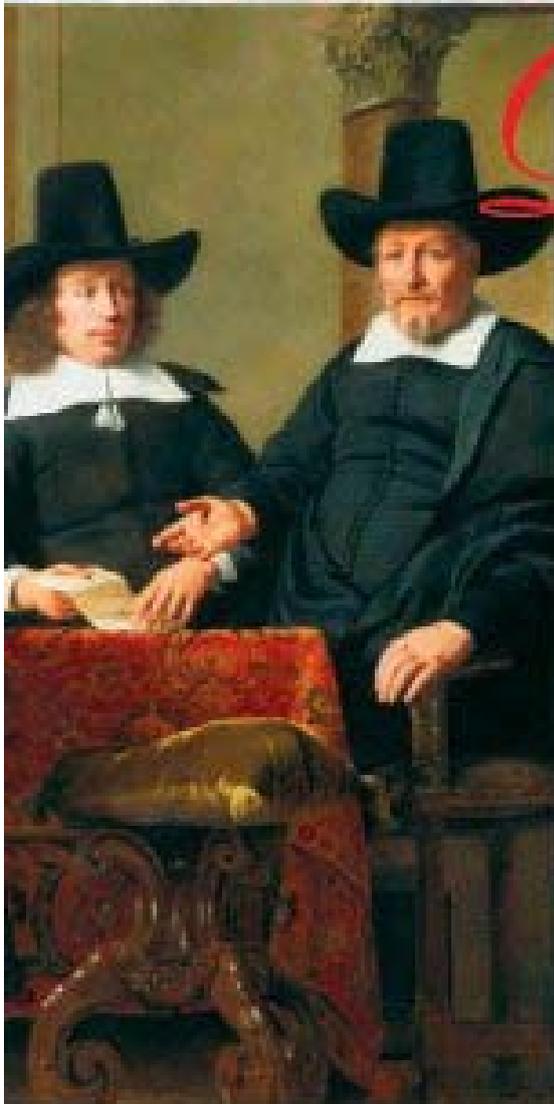


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DEIRDRE N. MCCLOSKEY

Bourgeois Dignity



WHY ECONOMICS
CAN'T EXPLAIN
THE MODERN
WORLD

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The Bourgeois Dignity. Why Economics Can't Explain the Modern World

Deirdre McCloskey

(this is the draft version available on
<http://www.deirdremccloskey.com>)

To Readers: The argument is, I fancy, complete, but some details in footnotes and references, and occasionally matters of routine calculation in the main body, need to be cleaned up.

Acknowledgments

In *The Bourgeois Virtues* (2006) I thanked some of the many people and institutions to be blamed for pushing my thoughts along. (I myself am blameless – for it is the Voice of History which speaks through me.) By way of additional thanks: The Economic History Workshop at Northwestern University heard a version of the first few chapters of the present book in March of 2008, and gave me much good advice. The brown-bag workshop in my beloved Department of History at the University of Illinois at Chicago has heard an outline of the argument twice. My beloved old creation at the University of Iowa, the Project on Rhetoric of Inquiry, has heard it once. The Center for Population Economics at the Booth School of Business of my beloved University of Chicago heard a later version in February 2009. Parts of Chapters 5 and 7 on productivity change in Britain derive ultimately from my contributions to Roderick Floud and myself, editors, *The Economic History of Britain*, in the editions of 1981 and 1994. I thank Roderick for his encouragement at the time, and lament the shocking breakdown of our friendship. Parts of Chapters 10, 11, and 12 on thrift appeared in Josh Yates, ed., *Thrift and American Culture*, Columbia University Press (2009), and in *Revue de Philosophie Économique* (2007). Parts of 19 and 20 on imperialism appeared in the *South African Journal of Economic History* in 2006, much of Chapters 22, 23, and 24 on eugenic materialism in the *European Economic History Review* (2008) and the *Newsletter of the Cliometric Society* (2008). Early versions of the entire argument appeared in *The American Scholar* (1994a) and the *Journal of Economic History* (1998a). A seminar at the Institute for Historical Research in London, hosted by my old friend Negley Harte, was especially inspiring.

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come to think of it the electronic words fashioned inside the virtual halls of Gutenberg, Google, and Wiki also depend largely on spontaneous orders and bourgeois creativity – which is the point of this book.

Anthony Waterman of St. John's College of the University of Manitoba, a long-distance friend, read the manuscript with care and saved me from numerous intellectual catastrophes. I thank the Stellenbosch Institute for Advanced Study, and especially Bernard Lategan and Stanislav du Plessis, for arranging for me a calm period in South Africa in May of 2008 to work on the manuscript. The College of Liberal Arts of the University of Illinois at Chicago under deans Stanley Fish and Dwight McBride has been very helpful. My thanks therefore go to them, and to the taxpayers of Illinois and the tuition-paying students of UIC who made their work possible. When Antoine Lavoisier, the theorist of oxygen and nitrogen, a nobleman (you can check it on Wikipedia), was to be executed in the Terror, he is said to have protested that he was a scientist. According to the story the arresting officer was unmoved: "The Republic has no need of scientists." Our republic, fortunately, has seen the need. And I thank my students, whether or not tuition-paying, in various courses on the subject during the 1990s and 2000s, at UIC and at the University of Iowa and Erasmus University of Rotterdam and the University of the Free State in South Africa. Teaching and writing suit each other. The Continental research institute with no teaching – though it sounds at first like a scholar's paradise – seems a poor plan.

I thank especially the participants in a small conference about an embarrassingly confused amalgam of this second volume and the third and fourth soon forthcoming (*The Bourgeois Revaluation* and *Bourgeois Rhetoric*), which took place in January 2008 at the Mercatus Center at George Mason University. The participants were Paul Dragos Aligica, Gregory Clark, Henry Clark, Jan de Vries, Pamela Edwards, Jack Goldstone, Thomas Haskell, Leonard Liggio, Allan Megill, John Nye, Alan Ryan, Virgil Storr, Scott Taylor, and Werner Troesken, with redoubled thanks to the organizers Claire Morgan and Rob Herritt. It was inspiring to have so many fine scholars, a number of them dear friends, encouraging me and correcting me and instructing me. Think where a woman's glory most begins and ends/ And say her glory was: she had such friends.

Notes

1. Lanham 1993.

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Part I. “The Tide of Innovation”: 1700- Present

Abstract

[– *Forthcoming* –]

Chapter 1: The Industrial Revolution was a Great Tide

Two centuries ago the world's economy stood at the present level of Chad or Bangladesh. In those good old days of 1800, further, on past from the average person in Norway or Japan would have had less rational hope than a Chadian or Bangladeshi does nowadays of seeing in a couple of generations the end of such poverty. In 1800 the average human consumed in modern-day prices, fully corrected for exchange rates, roughly \$3 a day, give or take a dollar or two.² That's \$3 a day in present money to live now in, say, Los Angeles. The only people much better off than the \$3 average were lords or bishops or some few of the merchants. It had been this way for all of history, and for that matter all of pre-history. With her \$3 the typical denizen of the earth could eat a few pound of potatoes, a little milk, very occasionally a scrap of meat. A wool shawl. A year or two of elementary education, if exceptionally lucky. At birth she had a 50-50 chance of dying before she was 30 years old. Perhaps she was a cheerful sort, and was "happy" with illiteracy, disease, superstition, periodic starvation, and lack of prospects. After all, she had her family and faith and community, which interfered with every choice she made. But anyway she was desperately poor, and narrowly limited in human scope.

Two centuries later the world supports more than six-and-half times more people. Yet contrary to a pessimistic Malthusian expectation that population growth would be the big problem, the average person today earns and consumes almost ten times more goods and services than in 1800. Real income per person in the world has recently been doubling every generation, and is accelerating. Starvation worldwide therefore is at an all-time low, and falling. Literacy and life expectancy are at all-time highs, and rising. Liberty is spreading. Slavery is retreating, as is a patriarchy enslaving of women. In the richer countries, such as Norway, the average person earns fully 45 times more than in 1800, a startling \$137 a day. The environment – a concern of a well-to-do bourgeoisie – is in such rich places improving.

True, some whole countries, and many people even in rapidly growing places like India remain terribly poor. They constitute a "bottom billion," thankfully shrinking, condemned for the present to the \$3 that had been the human condition since the African savannah. Some

hundreds of millions live on a bare dollar.³ And many are literal slaves, or women held in slavish ignorance. But the share of the terribly poor and the terribly unfree in world population is now falling faster than at any time in history. World population growth has in fact been decelerating since the 1970s, and in a generation or so will start falling.⁴ In fifty years, if things go as they have since 1800, the terribly poor will have become adequately nourished. Slaves and women will be free. And the ordinarily person worldwide will have become bourgeois.

In a good deal of the world it has already happened. Marx was vexed by the bourgeois character of the American working class. But it turned out that the prosperous Americans were merely showing the way for the British and the French and the Japanese. The universal class into which we are merging is not the revolutionary proletariat but the innovative bourgeoisie. Bring to mind, oh dear bourgeois-by-education reader, the poverty of your own ancestors a few generations back. In 2007 the economist Paul Collier observed that for decades “the development challenge has [been thought of as] a rich world of one billion people facing a poor world of five billion people. . . . It will be apparent that this way of conceptualizing development has become outdated. Most of the five billion, about 80 percent, live in counties that are indeed developing, often at amazing speed.” That’s right. Witness China and India nowadays, growing in real income per head at amazing, unprecedented speeds, twice or three times faster than other countries – 7 to 10 percent per year, implying a quadrupling of human scope every 20 or 14 years. The fact provides some scientific ideas about what to do for the bottom billion or so. But Collier also says that “since 1980 world poverty has been falling for the first time in history.” That’s wrong (though perhaps he means the sheer numbers of poor people). Certainly as a share of all the world’s population the world’s poverty has been falling not for two decades but for two centuries. Witness Norway and Japan, once \$3 poor. The two centuries of history provides some scientific ideas about how we got here and where we are going.⁵

The last two centuries favored the ordinary person, and especially a person who lived in a bourgeois country. Consider a third cousin once removed of mine, 35-year old Hedda Stuland, in Dimelsvik on the Hardanger Fjord of western Norway. In 1800 our mutual ancestors had been miserably poor. See Chad. Yet by now the honest, oil-rich, and educated Norwegians have the second highest average income in the world. Expressed in American prices of 2006 it is fully \$50,000 a year per

head. (Tiny Luxembourg ranks first out of 209 countries at \$60,000 a head; closed-citizenship Kuwait ranks third at \$48,000; and the big U.S.A. lumbers along at merely fourth, \$44,000 a head—which is nonetheless a stunning increase over 1900 or 1950.)⁶ Fru Stuland consumes with her \$137 a day a good deal of Belgian chocolate and a nice little Audi and a summer home in the mountains. She and the rest of the Norwegians work fewer hours per year than the citizens of other OECD countries, and many fewer hours than the workaholics in Japan or the USA. At birth she could have expected to live to age 85. Her own two children will probably live even longer, and certainly will be even better off financially than she is, unless they decide on careers in fine arts or charitable works—in which case the satisfactions from such sacred careers amount to income.⁷ Norway contributes more to international, governmental charities per capita than any other country. Hedda supports non-violent, democratic institutions. She graduated from the University of Bergen, studying mathematics. She works as an actuary in an insurance company, getting six weeks of paid vacation a year in Sicily or Florida. Her husband Olaf (who is by no means her lord and master) worked as a diver on the oil rigs for a few years, but now is desk-bound at the oil company's regional office. As a girl at school Hedda read many of the works of Ibsen in Norwegian, and some even of Shakespeare in English. She's been pleased to attend performances of both at the National Theatre in Oslo over the mountains. Her home resonates with the music of Edvard Grieg, who in fact was a not-so-distant relative on her mother's side.⁸

Why did it happen? How did average income in the world move from \$3 to \$30 a day? How did Norwegians move from being poor and sick and marginally free and largely ignorant to being rich and healthy and entirely free and largely educated?

The main point of this book is that the leaps, such as Norway's from \$3 to \$137, with its cultural and political accompaniments, did not happen mainly because of the usual economics. That is, they did not happen because of Dutch investments or European trade or British imperialism or the exploitation of sailors on Norwegian ships. Economics did matter in shaping the pattern. It usually does. Exactly who benefited and exactly what was produced, and exactly when and where, was indeed a matter of economics. If the historians don't know the economics they will not understand the pattern of modern history. The pattern was shaped by the trade in cotton and the investments in

seaports, by the supply of steam engines and the demand for elementary education, by the cost of iron and the benefit of railways, by the plantation exploitation of slaves and the market participation of women. Economics of a material sort can surely explain why Americans burned wood and charcoal longer than did the forest-poor and coal-rich people of inner northwestern Europe, or why education was a bad investment for a British parlor maid in 1840, or why the United States rather than Egypt supplied most of the raw cotton to Manchester, or why indeed the cotton growers of the present-day African Sahel are damaged by protection for American cotton. Economics can explain why comparative advantage in making cotton cloth shifted from India to England and then back to India.

But economics can't explain the rise in the whole world's (absolute) advantage from \$3 to \$30 a day. It can't explain the onset or the continuation, in its magnitude as against its pattern, of the uniquely modern—the coming of elections, computers, tolerance, antibiotics, frozen pizza, central heating, and higher education for the masses, such as for you and me and Hedda. If the economists don't know the history they will not understand this most important of modern historical events. That is, economics of a conventional sort does not account for the great size and egalitarian spread of the benefit from growth, as against the fine details of its pattern. Material, economic forces were not the original and sustaining causes of the modern rise, 1800 to the present, accelerating after 1980. Economics does most elegantly explain how the rising tide expressed itself in micro-geographical detail, channeled into this or that inlet, mixing with the river just so far upstream, lapping the dock to such-and-such a height. But the tide itself had other causes.

What then? I argue here, and in complementary ways in the two volumes to follow, that talk and ethics and ideas caused the Industrial Revolution. Ethical talk runs the world. One-quarter of national income is earned from sweet talk in markets and management.⁹ Rhetoric matters. Perhaps economics and its many good friends should acknowledge the fact. When they don't they get into trouble, as when they inspire banks to ignore professional talk and fiduciary ethics and to use only silent and monetary incentives (executive compensation, say).

In particular, three centuries ago in places like Holland and England the talk about the middle class began to alter. That was the big change. (Unfortunately it didn't alter at the same time in China or India or the Ottoman Empire.) The North-Sea talk at length radically altered the

culture and the politics and the economy. In northwestern Europe around 1700 the general opinion shifted, rather suddenly as such things go. There was a big change in what Alexis de Tocqueville called “habits of the mind” – or more exactly, habits of the lip. People stopped sneering at market innovativeness and other bourgeois virtues exercised far from the traditional places of honor at St. Peter’s or Versailles or the First Battle of Breitenfeld.

(To speak for a moment to my economist colleagues, economists save their models in the face of such a radical alteration by speaking of “nonlinearities” or “economies of scale” or “multiple equilibria.” I am claiming that the economy exploded because the forms of speech about enterprise and invention suddenly changed, for various good and interesting reasons. Speech, not material changes in foreign trade or domestic investment, caused the non-linearities. We know this in part because trade or investment were ancient routines, but the new dignity and liberty for ordinary people were unique to the age.)

The change was of greater importance for explaining the modern world than the clerical Reformation in Germany after 1517, or even the aristocratic Renaissance during and after the Tuscan Trecento, though both of these influenced it, as did a third great R-shift of late medieval and early modern times, the political Revolts and Revolutions which shook Holland and Britain and America and finally France. But the point here is that in a fourth great and uniquely European R-shift – the “Bourgeois Revaluation” in Holland and Britain – an old class began to acquire a new and higher standing in the way people talked about it, in their rhetoric.

Faith is the virtue of backward looking, of having an identity. Dignity encourages faith. You are dignified in standing. Hope by contrast is the virtue of forward looking, of having a project.¹⁰ Liberty encourages hope. You are free to venture. The claim is that the dignity to stand in one’s place and the liberty to venture made the modern world. Both were new and necessary. My libertarian friends want liberty alone to suffice. But it seems that it did not. Both dignity and liberty were necessary – though of course the one normally supports the other. Liberty without dignity makes for activity without faithful self-esteem, the eager but lowly and self-despising niggling of the marketplace. And dignity without liberty makes for status without hope, merely another version of the hierarchy of olden times. The Revaluation of the honorable transcendent, no longer confined to heroism or saintliness or courtly

grace, was a change in sociology and politics. By contrast, what Tocqueville called the psychological “habits of the heart” did not change much. The important change was not psychological (as for example Max Weber argued in 1905), or economic (as Marx argued in 1848), but sociological and political. Only by consequence were they economic.

Around 1600, that is, on a big scale in pioneering Holland, and then around 1700 on a bigger scale in innovating Britain, some of the elite began to Revalue the town and its vulgar and corrosive if liberty-using creativity. By the 1660s the Dutch cloth merchant Pieter de la Court was declaring that “a power of using their natural rights and properties for their own safety . . . will be to the commonalty. . . an earthly paradise: for the liberty of a man’s own mind, especially about matters wherein all his welfare consists, is to such a one as acceptable as an empire or kingdom.”¹¹ No aristocratic empires or kingdoms, please. In 1690 an English merchant to the Ottomans, Dudley North (himself from an aristocratic family), wrote in a more modern and economic way that “there can be no trade unprofitable to the public, for if any prove so, men leave it off; and wherever the traders thrive, the public, of which they are a part, thrives also.”¹²

Such pro-market opinions were never universal. The British elite took a century or more to begin speaking of commercial creativity as O.K., acceptable, not-to-be-sneered-at. And anti-commercial snobbery in Britain did not entirely end, ever. The liberty half of the Revaluation was equally (and more famously) slow in coming. And therefore the domination of British politics by an Establishment did not entirely end, ever. As the historian Margaret Jacob argued long ago, and as Jonathan Israel has confirmed lately in the history of ideas, the free-market and free-voting “radical Enlightenment” of people like the Levellers, de la Court, Spinoza, Mandeville, Paine, and the well-named Freemasons was undercut by the more conservative and monarchical Enlightenment of Locke, Newton, Voltaire, and the rest, in the utter liberty of trade that the radicals sometimes favored among others matters.¹³ We continue to fight such battles. And at the time both the radical and the conservative Enlightenment of course were fiercely opposed by the reactionary powers, with galley and with rope.

