former President Obama, in his historic speech at the Hiroshima Memorial in 2016, warned that “Technological progress without equivalent progress in human institutions can doom us.”¹⁴

The Ultimate Superorganism

In an article in the journal *Science* recently, biologists Toby Kiers and Stuart West noted that all the previous major transitions in evolution have depended on (1) an alignment of interests, (2) mutual dependence, and (3) effective ways to curtail internal competition, cheating, and free riding – in other words, self-governance for the common good.¹⁵ We are not even close to achieving this trifecta in humankind. Our supreme political challenge going forward will be to create what could truly be called the ultimate superorganism – the next major transition in evolution.

As discussed in Chapter Nine, complex modern societies suffer from a serious structural defect, a political “engineering” problem. Every interdependent biological system requires an effective sub-system of cybernetic communications and control – or governance for the good of the whole (recall the discussion in Chapter Six). But modern humankind lacks the consistent ability to ensure that individual, corporate and tribal/national interests adhere to the common good and the needs of posterity, in contrast with, say, leaf cutter ants (see Chapter Four). Modern human societies are at best “crude superorganisms,” as Richerson and Boyd put it, political workarounds that are often hamstrung – or corrupt – and unable to act in the public interest.¹⁶

Needless to say, our emerging global superorganism is even more underdeveloped and dysfunctional. We are collectively on a path that cannot be sustained for much longer. Our growing interdependence – both positive and negative (think terrorism, refugees, pandemics, and offshore tax havens) – requires a new level of cooperation (and governance) to match the scale and inter-connectedness of our global survival enterprise. Moreover, the need for governance will become even more urgent as climate change increasingly disrupts the global environment and threatens the lives and well-being of many millions of people. We must reconstitute and greatly expand the social contract that that was a key to our evolutionary success as a species and that sustained our ancestors for millions of years (see Chapters Seven and Eight). To achieve the next major transition in evolution, we will need to change (1) our basic social values, (2) the actions of our vested and powerful economic interests, and (3) the role of government. This is obviously a very tall order. Where do we start?

The Collective Survival Enterprise

The overall challenge we face can be framed in terms of the fundamental purpose of any human society. All of us are – to repeat – participants in a multi-million-year-old collective survival enterprise. Survival and reproduction remains the basic, continuing, inescapable problem for every living organism, including humans, and this biological imperative defines the ultimate priorities for every society.

It may come as a surprise to learn that the collective survival enterprise in humankind entails no less than fourteen distinct categories of “basic needs” – absolute requisites for the survival and reproduction of each individual, and of society as a whole over time.¹⁷ Furthermore, we spend most of our daily lives involved in activities that are either directly or indirectly related to satisfying these needs, including (not least) earning a living and contributing in various ways to support the collective survival enterprise.

These fourteen basic needs domains include a number of obvious categories, like adequate nutrition, fresh water, physical safety, physical health, mental health, and waste elimination, as well as some items that we may take for granted, like thermoregulation (which encompasses many different technologies, from clothing to blankets, fire wood, heating oil, and air conditioning). Our basic needs even include adequate sleep (about one-third of our lives), mobility, and healthy respiration, which can’t always be assured these days. Perhaps least obvious but most important are the requirements for reproducing and nurturing the next generation. In short, our basic biological needs cut a very broad swath through our economy and our society. (These fourteen needs categories are discussed in more detail in my 2011 book, *The Fair Society*.)¹⁸

To repeat, the basic challenge for every human society is to provide for the survival and reproductive needs of its members. This is our prime directive. However, it is obvious that we are currently falling far short, and the situation is likely to get much worse. The next major transition in evolution will require a refocusing of our social values and actions so that they are more fully aligned with the basic purpose of the collective survival enterprise and our basic needs. In short, we must develop a new, biologically-oriented approach to our social relationships and our mutual

obligations. I refer to it as a “biosocial contract” because it’s derived from the emerging science of human nature and our documented biological needs.

A Basic Needs Guarantee

A reformulated social contract must start with a universal “basic needs guarantee.” The case for this foundational principle is grounded by four key propositions: (1) our basic needs are increasingly well-understood and documented; (2) although our individual needs vary somewhat, in general they are equally shared by all of us; (3) we are dependent upon many others, and our economy as a whole, for the satisfaction of these needs; and (4) more or less severe harm will result if any of these needs is not satisfied.

The idea of providing everyone with a basic needs guarantee may seem radically new – a utopian moral aspiration, or perhaps warmed-over Marxism.¹⁹ However, it’s important to stress that this would not entail an open-ended commitment. And it is emphatically not about an equal share of the wealth. It refers to the fourteen domains of basic biological needs that were referred to above. Our basic needs are not a vague theoretical abstraction, nor a matter of personal preference. They constitute a concrete but ultimately limited agenda, with measurable indicators for evaluating outcomes.

A basic needs guarantee also has strong public support. For instance, a famous (and much replicated) series of social experiments first conducted by political scientists Norman Frohlich and Joe Oppenheimer in the 1990s found that some 78 percent of the participants overall favored ensuring a basic economic “floor” for everyone.²⁰ A more recent public survey by researchers at Harvard University found that 47 percent of young people in the U.S. between the ages of 18 and 29 agree with the proposition that our basic necessities should be treated as “a right that government should provide to those who are unable to afford them.”²¹ There is also growing interest these days in the convergent idea of providing everyone with a “guaranteed minimum income,” an old idea that has enlisted many prominent advocates over the years.²²

The Right to Life

The argument for a basic needs guarantee also accords with the “right to life” principle. The philosopher John Locke in his *Two Treatises of Government* (1690) was the first “modern” theorist to assert the idea of self-evident human rights, including “life, liberty and estate [i.e., property].”²³ However, Locke stressed that our rights are not absolute. They must not interfere with the rights of others. Furthermore, Locke insisted, governments exist to protect these rights.

In the same spirit, Adam Smith in *The Theory of Moral Sentiments* emphasized the importance of doing justice, which he defined as not causing injury to others. “There can be no proper motive for hurting our neighbor.”²⁴ The utilitarian philosopher Jeremy Bentham also qualified his signature “pain-pleasure” ethical principle by conceding that our freedom must be constrained by the rule that it “affects the interests of no other persons” besides the actor.²⁵ Modern-day libertarians, likewise, generally acknowledge that the exercise of our rights must not cause “harm” to anyone else. (See, for example, philosopher Robert Nozick’s often-cited 1974 book, *Anarchy, State and Utopia*.)

