

Ridley, Matthew. *The Rational Optimist: How Prosperity Evolves*. New York: HarperCollins Publishers, 2010.

Matthew Ridley (1958 - ____ A.D.) studied at Oxford where he received a doctorate in zoology. He has worked as a journalist, science editor, chairman of a failed bank, and a science park director.

Prologue: When Ideas Have Sex. Human life is distinguished by the pace and nature of its cultural changes. This human character does not emerge solely from big brains, language, tool use, or imitation. The human depends upon what happens between humans collectively. Human biological evolution has been overtaken by cultural evolution, the competition among and spread of ideas. Ideas meet from divergent realms of human endeavor, cross-fertilize, and become new concepts. New specialization and interdependencies arise. The more such specialization and consumption asserts itself, the better human lives get. There is no intrinsic limit to the possible improvements. If history guides us, we have reason to believe that the human future will be very much better than its past.

1. **A Better Today: The Unprecedented Present.** We unrealistically glamorize the past. Just one hundred years ago, people's lives were shorter, hungrier, more parasite-ridden, less just, less convenient, and more parochial.

Almost every generation in the last 200,000 years could say the same of its immediate predecessors. Since 1800, population has grown 600%, life expectancy doubled, and income risen 900%.

Comparing 1955 and 2005, the average human earned 300% more, consumed 33% more calories, lost 33% fewer children, and lived 33% longer. Globally, almost all regions experienced income growth, surges in life expectancy and infant survival. Exceptions lay in central Africa, Haiti, Afghanistan, Russia, and parts of South Africa. The rich have gotten richer, but the poor have done better as a percentage of income. Absolute poverty (living on less than one 1985 dollar per day) has fallen from 36% to 18%. The United Nations asserts that more people emerged from abject poverty in the last 50 years than in the previous 500. 1955 was itself a banner year—more people, food, income, comfort than ever before. The environment is improving (with some notable exceptions), life expectancy growing, the span of death by chronic disease is shortening (compression of morbidity), inequality declining in both income and IQ, and justice is improving (thanks to DNA testing). Many needful commodities (good, fuel, housing, shelter) are cheaper than in previous centuries. The cost of light has fallen 20,000 times in England as compared to the year 1300. Prosperity consists in getting the same goods in less work time, or more goods in the same work time. Richer is not happier, according to the Easterlin study of 1974. But it was wrong, according to re-examinations of Easterlin's data. The rich are happier, rich countries are happier. Wealth is not the only or even best way to grow happier. Political freedoms contribute. We are presently in a global recession, and borrowing heavily. Hunter-gatherers draw on future work for present needs; the human life cycle, with long maturation, requires this. If we fund innovation, financial wealth will continue to spread. Our physical lives consume products from all over the planet, produced by thousands of workers in whose labor we share a tiny fraction. The idea "collective brain" means that all the knowledge to build even simple artifices lies nowhere other than in the dispersed minds of millions. Modern life consists in simple production (usually of one thing) and diverse consumption (of many goods and services). The skein is interdependent. Ridley criticizes the idea of local consumption of local produce. It is both carbon-ineffective and erodes prosperity. Interdependence shares the risks of the unanticipated. All employment is valuable, provided someone purchases your product. Hunting-gathering existence was plagued by violence. 87% of modern hunter-gatherer societies suffer annual war. The human story is this: Collective specialized knowledge leads to broader consumption costing fewer hours for each individual. Innovation facilitates, but does not create, this engine.