The historian of technology Christine MacLeod dates the final apotheosis of the inventor in Britain to the early nineteenth century. Certainly the shift in rhetoric beginning in the seventeenth century needed constant tending, as ideologies do. MacLeod tells for example of

the remarkable campaign to put by 1834 a big statue of the inventor James Watt (in Westminster Abbey, in among the kings and priests and poets. A contemporary asked in vexation “what this vast figure represents, what class of interests before unknown [well, hardly ‘unknown’], what revolution in the whole framework of modern society.”¹⁴ He was behind the curve. MacLeod notes that the Times as early as April 22, 1826 had declared that inventors were “the elect of the human race.”¹⁵ She detects during the 1830s “a marked alteration in the attitudes of judges and juries towards patentees. . . . The balance of success in litigation shifted towards prosecutors of infringements, as patentees began to be regarded less as grasping monopolists [of Elizabethan date, for example], and more as national benefactors,” sixty years after Adam Smith had fully articulated the case.¹⁶

Such dignity for innovation and liberty for enterprise are sometimes still opposed—which along with a bad climate and a bad start is why some countries remain poor. True, if supporters of subsidies to American cotton growers were capable of shame, eastern Burkina Faso and the rest of the Sahel would do better. Ethical failures in the global North contribute in part to keeping such places poor. Yet even with a bad climate and a bad start and an unethical policy in the North of protecting its own rich farmers, such places do not have to remain poor. When a stable though tyrannical country like China or a turbulent though law-governed country like India started to revalue markets and innovation, and to give a partial liberty to commerce, the food and housing and education for the average person began doubling every 10 to 7 years. In a couple of generations China and India will have Hedda’s standard of living. They have already entered Collier’s Top 5½ Billions. An internal ethical change allowed it, beginning in northwestern Europe after 1700.

It wasn’t “capitalism” that was new in 1700. Markets and non-agricultural property and a town-living middle class to manage them are very old. The market economy, contrary to what you might have heard, has existed since the caves. The invention of full language around 50,000 B.C.E. shows up archaeologically for example in a big and sudden increase in the distance traveled by stone for tools, such as flint or obsidian, scores of miles in trade instead of the former few. So it went, for millennia. “Back at least as far as the third millennium B.C.E.,” writes the economic historian George Grantham, “farmers on some islands in the Aegean Sea were producing olive oil and wine in amounts greatly exceeding domestic consumption requirements.”¹⁷ Walled towns arose

with the invention of agriculture, since 8000 B.C.E. in Jericho for example. For millennia afterwards the towns proliferated, with their markets and bourgeoisies and enterprises. From the beginning the townsfolk appear to have had pretty much the same psychological makeup as the modern bourgeoisie—they wanted profits, they believed that arranging for monopolies by corrupting the government was the best way to attain them, but they were willing to innovate if forced by competition and enabled by cooperation. They only awaited the sociological and political Bourgeois Revaluation in northwestern Europe to commence innovating on an immense scale.

Nor of course was innovation entirely novel in 1700. People had always been creative in making arrowheads or wooden ships. An Upper Paleolithic burst of creativity in making tools and ornaments and musical instruments is another sign of the invention of fully modern language.¹⁸ The Taiwanese natives, originally from China, appear to have invented the outrigger canoe around 3500 B.C.E., and went on to populate the Pacific. The Indo-Europeans of Ukraine appear to have domesticated the horse around 4000 B.C.E., and went on to conquer or repopulate or inspire Europe, Iran, and much of South Asia. But until 1800 C.E. the innovation had allowed expansion of humans merely in numbers and ecological range, or the replacement of one culture by another. For Malthusian reasons it had done nothing to change the \$3-day life. Nothing at all. The anthropologist Marshall Sahlins argued long ago, and persuasively, that the “stone-age economics” of hunter-gatherers allowed people to work many fewer hours than agriculture did.¹⁹ Yet cultivating fields of grain did bring cities and temples and then literacy. It was a tradeoff, sparsely populated hunting grounds traded off for dense cities. But either choice left the scope of the average human unchanged—for most people: poor, illiterate, short-lived. What was different after 1800, and with unstoppable force after 1900, was a novel and immense and sustained, almost lunatic, scale of innovation, breaking the Malthusian curse. For the first time the innovations made ordinary people far richer than the ancient standard of hunter-gatherer or nomadic herder or settled farmer, and allowed the moderns to have smaller families. Think about your ancestors, and compare.

Notes

2. Strictly speaking, "1990 international Geary-Khamis dollars" – so I've inflated a bit (using the consumer price index in the USA since 1991) to bring the figures in a rough and ready way up to 2008 prices in the United States. That is, the \$3 is to be understood as what you would live on in Chicago, say, in 2008 if you had the misfortune of the world's average real income in 1800. The figures were estimated by Angus Maddison in his amazing palace of numbers, *The World Economy* (2006), these particular numbers on p. 642. For "two centuries ago" I used the average of Maddison's world figures for 1700 and 1820. Economic historians agree on a factor of ten or so since the eighteenth century: for example, Easterlin 1995 (2004), p. 84.
3. The "bottom billion" is Paul Collier's phrase (Collier 2007). The Norwegian ratio to average entire-world gross national income per capita in 2006 (at purchasing power parity: adjusting for the cost of living) was 5.4 (according to World Bank 2008, pp. 8, 161). And relative to the average of low income countries by World-Bank definitions the ratio was 27, that is, \$137 a day compared with the low-income average of \$5 a day (World Bank 2008, p. 10).
4. Maddison 2006, p. 615.
5. Collier 2007, pp. 3, x.
6. Again the figures are at (U.S.A.) purchasing-power parity, from World Bank 2008.
7. Abbing 2003.
8. Hedda is a fiction – though in truth I have plenty of such cousins at Dimelsvik.
9. McCloskey and Klamer 1995.
10. A full defense of this and the other categories of virtues is given in McCloskey 2006a, especially pp. 151-194.
11. De la Court 1669.
12. North 1691, Preface, p. viii. I have modernized spelling and punctuation here and elsewhere, to avoid distancing the authors. Stephen Greenblatt praises the Oxford edition's (1986) modernizing of Shakespeare's spelling for avoiding "a certain cozy, Olde-English quaintness" (Greenblatt 1997, p. 73). The distance of the olde ffolke should depend on their thoughts, not their spelling conventions. For the same reason I have changed British spellings to American, "honour" to "honor" and the like. Sometimes I cannot resist retaining "-eth" in 16th-century quotations. It's so cozy and quaint.
13. Jacob 1981 (2006); Israel 2001.
14. Dean Stanley 1834, quoted in MacLeod 1998, p. 96.
15. MacLeod 1998, p. 108.
16. MacLeod 1998, p. 108.

17. Grantham 2003, p. 73.
18. Kuhn, Stiner, and others 2001: they speak of the emergence over a wide area rather suddenly of "redundant, standardized ornament forms" suggesting communicative purposes. Earlier art was rare, and unique in design.
19. Sahlins 1974 (2004), esp. Chp. 2, "The Domestic Mode of Production: The Structure of Underproduction."

Chapter 2: The Tide Came from a New Dignity and a New Liberty for the Ordinary Bourgeoisie and Its Innovations

Innovation depends, as the economist and rabbi Israel Kirzner has argued, on alertness.²⁰ The big or small entrepreneur, encouraged by dignity and enabled by liberty, alertly notices an opportunity, and takes it. To have socially good effects the alertness cannot be of the monopolizing sort the ancient bourgeoisie admired, or of which the Tammany Hall politician George Washington Plunkett spoke of in 1905: “There’s an honest graft, and I’m an example of how it works. I might sum up the whole thing by sayin’: ‘I seen my opportunities and I took ‘em’.”²¹ Such “opportunities” to extract bribes out of a government-enforced monopoly at best shuffle the community’s income from the taxpayer to Plunkett. More likely in the process they reduce it. And modern protectionism, such as the sort Frédéric Bastiat spoofed in 1845 in his petition of the candle makers against the light of the sun, certainly does reduce the community’s income, by putting people in less productive jobs.²² Bastiat’s funniest example is the “negative railroad.” A railroad was proposed from Paris to Madrid. The city of Bordeaux demanded that the railroad break there, which would “create jobs” for porters and hotels and taxis (London, Chicago, and Paris itself have long had precisely such arrangements, extracted by politics and monopoly: in the United States in the railway age they always said “Change in Chicago”). Bastiat noted that by such “job-creating” logic *every* town along the route should see its opportunity and take it. “Change Ablon-sur-Seine, Evry, Ballancourt-sur-Essonne, La Ferté-Alais.” Every few kilometers, at every country village, the railroad would end at a Gare du Nord to be resumed after job-creating expenditure by travelers and freight handlers at a Gare du Sud. All the national income of France and Spain would come to be “generated” by the railroad, at the cost of all other forms of production. It would be a *negative* railroad, a triumph of protectionism and industrial planning achieved through what economists call “rent seeking.”

But if the opportunity is an actual improvement in how things are provided – rather than one of the rent-seeking opportunities for legalized theft in which the old aristocracy and priesthood had so long specialized, and in which the new democratic politicians also came to be skilled – then the society is made better off. Move the marketplace to a

more convenient location. Buy Greek olive oil at a low price to sell high. Invent the container ship. Discover $E = mc^2$.

Yet such inventive activities, especially in towns, had always been scorned by the elite. After all, the elite lived by the dignified collection of rents or taxes imposed on mere workers. A middleman improving life by purchasing a bolt of cloth or an idea for an invention at a low price and selling it at a higher price to people who valued it more seemed to them a mere trickster. In 44 B.C.E. Cicero declared that “commerce, if on a small scale, is to be regarded as vulgar; but if large and rich. . . it is not so very discreditable. . . . if the merchant, . . . contented with his profits, . . . betakes himself from the port itself to an estate in the country.”²³ In 1516 the blast by Thomas More – or, rather, by his character Raphael Hythloday [“peddler of nonsense”: More was for a long time canny in making his own position ambiguous] – can stand for the abuse directed for millennia at the vulgar traders and innovators of the towns: “They think up . . . all ways and means . . . of keeping what they have heaped up through underhanded deals, and then of taking advantage of the poor by buying their labor and toil as cheaply as possible. . . . These depraved creatures, in their insatiable greed, . . . are still very far from the happiness of the Utopian commonwealth [where] once the use of money was abolished, and together with it all greed for it, what a mass of troubles was cut away!”²⁴ The Earl of Leicester, sent by Elizabeth in the 1580s to meddle in the politics of the already bourgeois Dutch, did not trouble to conceal his contempt for the “Sovereign Lords Miller and Cheeseman” with whom he had to deal.²⁵ And even the commercial Dutch had a proverb, *Een laugen is koopmans welvaart*, “A lie is a merchant’s prosperity.”

But after 1700 in Britain, as earlier in Holland, the vulgarities of the economy and of money and of dealing, with their disturbing creativity, came gradually to be talked about as non-corrupting. They began to be seen as worthy of a certain respect, as being not hopelessly vulgar or sinful or underhanded. In a word, they became dignified. The very idea of virtue and dignity in (of all places) the economy – even in small-scale commerce, or buying grain low to sell high, or making cheese – had been proposed tentatively by professors in Italy and Spain and France. In the mid-thirteenth century St. Thomas of Aquino himself had written in the style of his ancient and anti-bourgeois authorities, especially of the desert monks and of Aristotle the teacher of aristocrats, that “trading, considered in itself, has a certain debasement attaching thereto, in so far

as, by its very nature, it does not imply a virtuous or necessary end.”²⁶ But Thomas and the other urban monks of his time wrestled against the inherited style: “Nevertheless gain which is the end of trading, though not implying, by its nature, anything virtuous or necessary, does not, in itself, connote anything sinful or contrary to virtue: wherefore nothing prevents gain from being directed to some necessary or even virtuous end, and thus trading becomes lawful. Thus, for instance, a man may intend the moderate gain which he seeks to acquire by trading for the upkeep of his household.”

No one in charge in Florence or Barcelona after 1200 actually thought that commerce was immoral – they left such primitive notions to the country folk of the North. Yet eventually in the North-Sea lands during the seventeenth and especially during the eighteenth century many of the clerisy of artists and intellectuals, and even a few churchmen and aristocrats, came to tolerate and in a small way to admire the bourgeoisie. Towards 1800 many ordinary Europeans, and towards 1900 still more Europeans, and then towards 2000 many ordinary people elsewhere, came to accept the outcome of the market with more or less good grace. As Christine MacLeod puts it, by the standard of the “aristocratic cultural hegemony” of earlier times “the inventor was an improbable hero,” but by the middle of the nineteenth century in Britain the inventor had become just that.²⁷ The Dutch, then the British, then the Americans, and then many other people for the first time on a big scale looked with favor on the market economy, and even on the creative destruction coming from its profitable innovations. American westerns praised bourgeois cattlemen.²⁸ Japanese salarymen became heroes of novels. The world began to revalue the bourgeois towns. In 2005 the francophone English writer Alain de Botton spoke of his boring home town, Zurich, whose “distinctive lesson to the world lies in its ability to remind us of how truly imaginative and humane it can be to ask of a city that it be nothing other than boring and bourgeois.” He quotes Montaigne, writing in the last decades of the sixteenth century:

Storming a breach, conducting an embassy, ruling a nation are glittering deeds. [But] rebuking, laughing, buying, selling, loving, hating, and living together gently and justly with your household – and with yourself. . . – is something more difficult. Whatever people may say, such secluded lives sustain in that way duties which are at least as hard and tense as those of other lives.²⁹

Note that the event in question is not a “rise of the middle class,” if by that is meant a coming of an enlarged bourgeoisie to political power.

Outside the British North American colonies the step was long delayed. The middle class, as Jack Hexter pointed out long ago, is always “rising,” and yet only lately has gotten there in England — it hadn’t, really, even in the nineteenth century, and certainly hadn’t in the sixteenth and seventeenth centuries.³⁰ The event in early modern times is rather a Revaluation of bourgeois behavior, an increased acceptance of bourgeois virtues, the rebuking, laughing, buying, selling far from glittering deeds. As the historian Joyce Oldham Appleby put it in 1978, speaking of the late seventeenth century and after, the middle class in England “coalesced with, rather than displaced, the existing ruling class. . . . Social change. . . requires not a new class but a modern class, however formed.”³¹ In Holland, first, and then in England and then the rest, it happened.

The market and the bourgeoisie in the Revaluing countries repaid the compliment with a stunning enrichment. By their innovation and their competition for customers in markets, acting for the first time within a social drama in which they enjoyed dignity and liberty, they increased the welfare of the poor in Britain and then elsewhere at first by 100 percent and at length by 900 percent, then 1500 percent, then beyond, up to that \$137 a day. It is happening now even in Egypt.

Some of the enrichment was win-win, a “creative accumulation,” as the economic historian Nick von Tunzelmann puts it. Think of the hula hoop or the skate board, new products with no close substitutes to be damaged by the novelty. Yet most changes do damage some people — from “creative *destruction*,” in the phrase of Werner Sombart’s (1863-1941) made famous by Joseph Schumpeter (1883-1950). Win-lose is usual. Think of the new fold-up-and-carry canvas lawn chairs, which once sold for \$40 and now for \$6, which have bankrupted companies making the older aluminum chairs. They in turn had bankrupted the old wooden folding deck chairs, which in turn had bankrupted the still older Adirondack non-folding wooden chairs. Chicago prospers mightily, and windily proclaims its might, and so St. Louis comparatively does not. Steam puts waterpower out of business, slowly. Buggy whips lose their appeal. WalMart cheapens goods to the poor but drives local monopolies in retailing out of business.

Creative destruction is not only economic. If innovating in the production of sugar or the organization of corporations creates some losers as well as a lot of winners, so do most artistic or intellectual innovations. Charlie Parker and Dizzy Gillespie put out of business

many a jazzman of the Age of Swing, as Swing had put out of business Dixieland, and Dixieland had put out of business Ragtime. Coco Chanel bankrupted many a dressmaker of the older sort. Albert Einstein made obsolete the many physicists who believed that the universe in the large was Euclidian and Newtonian (and shortly afterwards Niels Bohr and Werner Heisenberg and their quantum mechanics made Einstein's mature thinking obsolete). It is not true that free trade in goods or art or ideas helps every single person.

But the fact of destruction somewhere does not make free trade in goods or ideas a bad thing. The accounting is commonly: win-win-win-win-win-lose. Or so the new bourgeois liberalism claimed, contrary to the zero-sum notions that had governed the world up to then, in which every gain to Europe was supposed to have arisen from a comparable loss to the rest. Win minus lose equals zero. No, said the liberals like John Stuart Mill, not usually.

The win-win-win-win-win-lose calculation is known in philosophy as "act" (or direct) utilitarianism: the balance of social gain to some innovation is claimed to be positive, taking winners with losers and adding them up (somehow). At the same time, however, an alternative argument was developed, by Mill: rule (or indirect) utilitarianism.³² Each act of buying or innovating may have losers. Indeed, unless the item has no alternative buyer or employment, it must: if I buy a Picasso I am literally taking it away from *someone*. The price he faces for substitutes for "Man with a Blue Guitar" rises. If he has a veto on my purchase, he will surely exercise it. A society in which literally everyone has to agree to such a change in how things are allocated among him and me will not be progressive technologically (or artistically or intellectually or spiritually or in any other way).

What Mill and Sidgwick and other sophisticated utilitarians saw is that if we instead make our ethical and political decisions not at the level of acts but at the level of rule-making *about* acts we can avoid the win-lose logic of allocation, and avoid, too, certain other and more dramatic paradoxes in act utilitarianism. We choose to abide by the market's equilibrium, for example, or we choose to abide by democratic rule, or we choose to abide by the amiable political fiction that all people are equal – and the outcome will be good (Mill was still a consequentialist in ethics). Mill's ploy undergirds what the economist James Buchanan calls "constitutional political economy." "If politics is conceptualized as a two-stage or two-level process (the constitutional [or rule] and the post-

constitutional [or act]). . . the agreement criterion . . . [has] more acceptable implications.”³³ It is what Buchanan and Gordon Tullock were about when they posited in *The Calculus of Consent* (1962) a veil of uncertainty concerning which side of the market or the vote one will end up on, behind which one makes constitutional rules. It is also what John Rawls was about in his later *A Theory of Justice* (1971) when he imagined a pre-natal veil of ignorance behind which we decide whether our society will have slavery or not.

To the economist, the lower level, act utilitarianism has its charms. She points out that if the price of lumber is higher in England than in Sweden then shipping Swedish lumber from Norrland to London creates value, by the amount of the price difference less the transaction costs. An innovation in lumber manufacturing or organization can be seen as the same sort of alert arbitrage, buying an idea for lumber ships or steel saws low and selling it high. Again the gain in value is the price difference. Sven Svenson the Swedish lumber king is made better off, as is Jones the lumber merchant in London – and his employees and customers are made better off, too. True, if Sweden exports lumber some people are hurt. The price of lumber from Sussex in southern England, which is a substitute for Swedish lumber, goes down, and the fall in price will measure the loss to Wrightman, the owner of a big stand of timber in Sussex. And back in Sweden Jon Jonson, the competing lumber duke, is certainly made worse off by King Svenson’s success. He is very unhappy about it, and would veto it if he could.