The first public (political) assertion of a right to life was, of course, enshrined in the American Declaration of Independence (1776), and it has been invoked in many other contexts since then, including the United Nations’ Universal Declaration of Human Rights (1948), the European Convention on Human Rights (1950), the U.N.’s International Covenant on Civil and Political Rights (1966) and the Convention on the Rights of the Child (1989), as well as the Basic Law for the Federal Republic of Germany (1949), the Indian Constitution (1950), and the Catholic Church’s Charter of the Rights of the Family (1983). The right to life is also frequently used in public debates over such issues as capital punishment, euthanasia, and (in the U.S.) anti-abortion advocacy.²⁶

But if the right to life is widely-recognized as a self-evident moral principle (although it’s often dishonored in practice), it certainly does not end at birth; it extends throughout our lives. Moreover, it is a prerequisite for any other rights, including liberty and “the pursuit of happiness” (or property rights, for that matter). The right to life necessarily also implies a right to the means for life – the wherewithal. Otherwise this right is

meaningless. And because almost all of us are dependent upon the collective survival enterprise to obtain the “goods and services” required for satisfying our personal needs, the right to life imposes upon society and its members a life-long mutual obligation to provide for one another’s basic needs. This includes reproduction and the nurturance of the next generation.²⁷

The “Fair Society” Model

One obvious objection to creating a basic needs guarantee is that it amounts to a give-away; it would invite free-riding. Where’s the fairness in that? As Kiers and West noted in the *Science* article cited above, this could pose a serious obstacle; there must be effective measures to prevent cheating and free-riding.

In *The Fair Society*, I argued that social justice has three distinct aspects. Our basic needs must take priority, but it is also important to recognize the many differences in *merit* among us and to reward (or punish) them accordingly. It is well documented that the principle of “just deserts” also plays a fundamental role in our social relationships. In addition, there must also be reciprocity – an unequivocal commitment on the part of all of us (with some obvious exceptions) to help support the collective survival enterprise. We must all contribute a fair share toward balancing the scale of benefits and costs, for no society can long exist on a diet of altruism. Altruism is a means to a limited end (helping those in genuine need), not an end in itself. We must reciprocate for the benefits that we receive from society through such things as our labor, the taxes we pay, and public service.

Accordingly, the Fair Society model includes three distinct normative (and policy) precepts that must be bundled together and balanced in order to achieve a stable and relatively harmonious social order. It could be likened to a three-legged-stool; all three legs are equally important. A shorthand version of these precepts is *equality*, *equity*, and *reciprocity*. (They are discussed at length in *The Fair Society*.) To be specific:

(1.) Goods and services must be distributed to each according to his or her basic needs (in this regard, there must be *equality*);

(2.) Surpluses beyond the provisioning of our basic needs must be distributed according to “merit” (there must also be *equity*);

(3.) In return, each of us is obligated to contribute to the collective survival enterprise proportionately in accordance with his or her ability (there must be *reciprocity*).

Plato, in his great dialogue, the *Republic*, defined social justice as “giving every man his due.” (The little-used subtitle of the *Republic* is “Concerning Justice.”)²⁸ Yes, but what is a person’s “due”? In the Fair Society model, social justice has three substantive elements: *equality*, *equity*, and *reciprocity*. First among these is equality with respect to the right to life and a basic needs guarantee, but all three of these principles are essential for the next major transition in evolution.

Going forward, a basic needs guarantee must become the moral foundation for every human society. It provides specific content for the Golden Rule and a shopping list for the Good Samaritan. It addresses the fundamental purpose of the collective survival enterprise, and it represents perhaps our greatest ethical and political challenge. Equally important, a basic needs guarantee is an absolute prerequisite for achieving the level of social trust, harmony, and legitimacy that will be required to heal our deep social and political divisions and respond effectively to global warming and our growing environmental crisis.

Capitalism is Part of the Problem

But this will hardly suffice. The second major change in our modus operandi as a species must involve the values (and the outcomes) in our economic system. Our ecological crisis has many contributing causes, but the root of the matter is modern capitalism – at once an ideology, an

economic system, a bundle of technologies, and an elaborate superstructure of supportive institutions, laws and practices that have evolved over hundreds of years. Capitalism has the cardinal virtue of rewarding innovation, initiative and personal achievement, but it is grounded in a flawed set of assumptions about the nature and purpose of human societies and our implicit social contract; its core values are skewed.²⁹

In the idealized capitalist model, an organized society is essentially a marketplace where goods and services are exchanged in arms-length transactions among autonomous purveyors who are independently pursuing their own self-interests. This model is in turn supported by the assumption that our motivations can be reduced to the efficient pursuit of our personal “tastes and preferences.” We are all rational “utility maximizers” – *Homo economicus* in the time-honored term. This is all for the best, or so it is claimed, because it will, on balance, produce the “greatest good for the greatest number” (to use the mantra of utilitarianism). A corollary of this assumption is that there should be an unrestrained right to private property and the accumulation of wealth, because (in theory) this will generate the capital required for further economic growth. More growth, in turn, will lead to still more wealth.³⁰

The foundational expression of this model, quoted in virtually every introductory Economics 101 textbook, is Adam Smith’s invisible hand metaphor. As Smith expressed it in *The Wealth of Nations*, “man is...led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was not part of it. By pursuing his own interest, he frequently promotes that of the society more effectually than when he really intends to promote it.... In spite of their natural selfishness and rapacity...[men] are led by an invisible hand to...advance the interest of the society...”³¹

“Utopian Capitalism”

The classical economists who followed in Smith’s footsteps embellished his core vision in various ways. One of the most important of these early theorists, Léon Walras, claimed that the market forces of supply and demand, if left alone, would work to ensure the efficient use of resources,

full employment, and a “general equilibrium.” In other words, competitive free markets can be depended upon to be self-organizing and self-correcting, and the profits that flow to the property owners – the capitalists – will generate the wherewithal for further growth and, ultimately, the general welfare. The modern economist Robert Solow summed up what has (sometimes derisively) been called “utopian capitalism” as a compound of “equilibrium, greed and rationality.”³²

The well-known senior economist Samuel Bowles, in his recent book-length critique and re-visioning of economic theory with the unassuming title *Microeconomics*, points out that capitalist doctrine offers “an odd utopia.”³³ Its strongest claims are generally false; it is unable to make reliable predictions; it removes from its models many of the factors that shape real-world economies; it ignores the pervasive and inescapable influence of wealth and power in shaping how real economies work; and, not least, it’s profoundly unfair. It systematically favors capital over labor, with results that are evident in our skewed economic statistics and widespread poverty. Senior economist John Gowdy candidly acknowledges that “Economic theory not only describes how resources are allocated, it provides a justification for wealth, poverty, and exploitation.”³⁴

The U.S. Example

Take, for example, the United States in 2010. In that year, the top one percent of the population held 35.5% of the wealth (now it’s closer to 40%) while the top ten percent held 77.1% of the wealth. Likewise, the top one percent received 21% of the total annual income and the top ten percent received 49.2%. The remaining 90% had to split the other half. During that year, some 15-25 percent of the American population lived in more or less severe poverty (depending on which method you use to compute it), while 48 million people had no health insurance and about 50 million (including many millions of children) experienced some “food deprivation.”³⁵ In the 2015 edition of the new Social Progress Index, the U.S. was ranked 16th among 133 nations, despite being first in GDP.