2. **The Collective Brain: Exchange and Specialization After 200,000 Years Ago.** Acheulean bifaces are chipped stone tools used for butchering large animals by Stone Age hominids. The technology did not change for a million years, and then only with the emergence of modern humans. As hunting, and then cooking, made protein more digestible, less biological energy was invested in the gut, and devoted to a brain. Humans emerged. By around 285,000 years ago, small toolkit changes appeared, then faded, as ice age deserts spread across Africa. Around 80,000 years ago, humans began expanding their territory dramatically. Barter drove cultural change and new technologies, creating the distinctively human form of collective cognition. Ridley calls this “catallaxy,” a self-amplifying division of labor. Exchange differs from reciprocity. In exchange, I give something now for something else you give now. In reciprocity, I give something now to increase the likelihood you will return the favor later. Barter is a human invention; no other species barter. Men hunt; women and children gather. There is a sexual division of labor of evolutionary origin. Ridley recounts the spread of homo sapiens along the coast of India, Indonesia, and into the South Pacific and Australia. Trade encourages innovation; it set off a cascade of change commencing about 80,000 years ago. Ridley notes that the cascade would have been yet more rapid but for the isolationist tendencies in human culture. Cultures transmit vertically with tremendous ease, but horizontal transmissions are suspect. This tendency slowed the spread of innovations. Ridley recounts the “Tasmanian regress.” Tasmania was once connected to the rest of Australia, but the waters released by the end of the Ice Age cut off the peninsula. Tasmanian tools regressed, as did their diet and technical knowledge. The cause was lack of trading contact. Hunting and gathering degenerates into self-sufficiency if sufficiently isolated. Cultural progress relies on population density. Human existence is not a zero-sum game. Where culture advances, the pie gets bigger. That is the history of man.
3. **The Manufacture of Virtue: Barter, Trust and Rules after 50,000 Years Ago.** Unlike our ape cousins, humans have learned (sometimes with difficulty) that befriending strangers beats killing them. Some portion of this fact is hardwired in the human psyche. In gaming tests, subjects are kinder than raw self-interest predicts. Primatologists note that ape groups cooperate within, but fight without. Humans share this orientation, but have nevertheless found in economic converse a way to deal with strangers peacefully. All humans trade; no group fails to trade. Trade can be traced back more than 100,000 years. Adam Smith, in his two great books, the first on moral sentiments and the second on capitalism, noted that altruism and societal trust make economies possible. Human trust relates to the brain hormone, oxytocin, which activates trust, but not risk-taking. The greater the trust among members of a society, the greater is income. A 15% rise in societal trust causes a 1% annual income growth perpetually. Electronic marketplaces cast the “shadow of the future” into goods and services transactions. Bad actors have nowhere to hide (though they try). Zero-sum thinking is factually wrong-headed. The market is a non-zero-sum game taught to all people. No one controls or even understands the market. Its scope is too broad, its elements too diverse. Commerce makes men gentle, as compared to the tribal warfare that attends hunting and gathering. Markets transmute individual selfishness into aggregate kindness. Ridley points to improvements in cruelty, illiteracy, health, crime, pollution, social work rules, minority status, and political freedom. Large corporations are an endangered species; the new business venture is smaller, more nimble, and hungry. Ridley recounts the rise of Wal-Mart. Business gathers individuals for temporary advantage in helping consumers consume. From business practices emerge rules and institutions. Their quality determines economic vitality.
4. **The Feeding of the Nine Billion: Farming After 10,000 Years Ago.** Farming adds animals and plants to trade specialization. Ridley recounts the emergence of agriculture as a post-ice-age inevitability. Agriculture fostered private property and supported further specialization. All ancient social orders suffered tremendous violence, cruelty, and chronic warfare. Ridley recounts the emergence of modern agriculture, with fertilizer, non-horse plowing, invention of varieties of food plant, and extension of food ranges. Borlaug’s Mexican dwarf wheat variety staved off Indian starvation. In 100 years, population increased 400 percent, but food

production rose 600% on only 30% more cropland. Agricultural intensification releases land for wilderness. Ridley believes that the world can, without population reduction, feed itself throughout the twenty-first century better and better on less and less land. Ridley offers a calculation of the carrying capacity of the planet, based on Colin Clark's computations. Ridley prescribes: 1) increased fertilizer use, especially in Africa, 2) drip irrigation to relieve fresh water wastage, 3) double cropping in tropical areas, 4) genetically modified crops, 5) feeding cattle with soybeans, not grain, 6) expansion of fish, chicken, and pig farming (which are more efficient at making grain into protein than cows), and 7) increased trade to encourage specialization. As hunter-gatherers, a human needed 1,000 hectares of land to feed himself. As an urban specialist, benefiting from intensive agriculture, a human needs one thousand square meters (one tenth of one hectare) to feed himself. Organic farming is a mis-step. It requires more cultivated land per person to feed him. Organic thinkers have rejected genetically modified strains, even though those plants produce more and require less synthetic toxin. No one has ever been sickened by genetically modified plants or animals.