But the economic logic is that the act of taking advantage of a price difference, moving stuff from low-valued uses to high-valued uses, creates a net and national gain in value-in-use (which appears as an uptick in national income). People benefitting from the original low-valued use are hurt, but more people (weighted by purchasing power) are helped – the price they pay falls. Other suppliers of lumber or any substitute for lumber are hurt. The demanders of any complement such as houses made with wood are helped. It looks complicated. But on a blackboard the economist can show you that under certain assumptions the net gain to national income is always positive. As Bastiat said at the dawn of confidence in laissez faire arguments, “what I save by paying nothing to the sun [for indoor illumination in the day time], I use for buying clothing, furniture, and [even] candles.”³⁴ It is all quite simple, the economist says – unless, she concedes with a certain embarrassment,

“second-best” considerations or “non-convexities” intervene, or unless you do not approve ethically of weighting people by purchasing power.³⁵

Blackboard proofs and their uneasy assumption of first-best and amoral income distribution aside, though, the historical facts speak loudly enough. Clearly, some people are hurt by economic change, every time, just as some people are hurt by intellectual change or fashion change or climate change. But equally clearly the gain since 1800 from economic change has massively outweighed the loss to English woodmen disemployed by Swedish timber, or American blacksmiths disemployed by automobiles, or Indian bullock-drivers disemployed by motor trucks. The Win-Win-Win-Win-Wins far outnumber the Lose. To put it in terms of constitutional political economy, what sort of society would you rather be born into: one that forbade every innovation that resulted in any loss whatever to someone, and rested at \$3 a day, or one that allowed innovation, perhaps with a social safety net like Norway’s, and resulted in \$137 a day?

That’s why it is scientifically important to grasp the great magnitude of modern economic growth. When the value created is merely the modest efficiency gains noted in the nineteenth century by the classical British economists one might reasonably stand in doubt, and slip into conservative, protectionist measures (though the blackboard, I say, still provides the uneasy proof of net gain from free trade). But when the value created is a factor of 10 – a movement from \$3 to \$30, not to speak of \$3 to \$137 – it becomes impossible to argue that the loss to the substitutes (other suppliers of lumber, say) does in historical fact overwhelm the gain (to buyers of wood, say, or people who live in wooden houses). Or, to speak from behind the veil of ignorance, it becomes impossible to argue that one would prefer to enforce rules leading to the \$3 society rather than to the \$137 one.

Some intellectuals look with suspicion on globalization, and focus on its losers such as Jonson the Swedish competitor of Svenson, or Wrightman the English competitor of Swedish timber, and especially focus on the impoverished employees in the activities that lose. They conclude that economic growth has had unconscionable costs. The historical sociologist Immanuel Wallerstein, a man of the left, declared in 1983 that “It is simply not true that capitalism as a historical system has represented progress over the various previous historical systems that it destroyed or transformed.”³⁶ Such is the theme of the historians Kenneth Pomeranz and Steven Topik in their brilliant economic-historical collage,

The World That Trade Created (2006; a new edition of a 1999 book). In the book they warmly commend, among numerous other opponents of innovation, “village elders [in twentieth-century China] who had banned a more efficient sickle on the grounds that its benefits were not worth the new struggles it would touch off between farmers, hired harvesters, and thieves.”³⁷ That sounds nice.

But it’s not. If envy and local interest and keeping the peace between users of old and new technologies are allowed to call the shots, innovation and the modern world is blocked. If bourgeois dignity and liberty are not on the whole embraced by public opinion, the enrichment of the poor doesn’t happen. The older suppliers win. Everyone else loses. You work at your grandfather’s job in the field or factory instead of going to university. We remain contentedly – or not so contentedly – at \$3 a day. The poor remain unspeakably poor.

By 1800 in northwestern Europe, for the first time in economic history, an important part of public opinion, especially elite opinion, came to accept creative accumulation and destruction in the economy, in the same way as it was doing in the parallel world of non-economic ideas. The resulting change certainly did represent progress over the various previous historical systems that it destroyed or transformed, because it introduced rule utilitarianism or constitutional political economy into the affairs of ordinary life. People were willing to change jobs and allow technology to progress. People stopped attributing this man’s riches or that woman’s poverty to politics or witchcraft. They came to what the novelist Philip Roth calls “a civilized person’s tolerant understanding of the puzzle of inequality and misfortune.”³⁸ Or at least they shifted away from a belief in highly personal politics and witchcraft, such as in the early seventeenth century provoked the burning of thousands of witches along the German borderlands with France, towards a disenchanting belief in the impersonal, such as Them or the Government or the Invisible Hand or That’s Just How It Is.

Accepting creative accumulation and destruction, it turned out, provided a near-guarantee that almost all the boats rose on its tide. You didn’t even need a boat. Pomeranz and Topik are not wrong to note the exploitation when, say, rising demand for binding twine to bale American wheat straw led to Mayans and Yaqui Indians being bound in the Yucatán to harvest cactus to make the twine.³⁹ But they are often wrong in assigning (without argument) the exploitation to the innovation itself rather than to the pre-capitalist structures of power that

allowed the tyrants to exploit the opportunity to trade in twine or coffee or sugar or rubber. Such pre-existing evils, exploited in other ways before the evil market appeared, were often enough eroded by capitalism itself – if by nothing else than by the sheer rise of world incomes per head and the political power to ordinary folk that it brought in its train. And the liberal bourgeoisie, after all, supported early and uniquely the ending of slavery, as in the British Empire in 1833, and the protections for free speech, in the American First Amendment in 1789, and the various other liberties overturning the *ancien régime* in the French Revolution of that same fruitful year.

In other words, anti-globalization writers such as Pomeranz and Topik (among many of my left-wing friends) have less interest than they should in the gigantic gains from bourgeois dignity and liberty. Nowhere in a long book do they acknowledge the leap from \$3 to \$137, or even the more widespread leap from \$3 to \$30. The historians of the world that trade created do not acknowledge the largest economic event in world history since the domestication of plants and animals, happening in the middle of their story. An elephant sits in the middle of the room, yet Pomeranz and Topik speak only of the disturbances to the surrounding glassware. Nowhere in their book do they note that we were once all poor and now many of us are rich, and the Top 5 ½ Billion are on the way to riches, with some hope even for the Bottom Billion. Pomeranz' and Topik's own ancestors were \$3-a-day folk, like yours and mine. The detested capitalism permitted the descendents – Pomeranz and Topik and McCloskey, for example – to specialize in the arcania of Chinese or Latin American or British economic history instead of cooking potatoes or mending shoes. Someone who imbibed their world history from Pomeranz and Topik neat would have no idea that such a shrinkage of world poverty had happened.

We all – my left- and my right-wing friends and I together – want the poor to do well. No one of sense cares for example how splendidly the good folk of Fisher Island, Florida are doing in their mansions. True, the right wing is often reluctant to admit that the conservative institutions it admires with such affecting piety are often instruments of class or racial or gender domination, such as a Harvard discriminating against Jews from the 1920s on, or the hospitals segregating their wards and leaving the jazz singer Bessie Smith to die in 1937 on the way to a remote Negroes-only hospital.⁴⁰ But the left wing in turn, ably represented here by Pomeranz and Topik, is often reluctant to admit that

bourgeois innovation, not government protection or union organization, made most poor people 1800 to the present massively better off. It has.

Or, to look at it the other way, the anti-globalization, anti-modernization writers have less interest than they should in the misery of traditional, \$3-a-day societies, in which village elders decide on the design of sickles, and of marriages, and of laws. Wallerstein claimed in 1983 that he did not “seek to paint [an] idyll of the worlds before historical capitalism,” but went on to deny (in an argument he admitted was “audacious”) the evident progress in the material and spiritual condition of ordinary people worldwide since 1800.⁴¹ We must not allow such a grim threnody for the world we have lost to deafen us to the cheerful epithalamia for the world we have gained. Mill complained in 1848 about the reactionary version of the threnody then forming in the writings of Benjamin Disraeli and Mill’s friend Thomas Carlyle (in this as in many other respects the recent far left rehearses the arguments of the old far right): in “the theory of dependence and protection . . . the lot of the poor . . . should be regulated for them, not by them. . . . This is the ideal of the future, in the minds of those whose dissatisfaction with the present assumes the form of affection and regret towards the past.”⁴² Or as Bastiat put it about the same time, against the notion that “the government should know everything and foresee everything in order to manage the lives of the people, and the people need only let themselves be taken care of. . . . Nothing is more senseless than to base so many expectations on the state, that is, to assume the existence of collective wisdom and foresight after taking for granted the existence of individual imbecility and improvidence.”⁴³ Conservatives and progressives alike suppose that village elders or members of the French Assembly are better suited to deciding on innovation than are mere peasants noting the advantages of a better sickle.

But in the event, by the new, egalitarian, anti-expert, pro-bourgeois talk (or “self-dependence,” as Mill called it), a positive-sum game was freed to some extent from zero-sum politics. The idea of progress through bourgeois dignity and liberty took hold of the social imaginary of the West. Napoleon’s armies saw it as their first duty after a conquest to abolish the monopolizing guilds. In 1857 the Danish Sound Tolls, which for centuries had been collected from Hamlet’s Helsingør (“Elsinore,” said Shakespeare), were eliminated by international treaty. By the middle of the nineteenth century both Britain and France were free-trade nations.⁴⁴ And all were on their way to bourgeois enrichment.

* * * *

I am claiming, in other words, that the historically unique economic growth on the order of a factor of ten or sixteen or higher, and its political and spiritual correlates, depended on ideas more than on economics. “During its rule of scarce one hundred years,” wrote Marx and Engels in *The Communist Manifesto* of 1848, “the bourgeoisie has created more massive and colossal productive forces than have all preceding generations.” True, and in the next hundred years it created much more, with a consequent improvement of the formerly poor – quite contrary to what Marx and Engels anticipated. But ideas, not mere trade or investment or exploitation, did the creating. The leading ideas of the bourgeoisie itself and especially the new idea of its fellow citizens to resolve to speak kindly of the bourgeoisie were two: that the liberty to hope was a good idea and that a faithful economic life accords dignity and even honor to ordinary people, to My Lord Cheeseman as much as to Your Grace the Duke of Leicester. The disturbing outcomes of such a bizarre egalitarianism, many Europeans came to believe, should be encouraged. To use the word Marx taught us, the modern world arose out of an entirely new “ideology.” Or, equivalently, it arose out of an entirely new “rhetoric,” which is an older word meaning about the same thing. For example, the word “honest,” which in Shakespeare’s time meant mainly noble (that is, honorable in an aristocratic way, achieved in battle or at court), changed its rhetoric in the eighteenth century to mean mainly truth-telling (that is, reliable in a bourgeois way, achieved by innovation and marketing). The same shift took place at the same time in other Germanic and Romance languages of commerce, such as Dutch or Italian.⁴⁵

In the human realm “the great chain of being” (*scala naturae*: the staircase of nature), dominating the Elizabethan world picture, was the inherited yet endlessly refreshed hierarchy of dignities ruling since the first large-scale agricultural societies in Iraq and Egypt and north China or for that matter Hawaii.⁴⁶ It began to break down. For reasons that are not completely clear, there was a shrinkage in what sociologists call “social distance” (to use the terminology of Georg Simmel, its originator, and the Americans Robert Park and Emory Bogardus early in the twentieth century).⁴⁷ To apply a modern analogy, European society lurched away from, say, old Korean or South Asian levels of deference towards rank and started down the road to new American or Israeli levels. They did not, to put it mildly, get all the way. But European

barons and bishops reluctantly moved over a little for townspeople, and at length even for plowmen. Ordinary Europeans got a dignity and liberty that the proud man's contumely had long been devoted to suppressing. In the revolutionary year of 1795 the poet and plowman Robert Burns declared that "The pith o' sense, an' pride o' worth,/ Are higher rank than a' that. . . ./ A man's a man for a' that." The townspeople lost their grip on cozy medieval monopolies, but got in exchange a new dignity as innovators, and a lower social distance from the elite. They became the new heroes of a more and more bourgeois-respecting society.

In a striking remark in 1908 Simmel focused on the old image of the bourgeois: "In the whole history of economic activity the stranger makes his appearance everywhere as a trader, and the trader makes his as a stranger."⁴⁸ An instance from the fourteenth century is Boccaccio's tale of Saladin disguised as a merchant (in forma di mercatante). But a new rhetoric of non-strangeness, a dignity for trading and innovating in ordinary life, arose around 1600 in Holland, later in England, and still later in other places down to the present. It had of course causes itself. Some of the causes were economic and material, surely; but some were rhetorical and ideal. Certainly the immense payoff from positive-sum politics could inspire direct imitation, as it has in present-day India. Matter then could be said to have moved other matter, interests to have spawned new interests. The success of commercial Holland stuck in the craw of English people the way that the success of innovative Hong Kong and Taiwan stuck in the craw of mainland Chinese people, and inspired them to imitate.⁴⁹ By contrast, "conservation of the old modes of production in unaltered form" (as Marx and Engels wrote in 1848) "was . . . the first condition of existence for all earlier industrial classes."⁵⁰ "Sticking in the craw" is not quite "the modes of production," but you could call it if you want a case of material interests implying material interests.

Yet Marx erred in claiming (as he sometimes did) that ideological or rhetorical change *always* reflects the material economy of interests. It was no material interest that drove Hitler's or Stalin's or Mao's regime to murder tens of millions of its own people, or Pol Pot's to murder about a third of the Cambodian population.⁵¹ It was ideology, during the century of conflicting ideologies. Doubtless the ideas themselves had some partial dependence on interests. But not always. In the crucial early case from 1600 to 1800 in northwestern Europe the words and ideas led the

way. European revolutions, reformations, renaissances, and especially revaluations made townspeople bold and raised them in the estimation of their fellows. They arrived at the “bourgeois dignity and liberty” of my title. The material economy followed.

Notes

20. For example, Kirzner 1976, p. 83, as elsewhere in his writings, and especially Kirzner 1973. I have criticized his very fruitful approach, though, as not going quite far enough: as not recognizing the importance of the social aspect of entrepreneurship, and especially the role of conversation (McCloskey 2008e; compare Storr 2008).
21. W. L. Riordon, Plunkitt of Tammany Hall (1905), pp. 3-10, reproduced in Leland D. Baldwin, "The Flavor Of The Past Readings in American Social and Political Portrait Life", Vol.II (New York: Van Nostrand, 1968), pp.57-60, and then at <http://www.uhb.fr/faulkner/ny/plunkitt.htm>
22. Bastiat 1845, I.7.
23. Cicero 44 B.C.E., I:42. Compare Finley 1973, pp. 60, 23.
24. More 1516, p. 132.
25. Israel 1995, p. 222.
26. Aquinas 1251-1273, Second Part of the Second Part, Question 77, Art. 4, "I answer that."
27. MacLeod 2007, pp. 1, 13. MacLeod detects a decline in the prestige of inventors by the early twentieth century, but I would argue that by then the heroism had been routinized. In A. G. Macdonnell's comic novel *England, Their England* (1933) the engineer character, William Rhodes, is still to be admired, though suspect from an English upper class point of view (Macdonnell was a Scot). MacLeod's argument, admittedly, is about inventors in the strict sense, not the users of inventions. Yet as Edgerton (1996 and 2005) argues, Britain remains, for all the post-Victorian lament, one of the most inventive economies on earth.
28. For a discussion of the bourgeois tendency of the cowboy novel and film, and its tensions, see McCloskey 2006a, pp. 212-230.
29. Montaigne 1588, Bk. III, 2, "Of Repentance," quoted Botton 2005, p. 46; alternatively translated at p. 614 of D. Frame, ed. and trans. (Stanford University Press 1958).
30. Hexter 1961.
31. Appleby 1978, pp. 11-12.

32. Mill 1843: "There are many virtuous actions, and even virtuous modes of action (though the cases are, I think, less frequent than is often supposed) by which happiness in the particular instance is sacrificed, more pain being produced than pleasure. But conduct of which this can be truly asserted, admits of justification only because it can be shown that on the whole more happiness will exist in the world, if feelings are cultivated which will make people, in certain cases, regardless of happiness" [VI.xii.7]. Twenty years later, in *Utilitarianism*, he had much more to say along the same lines.
33. Buchanan 2006, p. 991.
34. Bastiat 1845, II.15.33.
35. E.g. McCloskey 1985b, sections 9.2, 10.2, 10.3, 24.1.
36. Wallerstein 1983 (1995), p. 98.
37. Pomeranz and Topik 2006, pp. 134-135.
38. Roth 2006, p. 101.
39. Pomeranz and Topik 2006, pp. 131-132.
40. Karabel 2005, Chp. 3, "Harvard and the Battle over Restriction."
41. Wallerstein 1983 (1995), p. 100.
42. Mill 1871, Bk. IV, Chp. vii, sec. 1. It is the same in the first, 1848 edition, and was much influenced then (Mill says in his *Autobiography*) by the thought of Harriet Taylor.
43. Bastiat 1845, II.15.58-59.
44. Nye 2007.
45. A fuller discussion of the illuminating vagaries of the word "honest" is given in McCloskey, forthcoming, *The Bourgeois Revaluation*.
46. Tillyard 1943. Members of the school of literary critics known as the New Historicists, for whom Tillyard is a whipping boy, point out that the Great Chain acquired its meaning from the challenges to it, Caliban challenging Ariel so to speak. Orthodoxy implies a heterodoxy to be worried about, and suppressed.
47. See Ethington 1997; an economist's use of such ideas is Akerlof 1997. Quoted in Ethington 1997.
48. Quoted in Ethington 1997.
49. The evidence for how much it stuck for the English in the seventeenth century is reviewed in Appleby 1978, Chapter 4, "The Dutch as a Source of Evidence."
50. ***Marx and Engels 1848, p. NN.
51. Otteson 2006, p. 178.

Part II. The Anti-Materialist Project of “The Bourgeois Era”

Abstract

It is a materialist prejudice common in scholarship from 1890 to 1980 that economic results must have economic causes. But ideas caused the modern world. The point can be made by looking through each of the materialist explanations, from the “original accumulation” favored by early Marxist historians to the “new institutionalism” favored by late Samuelsonian economists. The book present does so, and finds them surprisingly weak. The residual is ideas, in particular the Bourgeois Revaluation of the 17th and 18th centuries in northwest Europe. The argument takes six books, constituting a full-scale defense of capitalism. One is already published (*The Bourgeois Virtues: Ethics for an Age of Commerce* 2006), and this is volume 2. Volume 3 will explore exactly how the Revaluation occurred, first in Holland and then by imitation in England, Scotland, Pennsylvania, and the world. Volume 4 explores the balance of interest (Max U) and language in explaining the Industrial Revolution and its longer-term consequences; volume 5 explains why the clerisy of elite artists and intellectuals turned against innovation after 1848; and volume 6 asks which of the present-day complaints about free-market economies has merit. Since the sestet (“The Bourgeois Era”) is a defense, one can expect not to find arguments that globalization is bad for the poor, or that innovation has destroyed the environment. Both left and right are suspicious of the modern world, often for the same reasons. “The Bourgeois Era” argues that both are mistaken: that innovation has elevated people, in more than goods alone.