In other words, the “corporate goods” (see Chapter Three) that our society produces have been very inequitably divided. And, alas, the U.S.

is not atypical. Economist Thomas Picketty, in his acclaimed and heavily-documented 2013 study *Capitalism in the Twenty-First Century*, concludes that extremes of wealth and poverty have been the rule in the modern world rather than the exception.³⁶ At bottom, this is a consequence of the serious structural problem in human societies that arose during the agricultural revolution, when our traditionally egalitarian small “tribes” expanded in size and complexity and became hierarchical and deeply inequitable (see Chapter Nine).

To be sure, modern capitalism comes in many different sizes and shapes, from the millions of small mom-and-pop businesses with only one or a few workers to huge international conglomerates with hundreds of thousands of employees world-wide. But for every Google that provides a cornucopia of perks for its employees there are many others that are single-mindedly devoted to an iron triangle of mutually reinforcing values: (1) maximizing growth, (2) maximizing efficiency, and (3) maximizing profitability for the owners/managers and the shareholders.

A Rigged Game

In fact, a modern capitalist economy can become a rigged game that is far removed from the idealized market model – individual actors with equal power and resources that rationally pursue their self-interests with mutually beneficial (win-win) exchanges that result in efficient markets and optimal outcomes for all concerned. Among other things, the vast differences in wealth, power, and information between the actors exert a highly coercive influence in the marketplace, and in our political system.³⁷ Many different adjectives have been used to describe such market distortions: crony capitalism, klepto-capitalism, mafia capitalism, ersatz capitalism, casino capitalism, permissive capitalism, subsidized capitalism, and more.

The Rules of the Game

These perversions flout the very principles of social justice that I outlined above. This is why the second of the three key changes that will be required for the next major transition in evolution must be a fundamental

shift in our economic/business values and practices. Bill Gates Jr. (lately the richest man in the world and nowadays a prominent philanthropist) summed up the problem succinctly in a TV interview a few years back: “Markets only work for people who have money.”

In reality, it’s not abstract markets but people and their social values (and the rules under which they play the game) that shape the actions of business firms and the workings of the economy.³⁸ Capitalism mainly produces corporate goods, and these have been inequitably shared for the most part, often without regard for life-and-death externalities, not to mention damage to the environment.

Pope Francis, in his Encyclical Letter *Laudato Si’* (Praise Be to You) in 2015 – a major doctrinal pronouncement for the Catholic Church – linked both our environmental crisis and widespread global poverty directly to what he characterized as “technocratic capitalism,” and he called for a re-orientation of our economic system toward serving the “common good.”³⁹ Later on that year, when the Pope addressed the U.S. Congress on this same theme, he referred to the “common good” no less than six times in his speech.

It may come as a surprise to learn that Adam Smith had similar views. Smith has often been stigmatized for the invisible hand model that he advanced in *The Wealth of Nations*. But this is literally taken out of context. In fact, Smith’s moral foundation was the Stoic philosophy of world citizenship, the good of the community as a whole, and the Christian teaching of the Golden Rule. In his lesser-known early work, *The Theory of Moral Sentiments* (1759), Smith wrote that we should “love our neighbour as we love ourselves.”⁴⁰ Moreover, according to Smith, virtue consists of exercising “self-command” over our baser impulses and having sympathy toward others.⁴¹ Indeed, self-restraint is essential in a civilized society.⁴² Furthermore, Smith believed (perhaps naively), the invisible hand mechanism would benefit society as a whole because the rich would not consume a much greater proportion of the necessities of life; their share would only be of better quality.⁴³ In short, Smith was not promoting what has actually occurred, a system in which the rich often get richer at the expense of the poor – and the global environment.

Shareholder Capitalism

Therefore, the system that is commonly referred to these days as “shareholder capitalism” is fundamentally at odds even with Smith’s own moral values. It is deeply unfair in that it elevates the interests of business owners and shareholders over all the other interests that might have a stake in the success of a business firm, including sometimes the interests of society as a whole. Shareholder capitalism provides a license to be exploitative. In game theory terminology, it legitimizes a competitive zero-sum relationship rather than a win-win relationship. As a result, corporate business interests and practices have, in all too many cases, become a major contributor to the problems of global poverty and ecological destruction, rather than the solution.

Democratic governments and legal systems can and do play a role in counterbalancing this ideology in various ways, but far more must be done to re-orient our economic values and practices. To put it bluntly, the private sector must be subordinated to the common good. For some critics of capitalism, the answer is socialism. But, as I argue at length in *The Fair Society*, socialism in its more radical forms is also deeply unfair.⁴⁴ In any case, socialism is a political non-starter in today’s world. The alternative, I believe, is a middle-ground between capitalism and socialism. We must move toward a reformed and refocused industrial economy based on the concept of “stakeholder capitalism.”⁴⁵ Although this is not a new idea, it must be pursued more aggressively as one of the keys to dealing with our global survival challenge.⁴⁶

The concept of a stakeholder refers to anyone who has a material interest in a given business organization – in other words, when there is a *relationship* that entails costs and benefits for each of the participants. As a practical matter, it means that the actions of a business firm are likely to have an impact on the stakeholder’s interests – for better or worse. For any large corporation in a modern complex society, the list of potential stakeholders is likely to be very long. It might include management personnel, various categories of workers, numerous subcontractors, many different suppliers (including transportation, energy, communications and internet services), customers, local communities, multiple government entities, private financiers, and, of course, the shareholders. Indeed, even the interests of posterity might be involved.