5. **The Triumph of Cities: Trade After 5,000 Years Ago.** Now more than half of humans live in cities. In 1900, fifteen percent were urban. Cities facilitate trade, and people living in them reproduce less. So, cities depend on influx of farmers. Merchants create wealth. The collapse of the many empires controlling Mesopotamia is that religious leaders and outliers and taxes undermine the traders and the empires then collapse. After Mesopotamia came Egypt, the Indus, and central Peru. Ridley argues against top-down theories of early trade. Trade was organic and emerged, without controls, from the actions of individuals. Monopoly suppresses invention and rewards caution. When sea transport emerged with the Phoenician bireme galley, trade exploded. Roman decline cast the west backward into self-sufficiency. The east continued, plagued by governmental ineptitude and overreaching. The Arabs emerged as a trading power, using camel transport. Northern Italy capitalized on Arab trade, growing rich. China degenerated, losing GDP per capita between 1000 and 1950. Ridley blames Chinese governments. Ming autocracy stifled trade. Europe's fragmentation kept governments weak; trade flourished. Governments that stifle trade create poverty. Letting markets function raises the standards and wealth of all countries. Urban centers now contain half of all humans; five billion will live in cities by 2025. Yet cities take up only three percent of the earth's area.
6. **Escaping Malthus's Trap: Population After 1200.** Malthus predicted that human population would follow an animal pattern: increase until contrary pressures stabilized the population at a balance of misery. Ridley points to the effect of population density on humans: greater population leads to specialization which leads to wealth and further specialization—humans make more and more from less and less. Ridley pauses to explain the European medieval experience, which seemed an example of Malthus's predictions, the collapse of nascent industrialism in Japan and Ireland, and the escape of Britain from these traps. The "demographic transition" is causing global declines in birth rates. At present rates, global population will peak at 9.2 billion in 2075. And this is occurring as death rates are also falling globally. No one knows why the demographic transition exists. Factors include reductions in child mortality, growing wealth, education of women, urbanization, and political and economic freedom of women. Human population growth falls as trade improves. An interdependent world can live within global resources. Economists are concerned about population implosion. Birthrates in the wealthiest countries have been increasing slightly to just below replacement rate. Overall, the population news globally is good.
7. **The Release of Slaves: Energy After 1700.** Britain's abolition of the slave trade coincided, not accidentally, with the emergence of reliance on fossil fuels. Energy sources drive economic advances. Humans have moved from slaves, to oxen, to horses, to watermills, to timber, to peat, to coal, to oil. Economic growth emerges from non-green, non-renewable and not very clean energy sources. Marx was wrong. Industrialization improved, not eroded, poor people's circumstances. Incomes rose across all classes of English society. Factory work made normal people's lives better. That is why they flocked from the rural districts to

clamor for industrial jobs. Compared to its rivals, England was unified, free, and focused on trade. Protectionist legislation occasionally drove inventions underground, but eventually failed. Ridley tells the story of the introduction and prohibition of cotton cloth in Britain. Coal provided the necessary energy. Electricity came next. (one-third of the current global population has never turned on an electric light). We have traded slaves for fossil fuels. An American consumes 2,500 watts per second. 85% of that comes from fossil fuel. Were it otherwise, it would require 150 unpaid slaves pedaling generators in eight hour shifts to maintain an American lifestyle. Reserves of fossil fuels are vast, but panics about fossil fuel shortages are rife. Renewable energy sources cannot supply an American population. They require too much land. Renewable energy is not “green.” It fails to reduce carbon emissions and cannot supply the energy needed without pressing massive forested land masses into agriculture. That would further strain animal populations. We must use fossil fuels and seek long term energy sources to replace those fuels, probably nuclear fuels and desert solar panel fields.

8. **The Invention of Invention: Increasing Returns After 1800.** Market economists such as Adam Smith predicted diminishing returns as the market exploited what existed. The opposite has occurred. Knowledge and innovation spurs knowledge and innovation. Human knowledge cannot be aggregated. It lodges in the individual mind, and yet remains a collective abode. Equilibrium, ecological or otherwise, does not exist. Complex systems do not tend toward some static prediction. They are in perpetual change (Hercalitus). Innovation outbursts flare and move. Bursts are quelled by diversions into regulation, war, or religion. Bursts catch on waves of new technologies. The twentieth century saw democratization of the new technologies, so that many can afford the speed and access that previously belonged to the rich alone. The majority hates innovations, but cannot do without them. What drives the innovation engine? A.N. Whitehead saw that the invention of invention was a great invention itself. Ridley argues that invention emerges not from pure science, but from tinkering entrepreneurs. Science emerges from new technologies, not vice versa. Innovations explode when one conjoins talent and money. But getting them together proves difficult. Where money is set aside for innovation, bureaucrats frequently divert the efforts to safe, low-return ideas. The great ideas emerge from people outside bureaucracies. Firms may attempt to imitate entrepreneurs, or outsource to entrepreneurs. Innovators will not innovate if they do not keep a portion of profits. But ideas are not looms. How does one secure profit to idea innovators? Secrets work, but prevent the spread of the ideas, which is the point. Continual innovation keeps one ahead of the reverse-engineers. Legal protection (patents, copyrights) secure profits but also inhibit innovation. It may become more profitable to steal ideas from others than to innovate. Governments support giant projects, but neither science nor money nor government nor patents drive innovation. Exchange drives innovation. The point of innovation is to share the results. Innovation occurs when ideas hybridize. Sharing ideas has become easy and fast. The top-down economy may be collapsing, to be replaced by temporary conclaves of people solving particular problems. Economists have failed to realize this, until Romer promulgated “new growth theory,” which puts innovation at the core of economics. If innovators make money innovating, then pass on their ideas, there is no limit to the store of knowledge and ultimately prosperity. This is the primary source of Ridley’s optimism.
9. **Turning Points: Pessimism After 1900.** Optimists are often viewed as naïve imbeciles. Pessimism is Nobel-worthy. Optimism shows one is not paying attention, so many say. Why is pessimism so pervasive? If all continues as it goes, humanity will suffer terribly. But all never continues as it goes. That is what progress is all about. The future is not the past extrapolated. The future is different than we imagine it. The cataclysms some imagine do not occur, yet new pessimists emerge every generation. Ridley compares the eugenics programs of the twentieth century with (obliquely) the global warming hysterias of today. The better things get the more people, especially the intellectual elite, decry the changes. The recent pessimisms have each proved to be wrong. Yet, there seems always to be a rapt audience for the next pessimism. People resist the idea that things are getting better, except as to