Chapter 3: Many Other Plausible Theories Don't Work Very Well

Quite a few of my social-scientific or even many of my humanistic colleagues will strongly inclined to disagree. They have the idea – held with passionate idealism – that ideas about ideas are unscientific. For about a century, 1890 to 1980, the ideas of positivism and behaviorism and economism ran the social scientific show, and many of the older show – people still adhere to the script we learned together so idealistically as graduate students.¹ Economists and historians who believe themselves to be quite exempt from any philosophical influences are usually the slaves of some defunct philosopher of science a few years back – commonly a shakily logical positivist nearly a hundred years back. Their faith is impressive.

But in denying words and rhetoric and identity and creativity in favor of numbers and interest and matter and prudence-only they are standing against a good deal of the historical evidence, not to speak of science studies in the half century since Thomas Kuhn. The American constitution, for example, as the historian Bernard Bailyn argues, was a creative event in the realm of ideas – and its economic origins are easily exaggerated.² The abolition of slavery, a policy once advocated merely by a handful of radical churchmen (and the Baron de Montesquieu), played in the 1820s and 1830s a role in British politics, and later of course a much bigger role in American politics. As Lincoln famously said on being introduced to the author of *Uncle Tom's Cabin*, "So this is the little lady who wrote the book that made the big war." Books can make wars. Nationalism spread in reaction to Napoleon's conquests, in poetry and songs of risings and the screeds of exiles resident in London. Socialism spread after the disappointed revolutions of 1848 in congresses and party meetings and manifestos. Ideas matter. The opponents of ideas as historical factors are what the modern Marxists call with a sneer "vulgar" Marxists – wanting passionately to be behaviorists, positivists, materialists, every single time, regardless of the common sense or the historical facts.

To explain the new dignity of the middle class in northwestern Europe, and to explain the success it brought to the modern world, the social scientists need to moderate their fervent ideology of materialism – though of course without denying material forces. They need to

collect the data on ideas and rhetoric and social distance – though without denying economics. The present book supports such a step indirectly, by looking at a representative sample of apparently promising materialist explanations of the Industrial Revolution – explanations like investment or exploitation or geography or foreign trade or imperialism or genetics or property rights. It finds them to be surprisingly weak in explanatory power. It concludes therefore (I admit the inferential gap) that the remaining explanations, such as ideas, must be strong. The two books to follow will offer more positive evidence for the change in rhetoric, and I hope will plug the gap.

The critical method of “remainders” or “residues” was recommended in his *System of Logic* (1843) as one of four methods of induction by J. S. Mill, that admirably learned and open-minded scholar. “Subducting from a given phenomenon,” wrote Mill in his high-flown but lucid style, “all the parts which, by virtue of preceding inductions, can be assigned to known causes, the remainder will be the effect of the antecedents which have been overlooked, or of which the effect was as yet an unknown quantity.”³ In simple language, take out what you can measure, and what’s left is the impact of what you can’t. If the economic and material causes usually proposed as explanations for the Industrial Revolution turn out to be weak, then the large remainder might well be the effect of a remaining antecedent – a rhetorical change, perhaps. If investment and trade can’t do it, maybe ways of talk can. The crucial remaining antecedent, I claim, was a rhetorical change around 1700 concerning markets and innovations and the bourgeoisie. It was merely a change in talk about dignity and liberty. But it was historically unique and economically powerful. It raised the tide.

The materialist accounts are many, from the “original accumulation” favored by early Marxist historians to the “new institutionalism” favored by late Samuelsonian economists.⁴ The criticism made here do not cast into the eighth circle of Hell every possible version of the theories suggested up to now; nor does it disparage their advocates, many of whom are my personal friends and admired colleagues. But the scientific evidence seems to be strong that the economic theories, whether taken individually or together, can’t explain the startling rise of real incomes. Rhetoric can.

The negative case here, summarizing fifty years of research by economic and historical scientists, is:

Foreign trade was too small and too prevalent worldwide to explain the rising tide in northwestern Europe. Capital accumulation was not crucial, since it is pretty easily supplied. Coal can be and was moved. Empires did not enrich the imperial countries, despite what you may think, and anyway the chronology is wrong, and anyway imperialism was commonplace in earlier times. Likewise, the institutions of property rights were established many centuries before industrialization. Greed didn't increase in the West. In bourgeois countries during the Industrial Revolution the Catholics did just as well as did the Protestants. The Muslims and the Hindus and the Buddhists, or for that matter the Confucians and most of the animists, thought as rationally about profit and loss as did the Christians. Populations had grown in earlier times and other places. Until the eighteenth century many parts of the Far and Near and Southern East were as rich, and appeared to be as ready for innovation, as parts of the West – except at length in the crucial matters of the dignity and liberty of the bourgeoisie. Until the seventeenth century the Chinese and the Arabs practiced a science more sophisticated than the one the Europeans practiced. The science of the Scientific Revolution was in any case mostly about prisms and planets, and before the late nineteenth century even its other branches did not much help in worldly pursuits (European science, though, was in its non-normal, revolutionary episodes an interesting parallel in the realm of ideas to the acceptance of creative destruction).

In 1500 only one of the ten largest cities in the world, Paris, was in Europe. In 1800 still only Paris, London, and Naples ranked so. But after a century of divergence only one city outside of Europe or the United States was in the top ten (namely, Tokyo, and this after Japanese industrialization had taken hold).⁵ Yet by 2015 it is estimated that only two cities of Europe and its offshoots, and they only partially of European origin, Mexico City and Sao Paulo, will be in the top ten.⁶ The wheel turns. In short, the Europeans were not economically special until about 1700. They showed most plainly their special ingenuity, along with their special brutality, only briefly in the two centuries after 1800. By the early twenty-first century they had reverted to not being special at all, even in brutality. The episode of their innovative specialness, and the rising tide, came from a change in their economic rhetoric. It made the difference.

* * * *

“Teach the conflicts,” says my colleague in English at the University of Illinois at Chicago, a past president of the Modern Language Association, Gerald Graff. With Cathy Birkenstein he has brought the idea to fruition in a rhetoric for students called *They Say/I Say: The Moves That Matter in Academic Writing* (2005).^z Their little book notes that a student — or a scientist — can’t see what’s distinctive even in her own position if she can’t summarize reasonably fairly what *others think*. I test here reasonably fairly the numerous (sadly mistaken) alternatives to the (correct) theory that a change in rhetoric caused the Industrial Revolution. To use the piece of argumentative rhetoric in Graff and Birkenstein’s title, “my honored if misled friends in economics, history, and economic history say that the modern world came from trade or exploitation or legal change. *They say* that. *I say*, no, it didn’t. It came from a change in the rhetoric about the common economic life, which led to the Franklin stove and the Bessemer process and the peaceful transitions of political power and all our joy.”

Such a rejection-of-alternatives is I admit a little irritating — one gets tired of being told what did *not* happen. But such nay-saying is after all the conventional ideal in the philosophy of science — if commonly overlooked in practice (the practice is more usually what sociologists of science call the Empiricist Monologue, that is, My Wonderful Theory And *Only* My Wonderful Theory). A recent rejection-of-alternatives article in *Science*, for example, describes the “solar model problem”: namely, the problem that elements heavier than hydrogen and helium in the Sun are more common than implied by models of convection. The author politely rejects four “straightforward” hypotheses “receiving some initial support.” “Perhaps the only proposal left still standing,” he concludes, “is internal gravity waves.”^s Similarly, in 1965 Arno Penzias and Robert Wilson discovered the background radiation from the Big Bang by ruling out alternative explanations for the static noise in their new microwave detector pointed at the sky, including for example the activities of certain local pigeons. Ideally we “encompass” other people’s theories in our theory and show triumphantly that our theory explains the facts while theirs do not. The pigeons didn’t do it. Therefore surely the Big Bang must have.

In the ancient world, Plato’s dialogues used the same method of rejecting alternatives and teaching the conflicts, as in *Republic*, Book 1 (for example, Steph. 335), with Socrates as the encompasser. Talmudic Judaism used another; St. Thomas Aquinas, influenced to some degree it

appears by Maimonides, still another. In early modern science the classic case was Galileo's *Dialogo* of 1632, where the sun-as-center "Simplicio" had rings – or orbits – run around him by the Copernican master. (By naming the anti-Copernican "Simplicio," supposedly in honor of a sixth-century Neo-Platonist named Simplicius [classical Latin "of one nature"[*simplex*; in modern Italian, *simplice*, "straightforward"; but medieval Latin "naïve"], Galileo may not have endeared himself to the Inquisition.)

In medicine the classic case was the demonstration in 1855 by John Snow (1813-1858), following on his earlier inquiry in 1849, that cholera was caused, as he put it, by people being "supplied with water containing the sewage of London."² He examined various named alternatives to the water-borne theory, such as miasma or person-to-person contagion. He gradually accumulated evidence that the alternative theories were untenable – devising for example clever maps of London based on house-to-house surveys during the 1854 epidemic. In particular he concluded that "If the cholera had no other means of communication than those [claimed in the older theories] which we have been considering, it would be constrained to confine itself chiefly to the crowded dwellings of the poor, and would be continually liable to die out accidentally in a place, for want of the opportunity to reach fresh victims; but there is often a way open for it to extend itself more widely, and to reach the well-to-do classes of the community; I allude to the mixture of the cholera evacuations with the water used for drinking and culinary purposes." Likewise here: The idea of dignified merchants and free manufacturers can spread more widely and quickly than trade or empire or British racial superiority, and can explain more easily how others mastered the trick. The United States, Belgium, France, Germany, Italy, Korea, Taiwan, Hong Kong, Spain, Thailand, Botswana, China, India, and their imitators grew because they did.

In modern economics the classic use of remainders was the productivity calculations made in the 1950s by John Kendrick, Moses Abramowitz, and Robert Solow (anticipated in 1933 by the economic historian G. T. Jones).¹⁰ Using "marginal productivity theory," the economists took out the impact of sheer capital accumulation on output per head. Take out what you can measure directly, and what's left is what you can't – namely, the not-directly-measurable impact of innovation. The present book takes out what one can measure directly in the materialist and economic explanations of the Industrial

Revolution. What's still left standing is — let us pray — the not-directly-measurable innovation released by the rhetorical change.

I assemble here a catholic sample of the scientific and philosophic work bearing on the hypothesis. I've done myself since the 1960s a good deal of research on economic history, especially British, and since the 1980s some philosophical writing as well. But most of the evidence I use here was collected by others. The book is an essay, not a monograph. Specialists will spot the old pieces of news. We economic historians, for example, have known since the 1960s that capital accumulation can't explain the Industrial Revolution. The news hasn't gotten around much to our academic colleagues. Even some economic historians resist it. Our colleagues in growth theory and economic development resist it fiercely. They want very much to go on believing that the quantity of output depends not on ideas but on the labor applied and most especially on the masses of physical and human capital present, $Q = F(L, K)$ — so lovely is the equation, so tough and masculine and endlessly mathematizable. And a left-leaning Department of French would simply be stunned to hear that innovation does *not* depend on accumulated capital ripped from the proletariat. The scientific finding, however, is elderly, and secure.

Likewise the literary critics know that the bourgeoisie read, and wrote, the European realist novel, from *Robinson Crusoe* to *Run, Rabbit, Run* celebrating and criticizing the bourgeois virtues, though the critics differ on exactly how.¹¹ That scientific finding, too, is elderly and secure. (I use throughout the word "science," by the way, in the wide sense of "serious and systematic inquiry," which is what it means in every language except the English of the past 150 years: thus *Wissenschaft* in German as in *die Geisteswissenschaften* [the humanities], or *science* in French as in *les sciences humaines* [serious and systematic inquiries concerning the human condition], or plain "science" in English before 1850. John Stuart Mill, for example, used the science word in its older sense in all his works.¹² Confining the word to "physical and biological science," sense 5b in the *Oxford English Dictionary* — which was an accident of English academic politics in the mid-nineteenth century — has tempted recent speakers of English to labor at the pointless task of demarcating one kind of serious and systematic inquiry from another.) The related notion that novels and plays teach a good deal about the history of economic ideology and innovation, which will strike the average economist as scandalously unscientific, will provoke yawns in

the Department of English. Likewise, no one in a Department of Philosophy, whether or not they agree with it, will be startled by the “virtue ethics,” explained in *The Bourgeois Virtues* (2006) and used here from time to time (for example, I used it a while ago to speak of the virtues of hope and faith redirected by the Revaluation). She might be more comfortable with Kantian and utilitarian arguments (in philosophical lingo, “deontological” and “consequentialist” ethics), which arose in the eighteenth century and which since then have dominated academic philosophy. But she will at least have heard of the more ancient theory, and of its recent and feminist revival. No surprise. What is surprising in the book, and therefore less scientifically secure, is the claim that in the eighteenth century the ideal and the material crossed wires, and powered the modern world. Even that hypothesis, however, has ancestors.

Notes

1. In the field of history the fullest telling the story of objectivism is Peter Novick's brilliant *That Nobel Dream* (1988). My own *Rhetoric of Economics* (1985a; 1998) tells a similar tale about economics.
2. Bailyn 2005, especially Chapter 1, "Politics and the Creative Imagination."
3. Mill 1843, p. 464.
4. "Samuelsonian" is an adjective for modern, American-style economics, which was originated by Paul A. Samuelson (b. 1915) and by his brother-in-law Kenneth Arrow (b. 1921), and announced in Samuelson's modestly entitled Ph.D. dissertation of 1947, *The Foundations of Economic Analysis*. It insists that every economic issue must be treated as a problem of constrained maximization by utility-seeking individuals. Samuelsonian economics is commonly called "neoclassical." But the term perpetuates an anachronism, since neoclassical economics names the much earlier new economics of the 1870s (Menger, Walras, Jevons), which was wider than Samuelsonian in method.
5. The word "divergence" and the idea that it happened after 1800 is Pomeranz' 2000, and others of the "California School."
6. Hohenberg 2003, p. 179.
7. Graff and Birkenstein-Graff (2005) and Graff (1992). Another of my friends, Jack Goldstone, has practiced the same method of teaching the conflicts and using the remainders in his elegant textbook *Why Europe: The Rise of the West in*

World History, 1500-1850 (2009), from which I have learned so much. I have not seen his forthcoming *A Peculiar Path*, but expect to learn from it even more.

8. Asplund 2008, p. 51.
9. Snow 1855, p. 75.
10. Abramovitz 1956, Kendrick 1956 and 1961, and Solow 1957. Jones, *Increasing Returns*, 1933 should be better known among economists. A student of Alfred Marshall, he anticipated the mathematics of the "price dual of the residual." He died young, and his work was forgotten except by economic historians.
11. For example, Michael McKeon 1987 (2002).
12. You may persuade yourself of this by getting hold of a searchable text of any item by Mill and searching for "science," finding for example that he speaks of "a science of morals."

Chapter 4: The Correct Story Praises “Capitalism”

The book is the second of a half dozen planned, three written including this one, the first published in 2006, intended as a full-scale defense of our modern form of innovation (which is universally if misleadingly called “capitalism”). They are meant for people like you who think markets and innovations need such a defense. The implied readers of the books are at present rarities – a scientist who takes the humanities seriously, admitting that novels and philosophies are data, too; a humanist who enjoys calculation, admiring even economic arguments; or a common reader who delights in listening patiently to evidence and reasoning that overturn most of his own left- or right-wing folklore about what happened in the economy 1600 to the present.¹³

Together the books make one big argument. The argument is: Markets and innovation, which are ancient but recently have grown dignified and free, are consistent with an ethical life. An ethical and rhetorical change in favor of such formerly dishonorable activities of the bourgeoisie – innovating a fulling mill to improve woolens or innovating a bank to pay florins in England easily – happened after 1300 in isolated parts of the European south (Venice, Florence, Barcelona), and after 1400 or so in other towns of the south (such as Lisbon) and the Hansa towns of the north, and after 1600 in larger chunks of the north (Holland, England, Scotland), and after 1750 in northeastern America, southern Belgium, the Rhineland, northern France, and then the world. Such words or conversations or rhetoric mattered to the economy, and still do. The words enabled after 1800 a big fall in poverty and a big rise in spirit.

Yet in the late nineteenth century the artists and the intellectuals – the “clerisy,” as Samuel Coleridge and I call it – turned against liberal innovation. The treason of the clerisy led in the twentieth-century to nationalism and socialism and national socialism. The clerisy provided the “scientific” justifications for such schemes, as in scientific materialism or scientific imperialism or scientific racism or scientific Malthusianism or, lately, scientific neo-eugenics. The scientific schemes reasserted elite control over newly liberated poor people. Consider Mao’s little Red Book, say, or Hitler’s *Mein Kampf*, which extracted from the scientific dreams of left or right a plan for an ant-colony society

governed by the Party. Or consider the more polite versions of elite control, such as the great statistician Karl A. Pearson in 1900 approving of a scientific racism in support of imperialism: “It is a false view of human solidarity, which regrets that a capable and stalwart tribe of white men should advocate replacing a dark-skinned tribe which can . . . [not] contribute its quota to the common stock of human knowledge.”¹⁴ In 1925 he wrote against Eastern-European Jewish migration to Britain, on the grounds that “this alien Jewish population is somewhat inferior physically and mentally to the native population,” for example in “cleanliness of clothing.”¹⁵ Or consider the great American jurist Oliver Wendell Holmes, Jr., sneering in 1895 in social Darwinist style that “from societies for the prevention of cruelty to animals up to socialism, we express . . . how hard it is to be wounded in the battle of life, how terrible, how unjust it is that any one should fail.”¹⁶ In 1927 he approved of compulsory sterilization on grounds of scientific utilitarianism and eugenics: “It is better for all the world, if instead of waiting to execute degenerate offspring or crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes. Three generations of imbeciles are enough.” Sadly, such stuff wasn’t “pseudo-science” or “junk science.” It was regular, front-line, widely accepted science – which is not always the same thing as wise thinking.