Stakeholder Capitalism

In the stakeholder capitalism model, there must be structural arrangements (either formal or informal) that empower and advance the interests of all the various stakeholders, as appropriate. This might encompass such specific measures as worker and community representatives on the board of directors (as some countries already do), Fair Trade policies for suppliers, mechanisms for responding more effectively to customer feedback and complaints, a cooperative ongoing dialogue with suppliers, a mutualistic relationship with labor unions, and (especially in America), a greater willingness to accept legitimate government policies, regulations, and oversight when the public interest is at stake. (For instance, it would preclude sending profits offshore to avoid taxes, or paying poverty wages, or paying executive compensation at levels that amount to legalized looting, or, for that matter, fighting new air and water pollution regulations through the courts.)

The ideal outcome for the stakeholder model, as I and other supporters envision it, is to enhance a business firm's performance and its value by aligning and harmonizing the interests of the various stakeholders, rather than simply creating obstacles and roadblocks that might harm the company and reduce its value. This is far easier said than done, of course, but the principles of compromise and mutual accommodation, where needed, can achieve a great deal.

Indeed, a formal model (and analysis) developed by economist Franklin Allen and his colleagues in 2009 showed that such an alignment of interests is attainable – depending on the circumstances – and can lead to higher overall efficiency and value for a firm.⁴⁷ Their model is supported by a number of concrete examples, most notably in Germany, Japan, Austria, Luxembourg, and in some Nordic countries.

More recently, a new study in the U.S. has shown that American companies with narrower pay gaps between the CEO and the workers tend to perform better.⁴⁸ By the same token, there are also many thriving non-profit business firms and organized cooperatives these days, as well as a relatively new category of so-called B-Corporations that are committed to something akin to the values of the stakeholder model.

In order for stakeholder capitalism to thrive, however, there must also be a favorable business environment where “private equity firms” (corporate raiders) cannot prey on any company that does not maximize shareholder value, and where ruthless competitors cannot gain an unfair advantage. When all of the competitors in a particular marketplace must adhere to the stakeholder capitalism model, then no company is seriously disadvantaged by being fair to its various stakeholders and responsible toward society as a whole.⁴⁹ There is, in effect, a level playing field – as the saying goes. But in the context of our existing global economy, where corporate predators and sometimes unprincipled and exploitative competitors may act with complete disregard for the stakeholders or society as a whole, the playing field is often steeply tilted.

The Public Trust

Governments must therefore also play a greater role in shaping corporate behavior. This points us toward the third major change that I believe will be necessary for the next major transition in evolution, and here an ancient legal principle may be of some help.

It happens that the idea of a collective (societal) responsibility for the common good has a sturdy foundation in the concept of the public trust. This idea can be traced back to a category of Roman laws – *Jus publicum*, or public law – that, among other things, pertained to resources that were “by the law of nature” viewed as the common property of all humankind, including the air, water, the seas, and sea shores (according to the Institutes of Justinian).⁵⁰

In the Medieval period, the idea of common ownership also came to be associated with such things as public thoroughfares and common pastures for grazing domestic animals. The principle that government has a responsibility and a role in protecting the commons is also embedded in English and American common law.

In modern times, the public trust doctrine has had many practical applications in various countries. In the U.S., the Federal government and number of states have used it to protect natural resources. The state of Washington, for instance, has mandated that all the fresh waters in the state are owned by the state as a common resource, and conditional “water

rights” permits are required in order to use water for any large commercial purpose.⁵¹

There have also been many legislative applications of the public trust doctrine over the years. Important examples in the U.S. include the landmark National Environmental Policy Act (NEPA) in 1970, as well as the many federal laws over the years that have established some 59 national parks with more than 51 million acres.

A Legal Tool

The public trust doctrine is also being used these days as a legal tool for advancing the cause of fighting climate change and other environmental policy issues. For instance, in a bellwether case in 2013, the Pennsylvania Supreme Court found elements of that state’s hydraulic fracturing legislation to be unconstitutional as a violation of the public trust. Currently pending is a lawsuit filed on behalf of 21 children against the Federal government for violating their constitutional right to a healthy climate by supporting the production of fossil fuels and greenhouse gas emissions.⁵² Regardless of the outcome, it’s highly significant that a Federal court has recognized the legitimacy of this case.

Another important application of the doctrine can be found in the so-called sovereign wealth funds, with Norway’s large fund as a premier example. These publicly managed funds are authorized to hold and invest discretionary state revenues, such as royalties from the sale of crude oil, in ways that are intended to benefit the common good.

“Legal Bedrock”

However, there is a deeper and broader interpretation of the public trust, championed by a number of legal scholars and some of our courts, which provides an opportunity for expanding its scope and application. The basic claim is that the public trust is a fundamental attribute of sovereignty in a democratic society – a “constitutive principle.” It involves an inherent power to serve the public interest, and it has supremacy over contrary laws or individual property rights. As the University of Oregon law professor and public trust specialist Mary Christina Wood observes in her 2014

book, *Nature's Trust*, "characterizing the trust as an attribute of sovereignty bores down to legal bedrock."⁵³ In this interpretation, the public trust power and the ability to act in the public interest does not need to be backed by specific constitutional language or statutes. It no more needs to be spelled out than the police power, which is assumed to be a necessary element of sovereignty.

The concept of the common good is of similar character. It could be viewed as a basic responsibility of democratic governments. Professor Wood argues that, when government derives its power from the people, it necessarily imposes a fiduciary duty on the government to act as a trustee for the people.⁵⁴ Australian justice Paul Finn refers to it as the "inexorable logic of popular sovereignty."⁵⁵ Even the patron saint of private property rights, John Locke, observed that the "Fundamental, Sacred, and unalterable Law of Self-Preservation" forms the very basis of society and creates a responsibility for government to protect this right.⁵⁶

The Welfare of Posterity

A number of legal scholars contend that this obligation should not be limited to the current generation. In Professor Wood's words: "The core purpose of the public trust lies in protecting the citizens' unyielding interest in their own survival (and that of their children)."⁵⁷ Similarly, Peter Brown in *Restoring the Public Trust*, asserts that "the trustees' fundamental duty is to preserve humanity."⁵⁸ And professor John Davidson points out that the core concern of America's founding fathers was the welfare of "posterity." Their intention when they wrote the Constitution was to create a social contract for the long term.⁵⁹

It is, therefore, both logical and appropriate to conclude that the public trust encompasses whatever is required to sustain and advance the collective survival enterprise. All governments have a fiduciary responsibility to undergird and support the right to life and its indispensable corollary, a basic needs guarantee. Equally important, governments must impose a restraining and guiding influence on the private sector for the common good, or public interest, including the interests of posterity. To be sure, this is a hugely difficult task, amply confirmed by the disgraceful history of corrupt, captive, and self-serving

governments over the past 10,000 years. But, to repeat Walter Lippmann's long-ago warning, "Never before...have the stakes been so high."⁶⁰

Finding a Way Forward

To summarize then, the way forward will depend on (1) a shift in our social values toward the Fair Society model, (2) major changes in our economic system toward stakeholder capitalism, and (3) governments that are empowered (and constrained) to act for the common good on behalf of the public trust.