themselves. In surveys, the population is personally optimistic, but pessimistic about our collective future. Pessimism seems to have a genetic component, and predominates in the global population. There are certainly problems in the world. But we need to hear the voice of optimism, especially since it is generally right. The world is not ending because of genetic corruption, totalitarianism, short attention spans, overwork, natural destruction, anarchy, endocrine disruption, species extinction, cancer, chemical pollution, nuclear power or weapons, famine and overpopulation, natural resource depletion, polluted air, acid rain, genetic modifications, plague, global cooling, or global warming. Humans may create a worse world; they may also create a better one. Apocalyptic environmentalists now advocate de-development of the United States. Salvation, they say, lies in returning to semi-medieval society.

- 10. The Two Great Pessimisms of Today: Africa and Climate After 2010.** Two interlinked global problems move pessimists deeply: African poverty exacerbated by global climate change. 600 million of the world's poorest people, living on less than \$1 per day, live in Africa. Foreign aid may help save lives, but it does not encourage economic growth. Planned markets fail. They evolve naturally when not unnaturally impeded by governments or non-governmental organizations. African nations are not inherent failures. Many lack institutions that support economic development, especially strong respect for private property. Ridley considers the example of Botswana, and declines to be pessimistic about Africa's future. Africa needs to allow bottom-up economic change and growth, and to defend that nascent activity.

The earth's climate is presently warming, though the science underlying the degree of climate warming is debated. The cost of that climate change is also debated. Ridley identifies problems in the present value calculations employed by advocates for change to our current energy usage. Regardless, what happens with climate, the poorest people will, 100 years from now, be 850-950% richer than they are today. The ecological doomsayer's predictions rest on exaggerated assumptions. If today's poor grow much richer, they will be better insulated from any climate change that occurs than are they today. Even assuming a three degree Celsius increase in global mean temperature, sea levels will rise but only about a foot per century, more fresh water will be available, storms will not increase, health will improve, and the food supply will rise and be produced on less arable land mass. To help humanity, focus on the lead causes of avoidable death: hunger, polluted water, indoor smoke, and malaria. Species extinction happens, not because of global warming, but because of the old threats: loss of habitat to development, air and water pollution, invasive competitors (often transported by human activity), and human predation. The cost of attempting to de-carbonize energy needs is staggering. New forms of energy production may change this conclusion. Ridley explores a few, but concludes that nuclear energy is the most likely current candidate. Ridley tests his optimism against the facts and finds that severe climate change is unlikely, the net harm to human populations small, the adaptability of human groups is large, and new low-carbon energy technologies are likely.

- 11. The Catallaxy: Rational Optimism About 2100.** In economic exchange innovations and changes of habit spread widely. Humans create new niches, which increases again economic exchange. Our networked world makes innovations more likely and more efficient in dispersal. All this leads Ridley to a stark optimism that the next century holds dramatic improvements in human well-being. Optimism is ridiculed; the media prefers pessimisms. Given the billion persons who live in abject poverty, optimism is morally obligatory. It is trade transmitting innovations that elevates humans from poverty. When looking forward, each generation fails to adequately account for technological changes to come. The next century will hold developments that are only ignored glimmers at present. Self-designing artificial intelligence could change everything. And there will be the usual obstacles: self-aggrandizing bureaucracies, parasitic free-riders, religious frenzies, change-haters, natural disasters, ill-conceived regulatory schemes, overbearing governments, wars, and Luddites, to name a few. Optimism is well-warranted.