The clerisy’s anti-innovation and anti-market and anti-liberty rhetoric in the years since 1848, though repeated down to yesterday, unwisely mistakes the scientific history. The clerisy says that lack of elite control of human breeding will cause the race to degenerate. Scientific genetics suggests that it does not. Human abilities flourish from diversity. The clerisy says that innovation impoverishes people. Scientific economics suggests that it does not. It enriches most of them. The clerisy says that state planning or nationalist mobilization is better than voluntary commercial peace. Scientific history suggests not. Socialism and nationalism have regularly disrupted the prosperity provided by commerce. The clerisy says that the modern urban world is alienated. Scientific sociology replies on the contrary that bourgeois life has strengthened numerous if weak ties and has freed people from village tyrannies. The clerisy says that markets and liberty are dangerous. Political science suggests that on the contrary they give

ordinary people dignity and make them mild and tolerant by the standards of alternative arrangements.

The present book is the second in a set of six called *The Bourgeois Era*. The set offers an “apology” for the modern world – in the Greek sense of a defense at a trial, and in the theological sense, too, of a preachment to you-all, my best-beloved infidels or ultra-orthodox. My beloved friends on the political left have joined with my also-beloved, but also-misled, friends on the political right in asserting that capitalism, as Marx put it in 1867, is “solely the restless stirring for gain. This absolute desire for enrichment, this passionate hunt for value.”¹⁸ Many on the left have been outraged by what they take to be the bad material results of the history – a history erroneously told, though, because the desire for enrichment is universal, and the material results of its modern bourgeois implementation have been startlingly good for the world’s poor. Many on the right have on the contrary been pleased by the same erroneously told history. But they join their enemies on the left in believing that Marx was right to define the modern world as the restless stirring for gain. Such greed, they affirm with a smirk, is good for three-car garages and time shares in Barbados.

But on both political wings many people are dismayed by the spiritual vulgarity they detect in the allegedly novel stirrings of greed. Therefore they look darkly into the future. A certain pessimism (embedded in a longer-run apocalyptic optimism) typifies the left, which sees in every business downturn the final crisis of global capitalism. But pessimism also typifies the right (embedded in a longer run Calvinist pessimism), which sees in every new cultural fashion a corruption arising from a vulgar global democracy.

Admittedly, pessimism (left or right) sells. Paul Ehrlich’s *The Population Bomb* (1968) sold 3 million copies. I bought a copy of Ravi Bahtra’s *The Great Depression of 1990* (an event which also didn’t happen, though the book sold very well in 1987) at a pre-pulping sale in 1992 for \$1.57, and show it to my students as an exhibit against economic pessimism. So I admit that my optimistic view of the modern world and especially of its prospects is less Profound than the Chicken-Little predictions of my good friends on the left and on the right. But the optimistic, anti-Chicken-Little view retailed here, when set beside best-selling catastrophe porn, has at least the merit of being scientifically correct.

The first volume, *The Bourgeois Virtues: Ethics for an Age of Commerce* (2006), asked whether a bourgeois life can be ethical. It replied that it is, and could, and should. The present volume makes the case for an ethico-rhetorical Industrial Revolution, as I've said, by criticizing the materialist explanations on economic and historical grounds. I'm not happy to be so critical of a materialist economics I have loved and learned and taught since 1961. An economist like me loves the routine of trade or accumulation or property right or constraints released, which are things she understands pretty well, and can even calculate. Allow me to show you the blackboard proofs that protectionism is bad and that investment is good. Beautiful stuff.¹⁹ By contrast, ideas and rhetoric stand at present outside her science. The economist does not admit that humans are speaking animals, and that the humans put more of meaning into their talk than "I bid \$2.71828."²⁰ Yet in explaining the most important economic event since the invention of agriculture, or perhaps since the invention of language, the facts seem to demand, alas, a rejection of the materialist and anti-rhetorical ideology I long believed. A materialist economic science appears therefore to need a good deal of amending. I'm not an idealist by predilection, believe me. I'm a disappointed materialist. You should become one, too.

A third volume, soon to appear (a draft is available at deirdremccloskey.org), *The Bourgeois Revaluation: How Innovation Became Virtuous, 1600-1776*, asks in detail how attitudes towards bourgeois life changed. A fourth, tentatively entitled *Bourgeois Rhetoric: Conversation and Interest during the Industrial Revolution* (again, a crude draft is available at the web site), develops an amended economic science acknowledging that humans indeed speak meanings, and shows how their speaking changed to make possible the bourgeois dignities and liberties and revaluations and rising boats. It cashes in the claim in 1935 by the economist and philosopher Frank Knight that "economics is a branch of aesthetics and ethics to a larger degree than of mechanics."²¹ A fifth, *Bourgeois Enemies: The Treason of the Clerisy, 1848 to the Present*, will ask how after the failed revolutions of 1848 we European artists and intellectuals became in our rhetoric so very scornful of the bourgeoisie, and how the gradual encroachment of such ideas motivated the disasters of the twentieth century – and how they can motivate fresh disasters if we neglect to contradict the left- or right-wing writers espousing them. And the last, *Bourgeois Times: Defending the Defensible*, will look into present-day anti-innovation and anti-market rhetoric, such as the alleged

sins of globalization, the despoilment of the environment, the evil of commercial free speech known as advertising, the dependence of innovation on a reserve army of the unemployed.

The books lean on each other. If your worries about the ethical foundations of innovation and markets are not sufficiently met here, they perhaps are more fully met in *The Bourgeois Virtues*. If you feel that not enough attention is paid here to unemployment or global warming, more will be paid in *Bourgeois Times*. If you wonder how the present book can claim that words matter so much, consider *Bourgeois Revaluation and Bourgeois Rhetoric*. If you feel that the story here does not explain why such a successful bourgeois life came to be despised in deeply progressive and deeply conservative circles, some of your questions will be answered in *Bourgeois Enemies*.

The apology does seem to take six volumes. I apologize. A philosopher recently wrote, to explain why he crammed his opus on “warranted [Christian] belief” into three stout books rather than allowing himself four, that “a trilogy is perhaps unduly self-indulgent, but a tetralogy is unforgivable.”²² Here you have in prospect, God help you, a sestet.²³ Yet bourgeois life and innovation since 1848 have had a voluminous bad press, worse even than warranted Christian belief. The prosecution in the past century and a half has written out the indictment of the developing bourgeois and free and business-respecting civilization in many thousands of eloquent volumes, from the hands of Dickens (the critics of innovation were not all of the left), Carlyle (ditto), Alexander Herzen, Baudelaire, Marx, Engels, Mikhail Bukharin, Ruskin, William Morris, Nietzsche, Prince Kropotkin (my hero at age 14, when I fell in love with socialist anarchism down at the local Carnegie-built library), Tolstoy, Shaw, Ida Tarbell, Upton Sinclair, Rosa Luxemburg, Emma Goldman (another admired figure, when I later developed my anarchist convictions), D. H. Lawrence, Lenin, Trotsky (companion of a brief flirtation with communism), John Reid (ditto), Veblen, Ortega y Gasset, Sinclair Lewis, T. S. Eliot, Virginia Woolf, Mussolini, Giovanni Gentile, Hitler, Heidegger, Wittgenstein, F. R. Leavis, Karl Polanyi, Sartre, Simone de Beauvoir, Simone Weil, Dorothy Day, Woody Guthrie (whose singing made me for a while a Joan-Baez socialist: the leftish opponents of bourgeois dignity and liberty, alas, have all the best songs), Pete Seeger, (ditto), Lewis Mumford, Hannah Arendt, Herbert Marcuse, Maurice Merleau-Ponty, J. K. Galbraith, Louis Althusser, Allan Bloom, Frederic Jameson, Saul Bellow, Howard Zinn, Noam Chomsky, Paul

Ehrlich, Stuart Hall, George Steiner, Jacques Lacan, Stanley Hauerwas, Terry Eagleton, Alain Badiou, Slavoj Žižek, Charles Sellers, Barbara Ehrenreich, Nancy Folbre, and Naomi Klein. Few people have defended commerce from this magnificent flood of eloquence from the pens of left progressives and right reactionaries – jeremiads which indeed stretch from the Hebrew prophets through Plato and the *Analects* of Confucius and down to the present – except on the economist’s prudence-only grounds that after all a great deal of money is made there. After such grand prolixity in the prosecution of innovation and markets, I admire my restraint in offering in defense merely six volumes. As Henry Fielding wrote towards the end of *Tom Jones*, a “prodigious” book, “when thou hast perused the many great events which this book will produce, thou wilt think the number of pages contained in it scarce sufficient to tell the story.”²⁴

The Bourgeois Era, in other words, tries to initiate a defense of our bourgeois lives that goes beyond economic balance sheets, without ignoring them. It offers the outlines of an ethical rhetoric for our globalized souls, an idealism of ordinary life. It recoups the virtues for the lives that most of us in fact live, neither heroes nor saints. If you were raised on the left or the left-middle and were taught to believe that innovation and the bourgeois life were born in sin, and that they impoverish and corrupt the world, such as in globalization and financial melt-downs, perhaps one or two of the books can plant a seed of doubt. Try them. But likewise, perhaps, the books can plant the skeptical seed of insight if you were raised on the right or the right-middle and were taught to believe that (admittedly) capitalism is “solely the restless stirring for gain, this absolute desire for enrichment,” and a materially efficacious desire for enrichment to boot – yet that the economists and calculators have corrupted our holiness and demeaned our nobility, as in rock music and feminism and deconstruction since the 1960s, and the glory of Europe is extinguished forever.²⁵

What the philosopher Charles Taylor said about “authenticity” my books say about “innovation”: “The picture I am offering is rather that of an ideal that has degraded but that is very worthwhile in itself, and indeed, I would like to say, unrepudiable by moderns. . . . What we need is a work of retrieval, through which this ideal can help us restore our practice.”²⁶ The sestet of the Bourgeois Era can perhaps persuade you, whether progressive or conservative, that a belief that innovation is especially greedy, and the bourgeoisie sadly ignoble and unspiritual,

might – just might – be mistaken. And as a work of retrieval perhaps it will persuade you that to continue attacking a virtuous life in commerce, or for that matter to continue defending a greedy life in commerce, corrupts our souls, and our politics.

Notes

13. In modern literary criticism in the English-speaking world the term "humanist" is a fighting word, but the fight is sidestepped here. Here all it means is "a teacher or student in an academic department such as English, French, music, art, philosophy, theology, parts of history, that is, a person interested in *die Geisteswissenschaften* or *les sciences humaines*." It does not mean partisans of the approach to literary criticism following Matthew Arnold, T. S. Eliot, or Harold or Allan Bloom, or my own teacher, Howard Mumford Jones.
14. Pearson 1900, pp. 26-28.
15. Pearson and Moul 1925. Peart and Levy 2005 give a full and penetrating treatment of the Pearson and Moul paper (Chp. 5, pp. 87-103) in the context of the new eugenic social sciences of the late nineteenth and early twentieth centuries.
16. Holmes 1895, p. 264.
17. Holmes, *Buck v. Bell*, 274 U.S. 200 (1927). See Alschuler's (2000) devastating critique of Holmes.
18. *Das Kapital* 1867, German edition, p. 168 (Part II, Chapter IV, "The General Formula for Capital"). The usual English translation, though approved by Engels, errs in many important details. Thus the Moore and Aveling translation (in, say, the Modern Library edition): "this boundless greed after riches" (p. 171). The word "greed" is not in the German (*Gier*, or *Geltgier*), and is in fact a word eschewed by Marx throughout the book, as moralistic and unscientific.
19. You may admire its beauty in McCloskey 1985b, available on line at deirdremccloskey.org.
20. McCloskey 2008e.
21. Knight 1935, p. 97.
22. Plantinga 2000, p. xiv.
23. I won't call it a "hexology," the proper Greek corresponding to a tetralogy; and certainly I won't, despite the temptations of higher book sales, call it by the vulgar Latin-Greek mix "sexology."
24. Fielding 1749, Book 18, Chp. 1 (vol. 2, p. 409).

25. The point that both left and right complain about the bourgeoisie is made also by Immanuel Wallerstein in 1983 (1995), p. 115.
26. Taylor 1992 (quoted from Massey Lecture version, 1991, p. 23).

Part III. Growth, Quality, Happiness, and the Poor

Abstract

Real national income per head in Britain rose by a factor of about 16 from the 18th century to the present. Other cases, such as that of the U.S. or Korea, have been even more startling, historically speaking. Like the realization in astronomy during the 1920s that most of the “nebulae” detected by telescopes are in fact other galaxies unspeakably far from ours, the Great Fact of economic growth, discovered by historians and economists in the 1950s and elaborated since then, changes everything. And 16, if one follows William Nordhaus’ persuasive arguments about quality improvements in (say) lighting, is a very low lower bound: the true factor is roughly 100. As Maxine Berg has argued, changing quality of products was as important as changes in process. But the gain is not to be measured by pot-of-pleasure “happiness studies.” These are questionable on technical grounds, but especially on the grounds that they do not measure human fulfillment. They ignore the humanities, pretending to scientific precision. It makes more sense to stay with things we economists can actually measure, such as the rise of human scope indicated by the factor of 16 or Nordhaus’ factor of 100, or by what Sen and Nussbaum call “capabilities.” Of course, what we really care about are the scope or capabilities of the poor. These have enormously expanded under “capitalism” — though a better word is simply “innovation,” arising from bourgeois dignity and liberty. It is the Bourgeois Deal: let me alertly seek profit, and I will make you rich.”

Chapter 5: Modern Growth was a Factor of at Least Sixteen

The heart of the matter is, to fix ideas, sixteen. Real income per head nowadays exceeds that around 1700 or 1800 in, say, Britain and in other countries that have experienced modern economic growth by such a large factor as sixteen, at least.¹ You, oh average participant in the British economy, go through at least sixteen times more food and clothing and housing and education per person in a day than your ancestors did two or three centuries ago. You in the American or the South Korean economy, compared to the wretchedness of former Smiths in 1653 or Kims in 1953, have done even better. And if one accounts at their proper value such novelties as jet travel and vitamin pills and instant messaging, then the factor of material improvement climbs even higher than sixteen-to eighteen, or thirty, or far beyond. No previous episode of enrichment for the average person approaches it, not the China of the Song Dynasty or the Egypt of the New Kingdom, not the glory of Greece or the grandeur of Rome.

No competent economist, regardless of her politics, denies the Great Fact. The economist Stephen Marglin, for example, emphasizes community, which he believes was undermined by the Fact and its accompanying rhetoric of prudence-only. As a convinced socialist he thinks that power and striving had more to do with the Fact than a free-market economist does.² But a neo-Marxist economist and a free-market economist both accept the great magnitude of the enrichment as a Fact. Likewise the economic historian Gregory Clark emphasizes a Darwinian struggle for eminence, which he believes explains the Fact. As a recently persuaded eugenicist he thinks that people are fated to be who they were born to be, which a true liberal finds ethically alarming, and anyway scientifically dubious.³ But a eugenic economist and a liberal economist both accept that the Fact broke the Malthusian curse.

Yet many non-economists or non-historians, in their politics left or right, are suspicious of innovation and hostile to markets, and remain unaware of the magnitude. They know something happened, of course, and that the vulgar bourgeois apologist will claim a “progress” of some sort, probably disputable and in any case deeply damaging to the poor or to a graceful life. But the non-economists and the non-historians (of whatever politics) have little idea of how very enriching the Fact has

been of ordinary poor people. If you ask the regular readers of *The Nation* or of *The National Review* how much more material ease the average American had gained by the time of President Clinton as compared with President Monroe they will come up with a figure such as. . . go ahead: make a guess. . . perhaps, 200 percent or even 400 percent, maybe 800 percent—not, as is the case, 1700 percent, a factor of nearly 18, which is a lower bound on the American history.

The lack of precision in the estimates is worth the attention of specialists. But it is not important for the purpose here. The British or American or Japanese or South Korean increase could have been 8 or 10 or 35 times its level in 1700, rather than 16 or 18, and leave the heart of the matter undisturbed. People had always produced and consumed about \$3 a day. By now they consume \$30 a day if they are average denizens of the world, and \$137 if Norwegians. The scientific fact established over the past fifty years by the labors of economists and economic historians is that modern economic growth has been astounding. Simply astounding. Imagine getting along on \$3 a day in London or Seattle.

“*Real* national income per head” purports to measure what is earned by the average person in the nation as a whole, abstracting from merely monetary inflation. It measures the stuff per person we have—the pounds of bread or the number of haircuts, back and sides—not the mere dollars or yen. That’s why economists call it “real,” a word they favor. Thomas More disdained the grotesque consumerism of his early sixteenth-century England in which “four or five woolen cloaks and the same number of silk shirts are not enough for one [very well-off] person, and if he is bit fastidious not even ten will do.”⁴ Nowadays the merely average person in England has the equivalent of twenty or thirty. The fastidious boast hundreds.

If your ancestors lived in Finland the factor of real material improvement is more like 29, the average Finn in 1700 being only 60 percent better off in material terms than the average African at the time. Look at what happened to the average Norwegian. In 1700 the Netherlands was the most bourgeois and therefore the richest country in the world, 70 percent better off per capita than the soon-to-be United Kingdom. So if your ancestors lived in the Netherlands the modern improvement is only a factor of roughly 10. But it is measured, as all these figures are, in the cautious way that does not take account of the high qualities of modern pills and housing and message-sending. The

actual Dutch factor must be a great deal higher. In Japan the factor since 1700 is fully 35. ⁵ In South Korea the cautiously measured factor since 1953, when income per head despite access to some modern technology (motor trucks, electric lights) was about what it had been in Europe 450 years before, is almost 18. The South Korean revolution was crammed into four decades instead of, as in the first and British case, stretched out over three centuries.

Like the realization in astronomy during the 1920s that most of the “nebulae” detected by telescopes are in fact other galaxies unspeakably far from ours, the Great Fact of economic growth, discovered by historians and economists in the 1950s and elaborated since then, changes everything.

* * * *

And in truth the amount by which average welfare multiplied under actually existing innovation exceeds by far the official and cautious statistics. Stuff unimaginable in 1700 or 1820 crowds our lives, from air conditioning to anesthesia. The new stuff makes the factors of 16 or 18 or even 30 gross understatements. William Nordhaus, a very useful economist at Yale, starts his paper on the economic history of lighting with the conventionally measured factor of 18 in American real income per head since 1800, or a factor of 13 if one is talking about real wages rather than real total income.⁶ But he notes what is known to all us expert economists (you amateurs will have to rely on common sense)—that the price indexes that are employed to take out the effects of inflation rise too steeply, because the stuff being priced gets better and gives more services for each supposedly inflation-corrected dollar. Air-conditioning instead of fans. Three-car garages in the standard house instead of one-car. Electric lights instead of candles.