It should be stressed that this vision of a Fair Society is emphatically *not* an unattainable ideal. There are some real-world examples. What has been called the Nordic Model – including especially Norway and some other Scandinavian countries – encompasses full employment at decent wages, a relatively flat distribution of income, a full array of supportive social services, extensive investment in infrastructure, excellent free education and health care, a generous retirement system, high social trust, a strong commitment to democracy, and a government that is sensitive to the common good, not to mention having a competitive capitalist economy with high productivity and deep respect for the environment. To top it off, Norway's sovereign wealth fund currently totals about \$870 billion, a huge nest egg for such a small country. (Some apologists for American-style capitalism are dismissive about Norway, viewing it as an exception because it has the advantage of all those North Sea oil profits. Yes but, America was endowed with vastly greater oil deposits, which we have been exploiting for more than 100 years. So where is our sovereign wealth fund?)⁶¹

Beyond the few stellar examples like Norway, the challenge of realizing a global Fair Society is a daunting task, to say the least. When Albert Einstein was once asked why we were smart enough to produce atomic energy but not smart enough to contain nuclear weapons and the arms race, he answered: "It is because politics is more difficult than physics."⁶²

A Species at Risk

Despite all of our past successes across countless generations, it is evident that our species is at serious risk. In an increasing number of societies these days, the social contract is eroding or even breaking down. Especially alarming is the recent rise of xenophobia, extreme right-wing nationalism, and authoritarianism in many countries. America's turn to Donald Trump as President was a national tragedy and a symptom of its deep malaise. And the British decision to leave the European Union, along with the rise of virulent anti-immigration forces in Europe, is an ominous development.

Underlying these tectonic shifts, I believe, there is a deep economic insecurity – with many societies under stress and an underlying fear that there will not be enough to go around. As the old saying goes, when the pie gets smaller, the table manners change. Instead of responding positively to our ecological, economic and political challenges, there is the very real danger that we will seek to recapture a (presumably) safer, more comfortable world by retreating into an idealized tribal past and by building walls. But this will not work. It's a path that will dead end in division and lethal conflict.

Meanwhile, the ecological underpinnings of the survival enterprise will continue to be undermined. The twin scourges of widespread global poverty (and the social conflict that this generates) and a mindlessly destructive technological system (or worse a system controlled by people who are in denial about what they are doing), coupled with the growing negative impact of climate warming, will ultimately force us to make radical changes – one way or the other. To borrow a warning from Lionel Shriver's dark new novel, “complex systems collapse catastrophically.”⁶³ Jared Diamond's important book, *Collapse: How Societies Choose to Fail or Succeed*, vividly documents the many historical examples of how bad social choices have led to catastrophic collapses in human societies. As Diamond warns, “Globalization makes it impossible for modern societies to collapse in isolation.”⁶⁴ Ours would not be the first species to become the victims of our own success. It could be called “niche destruction.”

There are many ideas, proposals, and initiatives these days for how to solve our social and ecological crises – how to transition to a more “sustainable” global society (to use the current buzzword). Some ideas are very promising. Others are half-hearted palliatives or, worse,

placebos. In any case, we must act with the kind of urgency that would make historic undertakings like the Manhattan Project in World War Two, or the Apollo space program in the 1960s look like warm up exercises. It will require a major shift of values and concerted action on a global scale – a radical change in the political status quo.

Starting Yesterday

For instance, renewable, non-polluting energy production – mainly wind and solar power – currently stands at about 3% of the global total (excluding hydroelectric power).⁶⁵ To avoid calamitous global warming within the next two generations, it is estimated that we will need roughly a 40-fold increase in wind and solar energy capacity, starting yesterday. (Fortunately, the cost of renewable energy has now become highly competitive, and even the cost of solar energy storage is rapidly coming down.)⁶⁶

The Paris climate conference in December 2015 represented a hopeful start toward addressing the problem, but the measures that were agreed to there still fall far short of avoiding a long-term disaster. The pledges made in Paris by some 187 countries would still result in global warming of around 3^o Celsius above the pre-industrial level, or twice the 1.5^oC. cap that the conference attendees themselves set as the necessary goal. The Paris agreement was also voluntary, and it remains to be seen if the many individual commitments for change will be honored.⁶⁷ Worse yet, it now appears that the climate cause has lost the vital impetus of American leadership. Meanwhile, the global warming trend continues relentlessly, with 2014, 2015, and 2016 being the three hottest years on record. As predicted, they were accompanied by many extreme local weather events.

The Challenge of Artificial Intelligence

It is one of the great ironies of our age that our technological progress – for all its many benefits – is becoming an increasingly serious threat to our future in a yet another way with the development of artificial intelligence (AI) and robotics. As the venture capitalist and AI expert Kai-Fu Lee

warned in a recent *New York Times* op ed article, we are approaching a technological “singularity” – a point where many tens of millions of workers – from bank tellers to taxi drivers, construction workers, and many more – will be replaced by smart machines and will be unable to find alternative work.⁶⁸ The need for a radically new social contract will become an imperative without any precedent historically.

The collective survival enterprise in humankind is also an increasingly interdependent system, so we must mobilize ourselves to create a new, globe-spanning biosocial contract. Former President Obama, in his Hiroshima speech, described it as a “moral revolution.” At the heart of the next major transition in evolution, there must be a unifying global vision, and unifying social values. And, like all the previous major transitions, this one will require a new level of organization and cooperation – and governance – that will foster new forms of synergy and Synergistic Selection on a global scale.

Given the deep tribal roots and polarizing national loyalties that divide our emerging global society, coupled with the profound religious, cultural, economic, linguistic, and political divisions that serve to reinforce these tendencies (not to mention the many direct conflicts of interest), the idea of a major transition to global governance may seem totally unrealistic. In a timely article about our dilemma in the *Proceedings of the National Academy of Sciences*, science writer Stephen Battersby asks: “Lacking any higher authority to rein in the selfishness of nations, are we doomed?”⁶⁹ He sees no silver bullet.