It has happened recently, for example from 1970 to 1992, when the United States and many other countries saw a stagnation of real wages officially measured—the money wage divided by the official consumer price index. You will hear critics on the left saying that the ordinary person in the United States did not gain after 1970. They want to think that the Final Crisis of Capitalism is upon us. The leftward critics are not entirely wrong in their worry. But from 1970 to 1992 the conventional measure of prices didn’t adequately reflect the rising space per dollar’s worth of housing and the cheapening air-conditioning and the rarely puncturing automobile tires. Most economists reckon that on account of quality improvements the inflation rate conventionally measured was

overstated in the period by about 1 percent a year (and continues to be to about the same extent).⁷ When allowing for the better quality of goods and services, therefore, the period of nominal stagnation in real wages witnessed a rise of about a third in the properly corrected real wage, which is what matters (together with health insurance supporting the Cadillac level of medical interventions that Americans insist on, which the talk of stagnating wages also doesn't include—allowing for example immediate access to by-pass surgery that wasn't used until the 1970s, and organ transplants even for some poor people, and none of the queuing for ordinary procedures that most other national systems have).⁸

A gain per head of merely 1 percent a year is not wonderful economic growth. The American average since 1820 has been more like 2 percent.⁹ Something bad did happen to the rate of innovation in the American economy 1970-1992, and the wages of ordinary folk did not rise at the rate they had 1945-1970. The event certainly bears examining, and lamenting. The economist Benjamin Friedman has shown how politics deteriorates as rates of growth decline towards zero.¹⁰ One percent is perilously close to zero, and sure enough the politics of the United States and other countries such as Britain in the period became correspondingly nasty. But neither was the growth among ordinary people literally zero, as the left so confidently and indignantly claims. Capitalism wasn't in crisis 1970-1992. During and after those years it raised the standard of living of poor people worldwide at the fastest rate in history (and by the way, according to the economist Robert Gordon, after the dot-com boom the American economy stopped rewarding the very rich disproportionately). The real welfare of workers in the United States 1970-1992 did not in fact stagnate—as you can see in the statistics of housing space per person or automobiles per person or restaurant meals per person. It modestly rose, from continuing innovation. Anyone who lived through the period knows that it did, though the official and uncorrected statistics can overcome her common sense.

And the poor got much better off materially, even in the recent period of growing inequality. Robert Fogel's point in his 2002 book is that the United States has a much smaller problem by now with the physical condition of the poor—this in contrast to 1900—than what he calls their “spiritual” condition.¹¹ Michael Cox and Richard Alm made some controversial assertions in a book of 1999 about the class mobility of the American poor. But their statistics on what the poor consume are not controversial. They conclude that “Poor households of the 1990s in

many cases compared favorably with an average family in owning the trappings of middle class life. For example, almost half the poor households in 1994 had air conditioners, compared to less than a third of the country as a whole in 1971.”¹² That’s right, as anyone knows who lived during the 1970s and knew poor people, or was poor. During the 1940s, which some of us also lived through, really poor people in the American 1940s didn’t have running water or electricity or access to penicillin, and the merely average poor person didn’t have an automobile and lived in half the space that a poor person lives in now. In 1938 Americans had a car for every 4.4 people, in 1960 for every 2.4 people, in 2003 for every 1.26 of a person.

But the bigger, longer-term point is that correctly measuring the prices of things greatly increases the estimate of modern economic growth, 1800 to the present. Cox and Alm observe that a three-minute long-distance call across the U.S.A. in 1915 cost 90 hours of common labor.¹³ In 1999 it cost a minute and a half. No wonder your granny is always saying “This call must be costing you a fortune.” It once did. In 1900, Cox and Alm note, a pair of scissors cost the modern per-labor-hour equivalent of \$67, which is why in the old days a middle-class Mother had the one pair, carefully guarded, and used it to make clothing, and only on special rainy days would she let Sis use it to cut up the old Sears catalogue for paper dolls. Fogel calculates that in 1875 in the United States the average family spent 74 percent of its income on food, clothing, and shelter. In 1995 it spent 13 percent.¹⁴

Nordhaus makes the point about the real cost of goods and services by studying over centuries the cost of one item, lighting.¹⁵ Illumination is easy to measure, in lumen hours per dollar of expenditure, say, or more to the point in the lumen hours per hour of human work to get the dollars. Conventional price indexes of lighting can be measured year-by-year with the money price of, say, candles for a while in the early nineteenth century, when they were the main source of indoor lighting. But between 1800 and 1992 it would be crazy to take the price of candles (used nowadays of course only for ceremonial purposes) as “the price” of lighting. No, the service of lighting, Nordhaus observes, became much cheaper in the nineteenth century with the marketing of whale oil, and then a lot cheaper again with kerosene, and then a whole lot cheaper with electric lighting, which itself has continued to cheapen down to the fluorescent replacements for incandescent bulbs we are now beginning to use. Cheap LED lighting cannot be far behind. In other words, we can

easily follow the price of each such form of lighting in its own era, but not well across eras. The problem is worse for many products less measurable than lighting. What's the early nineteenth century price of penicillin? Movies on TV? The Internet? How much would you pay in 1850 to get from Chicago to London in seven and a half hours?

We can, however, follow the candlepower per hour generated by lighting of various sorts in actual use and compare it to the labor hours required to buy it. Nordhaus confirms what you might expect if you've watched a lot of historical movies on TV: that the growth in effective lighting has been very large, measured in the tens of thousands of lumen hours per hour of labor. On South Dearborn Street in Chicago stands the 17-storey Monadnock Building, lovingly restored to its historical ambiance down to every visible detail. (Half of the Monadnock, finished in 1891, was the last Chicago skyscraper to depend on thick, load-bearing masonry; the southern half, started in 1891, was almost the first to depend on structural steel.) One of the restored details is the lighting in halls and elevators, with tiny incandescent lights reproducing the feeble glow of 1891. If you doubt that lighting has been revolutionized, visit the Monadnock Building.

Nordhaus reckons, to be roughly quantitative about it, that around 9000 B.C.E. it took 50 hours of labor to gather enough bundled sticks or whatever to achieve 1000 lumen hours of lighting (think of our ancestors deep in the Altamira caves drawing aurochs and horses and stick-figured humans hunting them). In 1800 with candles it took 5 hours (think of John Adams scribbling long letters to Talleyrand to prevent war with France). In 1900, thanks to kerosene and the new electric lights, feeble though they were, it took only 0.22 hours, a revolution. In 1992, thanks to the radical cheapening of electricity-based lighting, it took a mere 0.00012 hours. The outcome was a cheapening in eleven millennia by a factor of 417,000, and in the last two centuries alone by 41,700 (note the over-neat homology in the figures: Nordhaus is not claiming to measure very accurately; it is an order of magnitude he seeks). And the rate of fall in the past two centuries, of course, was immensely accelerated compared with the mere factor of 10 between the age of olive oil lamps in Roman times and the age of European candles in Georgian times – illustrating the stunning enrichment from very recent European technology. (And it casts a bright light, too, on the stunning Chinese exception as to the level of technology, if not its modern rate of change.

In the fourth century B.C.E the Chinese were using natural gas for lighting, and later carried the gas about in bags.)¹⁶

Look around your house or street this evening and assess the lighting you get and how many tallow candles would be its equivalent— if you could cram in the candles, in the style of the Great Hall scenes in Harry Potter movies. If you fancy that it would be oh-so-romantic to live back in such ill-lit days, then the economic and social historians suggest gently that you think again. In the days of candles the average adult slept ten hours a night in winter rather than the eight he now sleeps. The miserably cold and dark house of an evening was literally not worth the candle.

Nordhaus extends the argument, more speculatively but plausibly, to other inventions such as airplanes, insulin, radar, telephones, and the rest, and in a rough guess to all sectors of the economy. (The great student of national income, Angus Maddison, scorns his calculations under a sneering heading: “Hallucinogenic History: Nordhaus and [Bradford] DeLong.” But in the passage Maddison stays, uncharacteristically, at the level of indignation, and gives no reasons.¹⁷) The cost of what an hour of work could buy of lighting and all sorts of things, Nordhaus reckons, has dramatically fallen since 1800 if you take into account the rise in the quality of categories such as “lighting” and “housing” and “transportation” and “medical care” and the rest.

Take medical care. The doctor and essayist Lewis Thomas, Dean of Yale’s and New York University’s medical schools, “the father of modern immunology,” believed that until the 1920s going to a doctor lowered your odds of survival. Most medical care was done at home, and a middle-class home in 1920 was always supplied with a big medical encyclopedia about how to care for scarlet fever and how to deliver babies. The biggest improvement didn’t come until the 1940s, with penicillin. Andrew Carnegie despite his wealth could not buy a cure for the pneumonia that killed his mother, a disease I myself have had twice, and was cured of the last time in three days.¹⁸ Or take psychiatry. Until the coming of psychotropic drugs, invented during the 1950s and in common clinical use by the 1970s, the psychiatrists had nothing to do for depression (and at one point for homosexuality) but to talk gently to you, and then in desperation apply electroshock.

Nordhaus concludes that from 1800 to 1992 in the American economy the real wage—the money wage divided by the prices of

things, but properly corrected for their improving thingness – grew not by that conventionally and crudely measured factor of 13 but anywhere from a low estimate of a factor of 40 to a high of 190. One hundred and ninety. Good Lord. Call it as a rough and ready average a factor of 100. That's one hundred times greater ability to buy with an hour of work. Two orders of magnitude.

If you run your eyes around your room now and try to push back in imagination to the life of your great-great-great-great-grandmother, you will find pretty reasonable a factor of 100 in per capita capacity-to-buy-the-services-of-stuff. You are reading by a light many times brighter than the candlesticks your ancestor could bring to bear, and candles were anyway to be used sparingly, and only at dark of the moon, to get to the outhouse in Council Bluffs or to the end of a row in Salford without tripping and killing yourself. You by contrast have such light available in a score of places inside and outside your house. If you want to write to your lover it will be on a laptop with the calculating power of a building full of older “calculators” (until the 1940s the word meant “women employed to add up long columns of figures”), on which you can type effortlessly, and then e-mail the note to the other side of the world in a split second (instead of the gradually lengthening days or weeks the Postal Service requires). Or in scribbling a shopping list you can use a ball point pen which eases handwriting by a factor of perhaps six over quill and ink. You do not write much quicker, but you spend no time at all as your ancestor did sharpening quills or dipping ink – and the ink froze in the winter, because, remember, you have no central heating, and must write with gloves with those little holes at the tips of the fingers. And in any case the ball point with which you write, and the paper on which you write, costs a trivial amount of your time to buy, compared with earlier hours of work per fountain pen or paper sheet. When ball points were first introduced after World War II they were expensive like fountain pens, requiring many hours of your work to buy. Now you have 40 or 50 of them jammed in various coffee mugs around your house – by actual count I myself have about 100 (but after all my work is scribbling). The clerk in the store often forgets to take back his pen when you sign a credit-card slip. The credit facilities you enjoy are many times more efficient than the means of payment in 1800. The book you bought with the credit card costs a fraction of what a book did in 1800 in terms of human labor. The paper is cheap, the printing electronic, the binding is done by machine. Some bookstores now have automatic book-making

machines with any of *two million* out-of-print titles available in twenty minutes. For this and thousands of other similar reasons your real income is vastly higher than that of your ancestors – and so you can have many more books than even Thomas Jefferson did, if you are a bookish sort, purchased with ease from Sandmeyer’s Books in Chicago or Powell’s Books in Portland or amazon.com in the ether. That is your widened scope. And on and on.

You can see the factor of 100 from the other, producing side of the economy in the frantic development of new and improved products for consumers. The economic historian Maxine Berg has argued persuasively for “incorporating product innovation [that is, new stuff] into the analysis of the industrial revolution.”¹⁹ She cites an American economic historian the late Kenneth Sokoloff arguing that new products drove a good deal of industrial innovation in the United States early in the nineteenth century, giving demand a role in innovation.²⁰ Neglecting product innovation is what Nordhaus is complaining about: it results in a gigantic understatement of the rising scope of modern economies, because a light bulb (if you have electric service in your house, that is) is a much better consumer product than a candle. Against the focus on process innovation usual in studies of the Industrial Revolution, Berg finds in British patents in the eighteenth century an astonishing proliferation of carved or molded glass, retractable toast racks, japanning (with a polite bow to the reverse engineering of eastern inventions), tin plate buttons, and 115 patents for stamping, pressing, and embossing metals.²¹

Not that process innovations are to be set aside. But process innovation is itself entangled with product innovation. Berg notes that “producers of small tools as well as complex lathes and engines” that made for faster production of a given product “were often the same individuals producing ornamental stamped brassware, medallions and mechanical toys.”²² Products for consumers led to producers’ goods for factories. And the correct measurement of producers’ goods has the same problem of better and better quality that the measurement of consumers’ goods has. With an ingenious use of Sears, Roebuck catalogues as historical sources, and with the econometrics of hedonic price indices, Robert Gordon found that the rate of rise of the prices of producers’ goods (lathes, motors, and so forth) have like consumer goods been substantially overstated by not including their improving

quality.²³ In short, we're *much* better off now compared to 1800 than the conventional measures of national product suggest.

Notes

1. For the international comparisons Maddison 2006, and in particular pp. 437, 443 for the factor of sixteen from 1700 to 2001 in international Geary-Khamis dollars of 1990. When a figure such as this is not footnoted it will regularly be lifted from Maddison's amazing oeuvre, such as 2007. For Britain itself see Feinstein 1972, Feinstein in Feinstein and Pollard 1988 and Crafts 1985.
2. Marglin 2007.
3. Clark 2007.
4. More 1516, p. 65.
5. All these figure from Maddison 2001 (in 2006), Appendix B, Table 21, p. 264.
6. Nordhaus 1997.
7. Boskin and others 1998. Gordon 2006 revises the figures up for one effect, down for another, leaving a 1.0 percent bias in the consumer price index. See the summary table on the earlier work in Moulton 1996.
8. Fogel 2008.
9. Maddison 2006, p. 265.
10. Friedman 2005.
11. Fogel 2002, pp. 1, 2, 4, 236.
12. Cox and Alm 1999, pp. 14-15.
13. Cox and Alm 1999, p. 43.
14. Fogel 2002, p. 266.
15. Compare Fouquet 2008.
16. Temple 1986 (2007), p. 89.
17. Maddison 2007, p. 320.
18. The point about Carnegie is made by Otteson 2006, p. 165.
19. Berg 1998, p. 140.
20. Sokoloff 1988; Sokoloff and Khan 1990.
21. Berg 1998, pp. 146-148.
22. Berg 1998, p. 154.
- 23.**Gordon 1990.

Chapter 6: Increasing Scope, Not Pot-of-Pleasure “Happiness,” is What Mattered

To be sure, the new and better and more abundant stuff—which remember covers non-stuff stuff like haircuts and education and entertainment—does not include all of human fulfillment and does not measure even what it claims to measure perfectly well. The forests primeval and the hosts of golden daffodils have shrunk (though on the other hand ordinary people with more leisure and more means of travel can reach the remaining spots more cheaply in hours of labor spent). And marginal utilities of the gigantic new pile of stuff, as the economists say, diminish. You may own 18 times more chairs than your ancestors in 1700, but you don't enjoy 18 times more chair-sitting pleasures. In other words, all this radical, 100-fold increase is an increase in possibilities, and is not measured on the same scale as happiness viewed as cat-like pleasures of the day, or even as the deeper goal of human fulfillment. In discussing Nordhaus' results the (equally useful) economists Timothy Bresnahan and Robert Gordon note that the utility from the last unit of increase of lighting, from 99 to 100 fold (which after all is only 1 percent), is surely a great deal less than that from the first few, from 2 to 3 to 4 fold.²⁴ The 100th ball point is less pleasure-producing than the second or third. “Diminishing returns,” or more exactly in this case diminishing “marginal utility,” is one of the pieces of economic jargon that have slipped into the common tongue (like “GDP” or “the balance of payments”). You are pretty much right in your idea of what it means.

Doubtless, if she were lucky enough in 1800 to miss the smallpox and malnourishment, the Scottish nut-brown maiden, “Her eye so mildly beaming/ Her look so frank and free,” equaled in happiness (viewed in pot-of-pleasure terms) the average person on the streets of Glasgow nowadays. That at any rate is what recent research on “happiness” claims, and plausibly so.²⁵ The economist, historian, and demographer Richard Easterlin, who pioneered the modern field of happiness studies applied to economics, concluded recently that “how people feel they ought to live . . . rises commensurately with income. The result is that while income growth makes it possible for people better to attain their aspirations, they are not happier because their aspirations, too, have risen.”²⁶ A poor Glasgow maiden with an IQ of 140 in 1800 could aspire to no better position than head cook in an aristocratic house, and was

very glad of that—her equally intelligent mother aspired to milkmaid. The cook was “happy.”

Easterlin argues, against the “freedom-from-want” claims of scholars like Abraham Maslow and Ronald Inglehart (believing that the hierarchy of needs can in fact be satisfied), that “economic growth is a carrier of a material culture of its own that ensures that humankind is forever ensnared in the pursuit of more and more economic goods.”²⁷ The “happiness” literature, you can see, is predisposed to find modern levels of consumption vulgar and corrupting. The field has become one of the scientific legs of the century-old campaign by the clerisy against the “consumerism” to which the non-clerisy are so wretchedly enslaved, as described in the writings of the economist Robert Frank or the sociologist Juliet Schor or indeed the sociological economist of a century ago, the great Thorstein Veblen.²⁸

Admittedly, we are “ensnared,” even “enslaved.” But social science since Veblen has discovered a reply: any level of income a “carrier of a material culture,” \$3 a day as much as \$137 a day. The anthropologists point out that any meal-taking or shelter-building or tale-telling “ensnares” its people, the Bushmen of the Kalihari no less than the Floor Traders of Wall Street. “Consumerism” characterizes all human cultures—which rather reduces the scientific usefulness of the term. Easterlin urges us to resist consumerism and become “masters of growth.”²⁹ One wants to be wary of such urgings that “we” do something, since the “we” is so easily corrupted, for instance by rabid nationalism, or by the mere snobbery in the clerisy. Easterlin would agree. But surely in an ethical sense he is right. “We” need to persuade each other to take advantage of modern enrichment for something other than watching television and eating more Fritos and strutting about in a world of status-confirming consumption. We are ensnared, admittedly. But we want the ensnaring to be worthy of the best versions of our humanness, ensnared by Mozart or by the celebration of the mass or by a test match for the Ashes at Lord’s on a perfect London day in June. But that advice, to be nobly ensnared, has been a staple of world literature since the invention of writing. It has nothing much to do with the Great (and Liberating) Fact of modern growth, except that thanks to the Fact a vastly larger percentage of humanity is open to the advice.

Which raises another, humanistic criticism of the recent literature on “happiness.” The literature pays no attention to reflections on happiness that are non-quantitative or non-mathematical.

("Quantitative" and "mathematical," by the way, are not the same thing; and often in the recent literature the two have no scientific connection, though trotted out separately to give an air of verisimilitude to an otherwise bald and unconvincing tale). In his recent book, *Happiness: A Revolution in Economics*, the brilliant insider critic of economics, Bruno Frey, devotes exactly one sentence to thinking about "happiness" before "measurement": "For centuries, happiness has been a central theme of philosophy." ³⁰ (That's it. He does not mention that it has been a central theme, too, of poetry and stories and biography and religion.) The lone footnote attached to the lone sentence cites six items on "how philosophers have dealt with the topic of happiness, six out of the approximately 670 items in the book's long bibliography. In the next sentence Frey turns firmly away from such stuff, towards "the empirical study of happiness" – as though Sophocles' *Antigone* or Plato's *Republic* gave no insight into happiness worthy of the word "empirical" (from the Greek for "experience"), at any rate by comparison with asking random Greeks on the streets of Athens whether they are "happy" on a non-interval scale.

The result is that "happiness," setting aside such pointless ruminations as the Hebrew Bible or the life and works of Buddha or Aristotle or Rumi or Shakespeare or for that matter Adam Smith, is reduced to self-reported declarations—added up scores 1 to 3 ("not too happy" = 1, "pretty happy" = 2, "very happy" = 3). An interviewer surprises you on the street, puts a microphone in your face, and demands to know, "Which is it, 1, 2, or 3?" Even the merely technical problems with such calculations are formidable. For one thing, a non-interval scale is being treated as an interval scale, as though a unit of 1.0 were God's own view of the difference between "pretty" and "very." It would be like measuring temperature by asking people to rate things as "pretty hot" = 2, "very hot" = 3, and expecting to build a science on the "measurements" thus generated. For another, the literature regularly depends on misuse of the bankrupt notion of "statistical significance." Virtually every paper using survey results takes "statistical significance" to be the same thing as scientific significance. For still another, the measurement and the mathematical theory, as I've noted, live on different planes.

And the so-called "empirical" result thus achieved is often scientifically unbelievable on its face. Bruno Frey for example reports on results from 1994-1996 in the United States that claim the bottom decile

of income earners to be “happy” to the extent of 1.94 on the 3-point scale, as against 2.36 for the top decile. One is gratified that the result is based on a massive, carefully done survey by the National Opinion Research Center. That’s great. It can be compared and averaged and regressed, at any rate if one is willing to ignore the philosophical and technical problems. But does anyone actually believe that someone earning \$2,596 a year in 1996 prices (that’s the figure) and living in crime-ridden public housing is only 18 percent less happy in a seriously relevant sense than someone earning \$61,836 and living in an apartment building with a doorman? I realize that many of my respected colleagues are willing to go along with such a fiction. I wish I could:

“I can’t believe *that!*” said Alice.

“Can’t you?” the Queen said in a pitying tone. “Try again: draw a long breath, and shut your eyes.”

Alice laughed. “There’s no use trying,” she said “one *can’t* believe impossible things.”

“I daresay you haven’t had much practice,” said the Queen. “When I was your age, I always did it for half-an-hour a day. Why, sometimes I’ve believed as many as six impossible things before breakfast.”

One of the proponents of happiness studies, the eminent British economist Richard Layard, is fond of noting that “happiness has not risen since the 1950s in the US or Britain or (over a shorter period) in western Germany.”³¹ Such an unbelievable allegation merely casts doubt on the relevance of “happiness” so measured. No one who lived in the U.S. or Britain in the 1950s (I leave judgments on West Germany in the 1970s to others) could believe before or after breakfast that the age of *Catcher in the Rye* or *The Loneliness of the Long-Distance Runner* was more fulfilling than recent life. Even in their own dubiously “measured” terms, further, such facts have been plausibly disputed, for example by Inglehart and associates in 2008 arguing on the basis of large data sets. “Happiness [even measured in the unbelievable way] rose in 45 of the 52 countries for which substantial time-series data were available. Regression analyses suggest that that the extent to which a society allows free choice has a major impact on happiness.”³² Even in the allegedly depressive U.S., Britain, and West Germany the “change in percentage of those saying they are very happy from earliest to latest survey for all countries with a substantial time series” was very large—if, again, “large” in such numbers is meaningful in God’s eyes.

But the main problem, as I said, is that the insights of poets and historians and philosophers from the second millennium B.C.E. to the

present into what human happiness actually is have simply been bypassed. “Happiness” viewed as self-reported mood is surely not the point of a fully human life. The point is made by numerous modern philosophers—Mark Chekola (2007), for example, as it was earlier by Robert Nozick, David Schmidtz—and by other philosophers and theologians and poets back to Confucius.³³ If we economists are not going to get any deeper than the pot-of-pleasure theory of happiness, perhaps we ought to stick with what we can in fact know scientifically—namely, national income properly measured, as “potential” or “scope” or what Amartya Sen and Martha Nussbaum call “capabilities”—the ability to read, for example, or the potential to become an artist.

The scope to do more, whether or not the opportunity has been fully seized by everyone, is what modern economic growth has achieved—it being pointless to urge a Higher Life on people dying on the streets of Calcutta (that was Mother Teresa’s project, and one can reasonably doubt its ethical value, if not in its own terms its theology). Sen and Nussbaum for example wisely turn away from pot-of-pleasure “happiness” and focus on the more objective measurement of their definitions of capabilities, which surely are much larger in Norway today than in India in 1800.³⁴ The ancestors of the very clever professors, whether advocating or disputing pot-of-pleasure measures of happiness—Easterlin, Frank, Schor, Veblen, Frey, Leyard, Chekola, Nozick, Schmidtz, Cowen, Sen, Nussbaum, and I—were illiterate peasants or impoverished shoemakers (well . . . perhaps not Amartya’s). Unless by chance they were among the tiny group of privileged rajahs or bishops, or the still tinier group who achieved through spiritual exercises nirvana or blessedness, they were not close to the “happiness” in any fully human sense as we enjoy.

You can take a pessimistic line and claim with many critics of innovation that a “materialistic and individualistic culture,” as Easterlin puts it, is created by economic growth. The evidence seems weak. For all the chatter in the journals of opinion about the wretched materialism of modern life, studies in the psychology of goods find that poor people in poor countries put more, not less, value on the possessions they have than people who possess more. In rich countries the museums and concert halls are full. Among the thirty democratic countries of the Organization for Economic Cooperation and Development nowadays some 27 percent of the adult population 25 to 64 years old have completed tertiary education, ranging down from Canada’s 47 percent

down to Turkey's 10 percent.³⁵ The university graduates of Europe therefore probably now exceed its total population in 1800. The economist of culture Tyler Cowen points out that modern life has produced more artists alive today than have lived in all previous ages combined.³⁶ During the 1960s more professors were hired in American post-secondary institutions than in the entire history of American education, and the expansion of higher education resulted, for example, in a big audience for literary fiction. ³⁷

Terry Eagleton, a brilliant, useful, and left-wing literary critic, makes the conventional claim that the bourgeois are to be blamed for the “monstrously egoistic civilization they have created” – as though he had not encountered Chaucer and his Pardoner, or Shakespeare and his Iago, representatives of monstrously egoistic civilizations of church and aristocracy. ³⁸ To yearn for a simpler time when getting and spending was not too much with us is mostly a version of the pastoral, repeated in every world literature in every age, quite independent of the sociological evidence. Theocritus and after him Horace lamented the passing of a golden age of nymphs and shepherds. In 1767 Adam Ferguson, notes Eagleton, lamented the “detached and solitary” people of Scotland, whose “bands of affection are broken.” Disraeli and Carlyle three-quarters of a century afterwards lamented it, too. We are always already lamenting becoming urban and selfish and alienated. The years when our parents were children are always seen as blessed times of familial and social solidarity, whether the years are the 1920s or the Golden Age of Cronos. It isn't so.

In any event the modern Glaswegian descendent of the Nut-Brown Maiden, in which the old intelligence shines, has gigantically greater scope, whether or not she is persuaded to take full human advantage of it. She has hugely greater opportunities—capabilities, potential, life plans, second-order preferences—for what Wilhelm von Humboldt called in 1792 that *Bildung*, that “self-culture,” “self-development” which is success in life. She can do 100 times more of many things, leading a fuller life—fuller in travel, education, ease of housekeeping, ease of listening to “The Nut-Brown Maiden” in English and Gaelic on the internet. A well-fed cat sitting in the sun is “happy” in the pot-of-pleasure sense of happiness studies. What the modern world offers to men and women and children, as against cats, is not merely such “happiness” but a uniquely enlarged scope to be fully realized human beings. Sure 'tis that one can turn down *Bildung*, and watch reality TV all

day. But billions are enabled to do more – and they can have nowadays, too, in proper moderation, more cat-like, materialistic, economist-pleasing “happiness” if they wish. Bring on the Baskin-Robbins.

Notes

23. Bresnahan and Gordon 1997, p. 19.
24. Easterlin 1976.
25. Easterlin 2003, p. 349. See also Easterlin 1996, and 2002.
26. Easterlin 2004, p. 52.
27. Frank 1985; Frank and Cook 1995; Schor 1993, 1998, 2004; Veblen.
28. Easterlin 2004, p. 53.
29. Frey 2008, p. 13.
30. Layard 2009.
31. Inglehart and other 2008, abstract. The next quotation is from the caption of Fig. 6, p. 277.
32. Nozick 1974, pp. 42-44; Schimdtz 1993, p. 170. I discuss these in McCloskey 2006a, pp. 123-125.
33. Nussbaum and Sen 1993; Sen 1999; and Nussbaum 1999.
34. OECD 2009, p. 12.
35. Cowen 1998.
36. Menand 2009, p. 109.
37. Eagleton 2009, p. 40; the later quotation from Ferguson is on Eagleton, p. 19.

Chapter 7: And the Poor Won

Nor during the Age of Innovation have the poor gotten poorer, as people are always saying. So sophisticated a writer as Eagleton leaves his readers in the book mentioned with a socialist *cri du Coeur* against a “political system which is incapable either of feeding humanity or yielding it sufficient justice.”³⁹ This is mistaken. The system has delivered in bulk the feeding (\$30 a day vs. \$3 a day, West Germany in 1989 versus East German, Norway now versus Norway in 1800) and the justice (democracy, anti-colonialism, a free press, the end of lynching, equality for women, independence for the Irish Republic). In every half-century if not in every single decade the within-country equality of distribution has improved, and never has it much worsened. Eagleton’s ancestors and mine in mad Ireland were dirt poor. In real comfort they stood hat in hand far below their Anglo-Irish masters. Look at us now. In 2002 Ireland’s GDP per capita in purchasing-power-parity dollars was third in the world, just ahead of the U.S.’s, where many of the once-Irish then lived.⁴⁰

Look at your own ancestors compared your present condition. You are much better off, and have much more scope to pursue *Bildung*. Admittedly you don’t own a 75-foot yacht. Too bad. But being an adult person of sense who reads books and thinks for herself, you know that such pleasures of the rich and famous exceed yours only a little in actual human value—there’s the truth in happiness studies, that is, the truth that pot-of-pleasure happiness has sharply diminishing marginal utility. “Gie fools their silks, and knaves their wine;/ A man’s a man for a’ that.” As the historical anthropologist Alan Macfarlane puts it, “there has been a massive leveling. . . . There has recently [in the late twentieth century] been a tendency for the gap between rich and poor to open up again. At a wider view, however, there is no longer a vast gap between the 1-5 percent who have 1000 times the income of the average. . . . There is a more gradual gradient of wealth.”⁴¹ I just now considered the statistical claim that the American poor have done badly in the late twentieth century. In relative terms the claim is true and lamentable, as I said, a result of an education-hungry economy facing a stagnation in already-rich countries in the percentage of college-educated people (education leapt up in such places during the expansion of the 1960s, but then leveled off), and a globalization that brings \$30 a day to the very poor of

the earth but with the side effect of eroding the wages of auto workers in rich countries.⁴² A similar rise in the British and American premium on skill is said to explain somewhat growing inequality in the early nineteenth century.⁴³ The division of the pie has for such reasons fluctuated a little now and then—though on the whole the income distribution is remarkably stable over centuries. Gini coefficients and Pareto parameters, the economists observe, don't change very much. And anyway over those recent centuries the size of the pie has grown so fast that the poor are absolutely better off.

Economic historians agree that the poor have benefitted the most from modern economic growth. Your ancestors, mine. Even in properly bourgeois economies of course the pie is not divided out perfectly equally, then or now, here or there. But that is true of any system. If you think full-bore communism was egalitarian, think again. In logic, of course, someone always occupies the bottom ten percent of the income distribution, except in Lake Woebegone. It would be true even if the average world income were Norway's \$137 instead of its actual \$30 per day. But since 1800 the whole distribution has moved up. In statistics and in substance the very poorest have benefited the most. The economist and demographer Robert Fogel, a careful student of such matters, notes that "the average real income of the bottom fifth of the [American] population has multiplied by some twentyfold since 1890, several times more than the gain realized by the rest of the population."⁴⁴ The bottom ten percent have moved from dangerous under-nutrition to over-nutrition (sometimes also dangerous). That means more to you and me, the descendents of groveling peasants, Monty-Python style, than does the gain to Her Ladyship in the big house from increasing her stock of jewelry from one diamond necklace to sixteen (as blameworthy as such profligacy is). Famine has lessened worldwide—this contrary to the alarms from environmentalists such as the paleontologist Niles Eldridge, who predicted confidently in 1995 that "the have-nots will. . . increasingly succumb to famine."⁴⁵ No, they won't, and don't, and haven't. As the economic historian Cormac Ó Gráda wrote in 2009, "famines are less frequent today than in the past and, given the right conditions, less likely in the future." He notes that "even in Africa, the most vulnerable of the seven continents, the famines of the past decade or so have been, by historical standards, 'small' famines."⁴⁶

And when income distribution has worsened between countries, such as between Hong Kong and People's Republic of China from 1948

to 1978, or between West and East Germany from 1949 to 1990, or South and North Korea from 1953 to the present, or Little Havana in Florida and Big Havana in Cuba 1959 to the present, or Turkey and Iraq 1950 to the present, or Botswana and Zimbabwe from 2000 to the present, it has usually been because the stagnating countries rejected openness and innovation, often in spectacularly perverse style.⁴⁷ Their masters dishonored the bourgeoisie and did not give it the liberty to innovate. They jailed millionaires and enslaved women and planned the economy with a corrupt or power-hungry or merely stupid purpose. Many on the European left still admire Kwame Nkrumah (1909-1972), as a socialist idealist. But his idealism 1955-1966 ruined the poor of Ghana. One of the richest economies of Africa became in a decade one of the poorest. The rulers of failed economies, when not motivated by such growth-killing ideologies of left or right, accomplished the same result by simply stealing, as in Nigeria or Gabon, or as in some parts of Europe before the bourgeois age (and in some parts still). The pie under such rulers does not get larger, and so the misgoverned countries fall behind the pie-enlarging countries (for all their imperfections) such as West Germany or Turkey.

Even somewhat sluggishly growing countries—Brazil comes to mind—have been able to make up in part for their low rates of income growth (at least by the standards of the rapidly growing and free-market places like Korea or Singapore) by having better death and illness rates. Such betterment, of course, is an imported fruit of modern and bourgeois economic growth. In truth Brazil under President Luis Inacio Lula da Silva, he of rational populism, has grown pretty smartly, with a better political foundation for sustaining the growth, perhaps, than the other of the four “BRICs” (Brazil, Russia, India, and China). A place like the often Communist-governed Kerala state in southwest India still expresses in hard form the hostility to bourgeois innovation that characterized all of India in the three decades after Independence. Kerala makes up for low growth of income with the lowest rates of illiteracy and the highest life expectancies in South Asia—compliments of medical and other discoveries by bourgeois innovators elsewhere, and of a Karalese history of excellence in education and honesty in government. Compare the city of Bologna in Italy, which for a long time was governed well by Communists. Kerala, however, is also known as the Indian capital of the brain drain, since its policies are irrationally hostile to enterprising people. They leave.

The economic history of innovation therefore fulfils the so-called difference principle of the philosopher John Rawls, most famously the author of *A Theory of Justice* (1971). The principle is that a change is ethically justified when it helps the very poorest. Markets and innovation did. (Rawls, by the way, is properly read in his wider *oeuvre* as non-socialist, maybe even a little pro-market.⁴⁸) No one of sense views multiple mansions for millionaires as the payoff of modern economic growth chiefly to be admired. Neither did Rawls. Neither did the actually existing Age of Innovation, not over the long run.

The over-cautiously measured factor of sixteen or eighteen, or its correctly measured and much higher equivalent, has solved a lot of problems of poverty. You can see the solutions in bits of the larger story. The surviving descendants of the poor people in Alabama whom Walker Evans photographed in 1936 for his book with James Agee, *Let Us Now Praise Famous Men*, are today perhaps 10 or 20 times materially better off (in the cautious metric) than their famous ancestors. They graduate from college, often, and always drive a car. Some of them teach English at Duke. The surviving children of the poor people of Great Plains agriculture whom John Steinbeck wrote about in 1939 in *The Grapes of Wrath* are easily 8 or even 16 times better off than their parents were then. They have substantial houses in El Cerrito and buy their coffee at Peet's. Some of them teach economics at Berkeley. All the more revolutionary, therefore, has been the change since 1700 in the scope for the average resident of Britain, or since 1820 for the average resident of the United States, or since 1868 for the average resident of Japan, or since 1978 for the average resident of China. All these people started out unspeakably poor, living on one to four dollars a day. Let the economy around them innovate and their children and grandchildren soon become well-to-do bourgeois.

* * * *

"Capitalism developed," we say. We say it especially about what came later as a result of the rhetorical Revaluation—Europe and its offshoots became more and more "capitalistic," right down to intercontinental jet travel and the sub-prime mortgage crisis. Europeans prefer to call their system a "social market economy," yet admire innovators, and for the most part do not trammel the innovations (the long struggle over Sunday-closing laws in Germany and France and the Netherlands illustrates the temptation to trammel). The Chinese insist on calling what they do when they buy low and sell high "communism."

Mainland Chinese graduate students visiting American universities have as a result no grasp of the central ideological distinction of the twentieth century. All right. Americans more readily accept the word once used to sneer at markets and innovation and private property, “capitalism.” American graduate students have as a result a much firmer grasp of the history.