The Tragedy of the Commons

The overarching problem was framed for us in the inspired metaphor that ecologist Garrett Hardin used in his classic 1968 article on “The Tragedy of the Commons.”⁷⁰ Whenever there is a limited resource that everyone is free to exploit – like the public grazing pastures in Medieval times, or a global Commons like our oceans and atmosphere – eventually it will be over-exploited and destroyed. As Hardin memorably warned: “Freedom in a Commons brings ruin to all.” Limits must ultimately be set.

For Hardin, the only viable solution was “mutual coercion mutually agreed upon” – democratic and consensual self-regulation. Hardin was

most concerned about population growth, and he foresaw the need for top-down government intervention (as China has in fact done). Decades of subsequent research and theoretical work on the commons issue by the Nobel Prize winning political scientist Elinor Ostrom and her many students and colleagues has shown that there are various alternative ways of regulating “common pool resources” – as Ostrom called them. In the end, she concluded that both top-down and bottom-up approaches to regulation can be effective, depending on the nature of the problem and how they are executed. But, in any case, governance is essential – at every level. To deal with our environmental crisis, Ostrom recommended a “polycentric approach” that engages all levels of local, regional and national stakeholders, including shared responsibility and multiple strategies.⁷¹

An “Aha” Moment

To achieve these political changes, however, there will need to be a transformative change of perceptions and understanding – perhaps an “aha” moment when the global threat is universally recognized for what it is and the imperative for collective action on a global scale becomes obvious and compelling in all parts of the global community. For those of us who are old enough to remember, it would be the psychological equivalent of “Pearl Harbor” – the surprise air attack on America’s Pacific fleet in World War Two that galvanized and unified a divided nation.

Going forward, there must also be inspired and skillful leadership and a broad mobilization of public support and action in every country and at every level to fight what must become a global “war” on environmental destruction, unemployment, and poverty. Drastic collective action on climate change and the environment coupled with a shift to stakeholder capitalism and a global basic needs guarantee is the only (consensual) way forward: “mutual coercion mutually agreed upon.”

Ultimately, this implies a new level of collective self-government and a new economic and political order. The necessary political and institutional structures have yet to be invented, but there are precedents, including the Constitutional Convention in 1787 that led to the creation of

the United States, the San Francisco conference in 1945 that established the United Nations, and, more recently, the creation of the European Union.⁷² Perhaps a new global constitution – a common legal system and a global structure for collective action – can be erected on the foundation provided by the U.N., and the International Court of Justice. But this must be accompanied by a global effort to achieve a Fair Society, for that is the only way to mitigate, if not dissolve the deep political divisions that stand in the way. Is this unrealistic? It can only be called unrealistic if you fail to consider the likely alternative. Indeed, it is no more unrealistic than all the other major transitions in evolution, including the rise of humankind.⁷³

The idea of world government is, of course, hardly new. It's a dream that can be traced back at least to Bronze Age Egypt and the ancient Chinese Emperors. In the modern era, it has been espoused by a great many prominent figures, from Immanuel Kant to Winston Churchill. It could be said that the League of Nations and the United Nations were baby steps in this direction, but what was once an aspiration has now become an imperative. To paraphrase the great journalist and peace advocate Norman Cousins, our security will ultimately be found only through the mutual control of force, not the use of force – no small challenge.⁷⁴ David Sloan Wilson concludes his insightful new book *Does Altruism Exist?* with this exhortation: “If we want the world to become a better place, we must choose policies with the welfare of the whole world in mind... We must become planetary altruists.”⁷⁵

A Global Superorganism

A major theme in this book has been the creative role that living organisms themselves have played in shaping the course of evolution, culminating in the rise of the Self-Made Man. Now the Self-Made Man must take the initiative and evolve into a global superorganism. Otherwise, we face the possibility of what could perhaps be termed the Anthropocene Implosion.⁷⁶ There will be growing political conflict and social chaos, horrific violence and human suffering, and wanton self-annihilation on a global scale – not to mention the destruction of the biosphere (and our life-support system) as we know it. In a 2012 article in *The Proceedings of the Royal Society* co-authored by Paul Ehrlich and his wife (and long-time

colleague) Anne Ehrlich, the authors ask: “Can a collapse of global civilization be avoided?” It is possible, they conclude, but they are not optimistic.⁷⁷

An ominous foretaste of this dark future scenario is the current turmoil in the Middle East – ranging from the (mostly) disastrous Arab Spring to the Syrian civil war, the rise of ISIS and the flood of refugees – all of which may in fact have been triggered by severe droughts and steep spikes in global food prices, according to a new in-depth analysis.⁷⁸ (It’s also important to remember that this existential threat is greatly amplified by the proliferation of nuclear and biological weapons, and by the global reach of long-range missiles – not to mention the dark menace of ruthless terrorists.) As Edward Wilson put it in a recent interview, “We are a dysfunctional species,” with “Paleolithic emotions, Medieval institutions and god-like technologies...That’s a dangerous mix.”⁷⁹

Synergy is the Way Forward

The next major transition in evolution must span the entire globe and must subordinate the entire human species to the pursuit of the “common good” – which, again, can be defined in biological terms as sustaining and enhancing our interdependent “collective survival enterprise.” In the final reckoning, if our species fails to meet this great survival challenge, it will squander its evolutionary inheritance and betray what untold generations of our ancestors struggled to achieve over millions of years.⁸⁰

Our generation confronts an inescapable collective choice. If we can achieve global governance and a Fair Society for our species as a whole and, in the bargain, ensure the future of life on Earth as we know it, this would indeed be another major transition in evolution and, equally significant, a transcendent example of Synergistic Selection. One of the great take-home lessons from the epic of evolution is that cooperation produces synergy, and synergy is the way forward. The arc of evolution bends toward synergy.

¹ Quoted in Stringer 2012, p. 263.

-
- ² See especially Wills 1998; also, Stock 2002; Hawks *et al.* 2007; Cochran and Harpending 2009; Lieberman 2013; Thomas 2015. See also the op-ed article in the *New York Times* by Menno Schilthuizen, Evolution Is Happening Faster Than We Thought. <http://www.nytimes.com/2016/07/24/opinion/sunday/evolution-is-happening-faster-than-we-thought.html?emc=eta1> (accessed 24 July 2016). If further evidence of rapid evolution is needed, consider the diversity of domesticated dogs.
- ³ Hawks *et al.* 2007; also, Stringer 2012, pp. 265-269; Lieberman 2013, p. 205.
- ⁴ The evidence for such micro-evolutionary change as an ongoing process in human evolution was reviewed by Wills 1998; see also Wolpoff 1999a; Lieberman 2013. New DNA evidence for genetic changes associated with the agricultural revolution was reported by Mathieson *et al.* 2015. See also “Not what they were: Researchers can now watch human evolution unfold.” *The Economist*, May 14, 2016, pp. 71-72.
- ⁵ Laland *et al.* 2010. On the other hand, we also suffer from an array of what Daniel Lieberman (2013, pp. 168-174, 202) calls “mismatch diseases” – non-infectious ailments that are a product of a misfit between our Paleolithic bodies and modern life. Lieberman compiled a partial list of 49 of these that included such things as acne, dental cavities, sleep apnea, glaucoma, insomnia, scurvy, high blood pressure, and stomach ulcers. In addition, we suffer from more than 100 infectious mismatch diseases, most of which have arisen since the Agricultural Revolution.
- ⁶ <https://en.wikipedia.org/wiki/Anthropocene> (last modified 27 January 2016). (See the outtake at my website.) Some ecologists have characterized humankind as “the world’s greatest evolutionary force.” See Hendry *et al.* 2016. For an analysis of the ecological consequences, see Boivin *et al.* 2016.
- ⁷ There are a great many different kinds of negative synergy (or “dysergy”) in the natural world – cooperative effects that are deleterious to one or more participants, or to various “bystanders”. Whether synergy can be called “positive” or “negative” depends, quite simply, on the value that is assigned to it. For instance, cooperative hunting might be considered very beneficial by a group of predators, though the outcomes would be viewed as negative synergy by their prey. Parasitism provides innumerable examples of such a difference in perspective. (More on negative synergy can be found in Corning, 2003.)
- ⁸ This estimate was made by the United Nations’ Food and Agriculture Organization. See <https://www.scientificamerican.com/article/only-60-years-of-farming-left-if-soil-degradation-continues/> (accessed 2 July 2017).
- ⁹ Among others, see Wills 1998; Stock 2002, 2007; Cochran and Harpending 2009; Lieberman 2013; Thomas 2015. See also the op-ed article in the *New York Times* by Menno Schilthuizen, Evolution Is Happening Faster Than We Thought. <http://www.nytimes.com/2016/07/24/opinion/sunday/evolution-is-happening-faster-than-we-thought.html?emc=eta1> (accessed 24 July 2016). If further evidence of rapid evolution is needed, consider domesticated dogs. On the Indian drought, see <http://www.bbc.com/news/world-asia-india-36089377> (accessed 5 May 2016).
- ¹⁰ The current target for containing global warming falls far short. (For more details, see the outtake at my website.)
- ¹¹ The original version was coined by economist Herbert Stein: “If something cannot go on forever, it will stop.” See <http://www.goodreads.com/quotes/467811-if-something->

[cannot-go-on-forever-it-will-stop](#) (accessed 16 May 2016). A similar idea was later expressed by economist Kenneth Boulding: “Anyone who believes that exponential growth can go on forever in a finite world is either a madman or an economist.” <http://www.goodreads.com/quotes/627148-anyone-who-believes-that-exponential-growth-can-go-on-forever> (accessed 16 May 2016).

¹² Ehrlich and Harte 2015. They cite at least eight major “top of our list” policy changes, ranging from a global carbon tax to drastically reducing the use of pesticides and other chemicals in agriculture. They conclude “We find it hard to be optimistic.”

¹³ Cited in Ehrlich and Ehrlich 2012.

¹⁴ http://www.nytimes.com/2016/05/28/world/asia/text-of-president-obamas-speech-in-hiroshima-japan.html?_r=0 (accessed 28 May 2016).

¹⁵ Kiers and West 2015. (A lengthy quote from the authors can be found as an outtake at my website.)

¹⁶ Richerson and Boyd 1999. See also Boehm 1997.

¹⁷ These fourteen categories are detailed and documented in Corning 2011.

¹⁸ It should be noted that this list is convergent with U.N.’s Human Development Index. (See the outtake at my website.)

¹⁹ Equality has been a socialist and liberal/progressive ideal ever since the Enlightenment. The shortcomings of egalitarian socialism are discussed in some detail in my 2011 book. (See also the outtake at my website.)

²⁰ Frohlich and Oppenheimer 1992.

²¹ See https://www.washingtonpost.com/news/wonk/wp/2016/04/25/bernie-sanders-is-profoundly-changing-how-millennials-think-about-politics-poll-shows/?tid=a_inl (accessed 10 May 2016).

²² See https://en.wikipedia.org/wiki/Guaranteed_minimum_income (last modified 25 March 2017). Among others, supporters of the idea have included Thomas Paine, Henry George, Milton Friedman, Friedrich Hayek, Martin Luther King, Daniel Patrick Moynihan, and a manifesto signed by 1200 economists in 1968, led by James Tobin, Paul Samuelson, and John Kenneth Galbraith.

²³ Locke 1970/1690.

²⁴ <https://www.marxists.org/reference/archive/smith-adam/works/moral/part02/part2b.htm> (accessed 28 January 2016).

²⁵ <http://www.utm.edu/research/iep/b/bentham.htm> (accessed 28 January 2016).

²⁶ Societies have long qualified this right, or hedged it in various ways, including the killing in war (or Jihad), capital punishment, euthanasia, self-defense, etc.

²⁷ Although it’s still a third rail politically, there is a long-term trade off that may be necessary – namely, global population control. (For more on this controversial issue, see the outtake at my website.)

²⁸ Plato. 1946/380 B.C.

²⁹ A much longer discussion of this issue can be found in *The Fair Society*, Chapter Six. For critiques of the neo-classical model, see Beinhocker 2006; Bowles 2004.

³⁰ The reality is, of course more complex. Wealth accumulation is a proven method for stimulating further innovation and entrepreneurship, but it also leads to conspicuous personal consumption, idled wealth, and other wasteful outcomes. Moreover, there is another alternative. Public taxes on wealth, if properly invested, can accomplish the same end.

³¹ Smith 1964/1776, IV, 2, 9. Modern economists often become lyrical about “the superiority of “self-interest” over altruism in economic life and the virtues of competition and the “profit motive,” while overlooking the fact that Smith’s rendering of the invisible hand was quite contingent. (See the outtake at my website.)

³² Mainstream economists might argue that utopian capitalism no longer reflects the orthodoxy that was once predominant. (See the outtake at my website.)

³³ Bowles 2004, p. 208.

³⁴ Gowdy, ed. 1998, pp. xvi-xvii. Of course, many liberal economists have challenged the neo-classical model. (For more, see the outtake at my website.)

³⁵ Corning 2011.

³⁶ Piketty 2014.

³⁷ For a classic critique, see David Korten’s *When Corporations Rule the World* (2015/1995).

³⁸ See the insightful edited volume on this subject, *Moral Markets: The Critical role of Values in the Economy*, edited by Paul Zak 2008; also, Geoffrey Hodgson’s *Conceptualizing Capitalism* (2015); also, Beinhocker 2006.

³⁹ Pope Francis 2015. Papal Encyclical *Laudato Si’* (“praise be to you”) p. 54.

http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html (accessed 16 July 2015).

⁴⁰ Smith 1976/1759, Vol. I.i.5.5. See also note 4; also, Ritter 1954.

⁴¹ *Ibid.*, Vol. II.iii.34.

⁴² *Ibid.*, Vol. VI.iii.2.

⁴³ *Ibid.*, Vol. IV.i.10.

⁴⁴ In a nutshell, socialism in theory is cavalier about the principle of *equity* – differential rewards (or punishments) for merit and is vague about the principle of *reciprocity*. See Corning 2011.

⁴⁵ An overview can be found in Kelly *et al.* eds. 1997; also, Ackerman and Alstott 1999. (For more on this concept, see the outtake at my website.)

⁴⁶ In fact, the spirit of stakeholder capitalism long predates the term. (For details, see the outtake at my website.)

⁴⁷ Franklin Allen, et al., “Stakeholder Capitalism, Corporate Governance, and Firm Value.” (September 2009). <http://fic.wharton.upenn.edu/fic/papers/09/0928.pdf>.

⁴⁸ See http://www.nytimes.com/2016/05/11/opinion/pressure-to-close-the-pay-gap.html?emc=edit_th_20160511&nl=todaysheadlines&nliid=27277596&r=0 (accessed 11 May 2016).

⁴⁹ Government mandates, such as minimum wage legislation and regulations governing working hours, sick leave, etc., or the legal protections afforded by B-corporation status,

also have the effect of leveling the playing field. Even Walmart, a firm that is notorious for paying poverty wages, must pay higher wages in jurisdictions that require it.

⁵⁰ Wood 2014. See also https://en.wikipedia.org/wiki/Public_trust_doctrine (last modified 11 September 2015).

⁵¹ Both federal and state courts in the U.S. have also recognized the public trust in various rulings. (For more details, see the outtake at my website.)

⁵² See <https://www.washingtonpost.com/news/energy-environment/wp/2017/07/05/trashed/>

⁵³ Wood 2014, p. 132.

⁵⁴ *Ibid.*, p. 128.

⁵⁵ Quoted in Wood, *op cit.*, p. 128.

⁵⁶ Locke, 1970/1690.

⁵⁷ Wood, *op. cit.*, p. 126.

⁵⁸ Brown 1994, p. 78.

⁵⁹ Cited in Wood, *op. cit.*, pp. 129-130.

⁶⁰ Quoted in Brandon 1969.

⁶¹ Norway has also used its profits to make many improvements in its infrastructure and public services, and it is now winding down the oil sector of its economy.

⁶² http://todayinsci.com/E/Einstein_Albert/EinsteinAlbert-PoliticsQuote500px.htm (accessed 28 January, 2016).

⁶³ Shriver 2016. For documentation, see Tainter 1988; Diamond 2005; Corning 2005 (Chapter Seven). For a new mathematical model that reveals some of the underlying network dynamics, see Yu *et al.* 2016.

⁶⁴ Diamond 2005, p. 23.

⁶⁵ See the analysis in *The Economist* (Volume 416, Number 8949, 1 August 2015, pp. 12-13); also http://www.nytimes.com/2016/04/04/opinion/a-renewable-energy-boom.html?emc=edit_th_20160404&nl=todaysheadlines&nid=27277596&r=0

(accessed 10 May 2016). (For more details, see the outtake at my website).

⁶⁶ http://thinkprogress.org/climate/2016/05/09/3775606/used-second-life-electric-car-batteries/?utm_source=newsletter&utm_medium=email&utm_campaign=tptop3&utm_term=1&utm_content=53&elqTrackId=e7585cedc9b44b26950cb980701cc136&elq=f7aba5fa560e44ee861afaec283cfb5c&elqaid=30054&elqat=1&elqCampaignId=5581

(accessed 9 May 2016).

⁶⁷ *The Economist*, December 19, 2015- January 1, 2016, p. 89.

⁶⁸ <https://www.nytimes.com/2017/06/24/opinion/sunday/artificial-intelligence-economic-inequality.html>

⁶⁹ Battersby 2017.

⁷⁰ Hardin 1968.

⁷¹ Ostrom 2009.

⁷² Of course, each of these historic acts of political creativity was built on foundation of precursor institutions – namely, the Articles of Confederation and the League of Nations. A similar foundation may exist today in the United Nations.

⁷³ In an important article on how groups can evolve and prevail, David Sloan Wilson and Edward Wilson (2007) put it this way: “Selfishness beats altruism within groups. Altruistic groups beat selfish groups. Everything else is commentary.” A full-length elaboration on this thesis can be found in D.S. Wilson 2015.

⁷⁴ The problem of achieving global government has been debated by political scientists, and others. (See the outtake at my website.)

⁷⁵ D.S. Wilson 2015, p. 149.

⁷⁶ Jared Diamond (2005) asks why many societies historically have collapsed while others have endured. (See the outtake at my website.)

⁷⁷ Ehrlich and Ehrlich 2012.

⁷⁸ Lagi *et al.* 2015. (For details about this study, see the outtake at my website.) Two other recent studies reinforce this climate-conflict nexus. See Schleussner *et al.* 2016; von Uexkull *et al.* 2016.

⁷⁹ “E.O. Wilson, Of Ants and Men,” premiered on PBS 30 September 2015. <http://www.pbs.org/program/eo-wilson/> (accessed 28 January 2016).

⁸⁰ It should also be noted that some contemporary theorists portray a global cooperative community as an inexorable trend. (See the outtake at my website.)