But the word “capitalism” – a coin which like “ideology” was struck around 1800 and whose value in our scientific rhetoric is due mainly to Marx’s appropriation of it – points in the wrong direction, to money and saving and accumulation.⁴⁹ It brings to mind Scrooge McDuck in the Donald Duck comic books, with his piles of money. Or in a slightly more sophisticated version it brings to mind Charles Montgomery Burns in *The Simpsons*, with his piles of factories. What’s wrong with such images? This: the world did not change by piling up money or capital. Economists since the eighteenth century have favored the notion of piled-up capital as the maker of modernity, because it emphasizes cost, about which they are expert, and because it is easy to describe mathematically. Since the late nineteenth century the master mathematical expression claiming that piles of capital acquired at great cost, K , together with existing labor, L , cause our enrichment measured in “Quantity” of goods and services – namely, $Q = F(K,L)$ – has thrilled the economists, and has satisfied their Augustinian-Calvinist theology.⁵⁰ But the cartoonists are off the mark, and so are the economists. The routine repetition of investment, arranged in capital accumulation, doesn’t swing (“two chords and a backbeat,” the jazz musicians snicker).⁵¹ Innovation does. If it ain’t got that swing/ It don’t mean a thing. Piling up is not the heart of economic growth. Innovation is. Let’s retire the fraught and misleading C-word.

We’ll do better to call what was born in Europe in early modern times, enriching the world during the nineteenth and twentieth centuries beyond all expectations, by some word without the misleading connotations of “capitalism.” If you like neologisms you can call it if you wish “innovism,” but the best of a weak field seems to be simply “innovation.” The economic historian Nick von Tunzelmann notes that “technological change became cumulative. . . . The breakthroughs . . . led to a succession of further advances. . . . Earlier changes involved a period of disequilibrium [when, say, the undershot waterwheel had been introduced] followed by a return to some kind of equilibrium as the . . . change was absorbed. . . . Instead, [in the last two centuries] a systemic

change took hold in which entrepreneurs had to suppose that any improvement . . . might soon be eclipsed.”⁵² Bill Gates fends off claims that Microsoft is a monopoly by noting that at the very moment he is speaking some bright entrepreneurs in a garage might be devising the innovation that will overturn Microsoft—just as Steve Jobs and he overturned Big Blue. The new rhetoric which in time made the modern world has also been called “the triumph of entrepreneurship” or “the honoring of commercial and mechanical innovation” or “continuously emergent novelty” or “the invention of invention” or “creative destruction” of an old product by an old (or sometimes, as Tunzelmann argued, “creative accumulation” of new qualities in an old product, or an entirely new product) or “good capitalism” (as Baumol, Litan, and Schramm 2007 describe American entrepreneurial capitalism) or, in a phrase that Wynton Marsalis and Geoffrey Ward improvised recently to describe the social significance of jazz, an “explosion of consensual creativity.”⁵³ Using an expression like “The Age of Innovation” as a synonym for the misleading “Modern Capitalism” will point in the right direction. As the economist Allyn Young put it in 1928, it was “an age when men had turned their faces in a new direction and when economic progress was not only consciously sought but seemed in some way to grow out of the nature of things.”⁵⁴

The enrichment of any nation which has allowed innovation and the bourgeois virtues to do their work—that is, the enrichment by historical standards of the average person, the truly poor person as well as the captain of industry—argues in favor of innovation and the bourgeois virtues. It supplies so to speak a practical justification for the bourgeois sin of being neither a soldier nor a saint. You might reply, and truly, that money isn’t everything. But as Samuel Johnson replied in turn, “When I was running about this town a very poor fellow, I was a great arguer for the advantages of poverty; but I was, at the same time, very sorry to be poor.”⁵⁵ No one who bought a lottery ticket has yet turned down a check for her winnings. Or you may ask the inhabitants of India (average per capita income in 1998 in 1990 dollars \$1,746) or China (\$3,117 then) whether they would have liked an American income at that time (\$27,331), a lottery of birth. The figures are only a little less tilted to the American side now. Or you can note the direction of permanent migration then, and more so now, West Africans waiting in Libya to make a perilous crossing to Italy, or Mexicans braving the deserts of the American Southwest to engage in the terrible crime of

working north of the border. As an Hispanic comedian said early in the 2008-2009 recession, "You will know that things are *really* bad in the U. S. when the Mexican *stop coming*. " In the 1930s actually they did stop coming, and many fewer came in 2009 than in 2007.

The thing to be explained, then, is the gigantic material enrichment of the modern world, an enrichment permitting lives of greater spiritual and intellectual scope. In Britain it was (very conservatively measured) a factor of sixteen since 1700. Even including the world's regions that have not been able to take full advantage of innovation and of the bourgeois virtues, the real and cautiously measured income per head of the world has increased since 1800 by a factor of ten – this in the teeth of a rise in population of a factor of 6½. Why?

Notes

39. Eagleton 2009, p. 326.

40. UN/World Bank common data base at <http://globalis.gvu.unu.edu/indicator.cfm?IndicatorID=19&country=BZ#rowBZ>

41. Macfarlane 2000, p. 5.

42. Goldin and Katz 2008.

43. van Zanden 2003, p. 57. The finding is not uncontroversial.

44. Fogel 2002, p. 37.

45. Eldridge 1995, p. 7.

46. Ó Gráda 2009, pp. 2, 1

47. Maddison estimates per capita real income in Turkey as rising (rather slowly) 1950 to 2002, rising slower in Baathist Syria during the same period, and rising smartly in Iraq and Iran until the 1970s, and then until 2002 actually falling (in Iraq's case to 20 percent of its peak per capita income, achieved in 1979). See Maddison 2006, pp. 564-565.

48. Rawls 1993; Buchanan 2003.

49. True, Marx himself didn't use *Kapitalismus* much. In the German of *Das Kapital*, Vol. 1, he used *Kapital* and *kapitalische* on nearly every page, but rarely *Kapitalismus*. The English translation used "capitalism" only twice. Carlyle twenty-three years before, in *Past and Present* (1843), uses "mammonism." Later, and especially in the twentieth century, that age of multiple -isms, "capitalism" became common.

50. The reference to theology is not merely ornamental. See Nelson 1991, 2001, and 2010.
51. Marsalis and Ward 2008, p. 131.
52. Tunzelmann 2003, p. 85.
53. "Entrepreneurship" is from Schumpeter and his Austrian tradition (for example Schumpeter 1926 [1934] and "creative destruction" is from Schumpeter 1942 (1950), pp. 82-85 (borrowed from Werner Sombart's *Krieg und Kapitalismus* of 1913), "continuously emergent novelty" from Usher 1960, p. 110; "invention of invention" from various hands, such as Nathan Rosenberg, David Landes, and Joel Mokyr, and ultimately from Whitehead 1930, p. 120, quoted in Tunzelmann 2003, p. 85; "creative accumulation" in Tunzelmann 2003, p. 88; and jazz from Marsalis and Ward 2008, p. 167.
54. Young 1928.
55. Boswell 1791, for 1763, Aetat. 54, (Vol. 1, p. 273).

Part IV. Britain, China, and the Irrelevance of Stage Theories

Abstract

Britain was first, though the classical (and many of the neoclassical) economists did not recognize that its course was beginning the factor of 16. The slow British growth in the 18th century proposed by Crafts and Harley is unbelievable, but however one assigns growth within the period 1700-1900 it is now plain that something unprecedented was happening. Only non-economists recognized it at the time. The central puzzle is why innovation did not fizzle out, as Mokyr has put it—as it had at other times and places. Productivity in cotton textiles, for example, grew at computer-industry rates, and continued to into the 20th century. But Europe's lead was not permanent. The California School of Pomeranz and Goldstone and Allen and others have shown that China led the West in 1500, and maybe as late as 1750, then fell dramatically behind. It was the continuation of European growth in the 19th and 20th centuries that is strange and new. Explaining the Great Divergence requires focusing on non-European events in the 19th century—not some deep-seated European cultural superiority. On the other hand, Europe's fragmented polity was an advantage, as shown in the swift uptake of the printing press. The way that non-European places like Japan or Botswana or India have been able to grow demonstrates that the stage theories popular in European thought from the 18th century to the present (for example, in modern growth theory) are mistaken. The metaphors of biological stages or human foot races are inapt, as in the business-school talk of "competitiveness" nowadays. The "rise" of non-European economies does not presage a "decline" or Europe or its offshoots, merely a borrowing of social and engineering technologies such as Europe once borrowed from elsewhere. The dignity and liberty of ordinary people stands in the middle of such "technologies."

Chapter 8: Britain Led

Britain was first, and so Britain is a good place to go hunting for answers. The place also led in the study of economics—assisted by Spanish professors, Dutch merchants, French physicians, and Italian penologists—from the English political arithmeticians of the seventeenth century down through David Hume, Adam Smith, T. R. Malthus, David Ricardo, John Stuart Mill, and the British masters of the subject in the early twentieth century. The economy was conceived as separate from politics early in Britain (earlier still in Holland, and later in France, and much later in Germany), which is one bit of evidence that a bourgeois culture was emerging. Economics was for a long time a British and even disproportionately a Scottish subject. Only after the Second World War did it become, like many other fields of the intellect, dominantly American.

Oddly, the British economists around 1776 or 1817 or 1871 did not recognize the factor of sixteen as it was beginning to happen, and even now their heirs in America sometimes forget it. The theories of the economists took useful account of little changes—a 5 percent rise of income when cotton factories grew or a 10 percent fall when Napoleon ruled the Continent. But they did not notice that the change to be explained, 1780-1860, was not 5 or 10 percent but 100 percent, and was on its way to that unprecedented 1,500 percent relative to what it was in the eighteenth century. Only recently, beginning in the 1950s, has the inquiry into the nature and causes of the wealth of nations begun to recognize the oversight.

In the 1940s Joseph Schumpeter was already scornful of the classical economists for their failure to see what was happening. T. R. Malthus (1766-1834) and David Ricardo (1772-1823) “lived at the threshold of the most spectacular economic development ever witnessed. . . . [yet] saw nothing but cramped economies, struggling with ever-decreasing success for their daily bread.”¹ Their student John Stuart Mill (1806-1873) even in 1871 “had no idea of what the capitalist engine was going to achieve.”

What Mill lacked, and Schumpeter and a handful of later economists such as the American Frank Knight possessed, was an appreciation of how Romantic motivations in a business-oriented

civilization drove even the businessmen, and how creative such motivations were. ² Knight observed acutely in 1923 that “economic activity is *at the same time* a means of want-satisfaction, an agency for want- and character-formation, a field of creative self-expression, and a competitive sport. While men are ‘playing the game’ of business, they are also molding their own and other personalities.” ³ Schumpeter gave in 1926 a similarly sociologized analysis of why capitalists played the game, a step beyond the naïve assumption in Marx and Veblen and many more recent critics of the bourgeoisie that “endless accumulation” is the game. Accumulation, Schumpeter said, was for social status, not only for itself. “For itself” businesspeople “delight in ventures,” “exercising one’s energy and ingenuity.” And the macho “will to conquer,” “akin to sport,” is motivating, too. Yes – though none of these is peculiarly modern, and only for the first, status-taking motive “is private property as the result of entrepreneurial activity an essential factor in making it operative.” ⁴ At the funeral games of Hector, too, the men raced, exercising their energy and skill, and proudly won, and nobly lost.

* * * *

Restricting attention to what Mill could possibly have known, and what economic historians have been showing since the 1950s, British national income per head nearly doubled in the century down to 1870, even though population also more than doubled. Nicholas Crafts and C. Knick Harley, arguing for a very gradual onset of the Industrial Revolution, and a narrow industrial range for its innovations until the late nineteenth century, dispute the pattern that many other students of the matter claim to see. ⁵ The Two Nicks, as we affectionately call them, see the big changes as occurring after 1820 and especially after 1848. ⁶ And they give more weight to science than economic historians like Maxine Berg and Pat Hudson and Peter Temin and Richard Sullivan and I would, who think that for a long time innovation came mainly from workshops, not from laboratories, and came in great volume in the form of new products that the conservative measures of national income capture poorly rather than from new scientific processes, which they capture better. Big industries like brewing were revolutionized in the eighteenth century, as the economic historian Peter Mathias has shown, but do not, as he points out, figure much in the conventional historiography of cotton and iron. ⁷ But no matter. Using for Britain proper the conservative Crafts and Harley figures (and very roughly

factoring in some sluggishness for Ireland), before national income is more accurately measured in Charles Feinstein’s estimates from 1855 on, Angus Maddison gives a series of U.K. per capita income in “1990 international Geary-Khamis dollars” thus:

Conservatively Measured, the Improvement in the U.K. Occurred Sometime Around 1800, then Accelerated			
	Real annual GDP per head in 1990 dollars	Annual growth rate from previous date	Population
1600	\$ 974		6.2 million
1700	1,250	0.25	8.6
1820	1,706	0.26	21.2
1850	2,330	1.0	27.2
1870	3,190	1.5	31.4
1913	4,927	1.0	45.6
2001	20,127	1.6	59.7

Source: Maddison 2006, pp. 437, 439, 443 for real GDP per head; pp. 413, 415, 419 for population. Growth rates are compound annually.

We optimists would complain that one can detect widespread productivity change in the eighteenth century, measurable for example by input and output prices in dozens of industries, and in patent applications for entirely new products (though we would admit that the

work on primary sources needed to be quite sure of the calculation has not been done widely enough—for example by me only for enclosure of open fields), or by testimony up and down the country in novels and plays and letters about improved roads and agriculture and humming industrial districts making beer and toys and watches and cutlery (though we would admit that the work on these primary sources, too, has not been done widely enough, and this time certainly not at all by me). And therefore we would see a quickening of growth some decades earlier. ⁸ Indeed, we believe that there are good reasons to think that the slow-growth Industrial Revolution of the Two Nicks contradicts pretty solidly documented progress in a wide range of British industries in the classic period 1760-1860. The Nicks argue that productivity outside a few progressive sector was nil—which contradicts the industrial studies. The aggregate statistics of the Two Nicks, therefore, must be too low, because they imply an implausible nil productivity growth in glass, chemicals, shoemaking, brass, toys, instruments, and the like calculated as what's left over.

But let us live easy: these are differences of emphasis. We all, optimists and comparative pessimists alike, agree that something extremely strange, and enriching, and world-changing, took place in parts of Britain somewhere around 1820, give or take forty years. For most if not all scientific purposes 1820 ± 40 years is accurate enough, and especially in view of the astounding enrichments that followed. Surely by 1860 (say) a much larger nation was much richer per head, and much more likely to sustain innovation, as never before in history. Britain was beginning the factor of sixteen.

The enrichment was noticeable to some even in 1830. Macaulay wrote then:

If any person had told the Parliament which met in perplexity and terror after the crash in 1720 that in 1830 the wealth of England would surpass all their wildest dreams, . . . that London would be twice as large . . . and that nevertheless the rate of mortality would have diminished to one-half, . . . that men would be in the habit of sailing without wind and would be beginning to ride without horses, our ancestors would have given as much credit . . . as they gave to Gulliver's Travels. Yet the prediction would have been true.⁹

In his *Essay on the Principle of Population* (1798) the Anglican priest and economist Malthus had predicted the opposite. His point is still popular among radical environmentalists, who view natural resources per human as the problem, or perhaps just humans, and dream of the

Garden without Man and watch with delight the TV show “Life After People.” They do not realize that natural resources ceased after 1800 to be the main scarcity. No longer, it is wisely said, are there resources, only human resourcefulness. Yet Malthus told a great truth about *earlier* history. In medieval England, for example, during the two centuries before 1348 a rising population *had* become poorer, and in Elizabethan England the impoverishment happened again, for the same reason of rising population facing a given stock of land. When land was still the chief resource in the economy, and economic resourcefulness was not the way to achieve honor, more Englishmen meant less land per head and therefore less grain per head. But in late Georgian and early Victorian England a rising population became through now-honored ingenuity a good deal richer, and land fell dramatically in its power to constrain humans. The fact was contrary to every prediction of the economists. ¹⁰ Most economists scorned the notion of free lunches, and still scorn it. In the sweat of your brow shall you earn your bread. One can shuffle labor and the like from one use to another, and gain efficiency, but never, the economists declared, can you gain easy gold at the hand of fey or elf. And therefore the economists, unlike the historian Macaulay or the engineer Charles Babbage, saw nothing in prospect around 1830 but misery for the working man and riches for the landowners. Like modern environmentalists the classical economists depended on blackboard propositions (“ultimately, all resources are limited”), not the evidence before their eyes.

In 1845 Mill summarized the matter with his customary lucidity and justice. Until the Reverend Malthus wrote, the condition of the working class was considered by most a hopeless case—“a provision of nature,” as Mill expressed it, “and as some said, an ordinance of God; a part of human destiny, susceptible merely of partial alleviation in individual cases, from public or private charity.” ¹¹ Malthus, at any rate in the second edition in 1803 of the *An Essay on the Principle of Population*, showed that in establishing that poverty was a consequence of population growth he had given reason for hope, not despair. (As a priest he perhaps worried about his earlier bald statement of the Principle of Population in 1798 because *acedia*, despair, a lack of Christian hope, is the second greatest sin against the Holy Spirit.) A given technology could support the poor in a little better style (as Malthus promised in 1803 and later editions) if they could only be made prudent and conscientious in having children—which a middle-way

Anglicanism, for example, could preach in good conscience. Mill noted two additional forms of optimism, less plausible he thought (as late as 1845) than Malthus' promise of modest improvement through sexual restraint. "The only persons by whom any other opinion [than the age-old pessimism about the poor doomed to earn a dollar or two or three a day—maybe four if they will but adopt birth control] seemed to be entertained, were those who prophesied advancements in physical knowledge and mechanical art, sufficient to alter the fundamental conditions of man's existence on earth; or who professed the doctrine, that poverty is a factitious thing, produced by the tyranny and rapacity of governments and of the rich." From Mill's other writings one can infer that he took little hope from the "prophesied advancements in physical knowledge." In that prediction he proved spectacularly wrong. He also did not believe that revolution and redistribution would work, either. In that he proved unhappily right.

The economists, in other words, did not notice that something entirely new was happening from 1760 or 1780 to 1860. As the demographer Anthony Wrigley put it a while ago, "the classical economists were not merely unconscious of changes going on about them that many now term an Industrial Revolution: they were in effect committed to a view of the nature of economic development that ruled it out as a possibility."¹² At the moment (say, 1848) that John Stuart Mill came to understand an economy in equilibrium the economy grew away from the equilibrium. And by the time he died, in 1871, the growing away was accelerating worldwide. It was as though an engineer had satisfied herself of the statics that kept a jumbo jet from collapsing as it sat humming on the tarmac, but then failed to notice when the whole thing took off into flight.

The economists, believing as many of them do right down to the present that they have a complete theory of the social laws of motion, overlooked applied innovation. That is, they overlooked the creativity of the conversation in a modern economy. The economist Basil Moore has expressed the point in a brilliant critique of economics by saying truly that since the first Industrial Revolution the world economy has become nonlinearly dynamic.¹³ The economist Friedrich Hayek (1899-1992) had expressed a similar point, that economies are unpredictable because they are the outcome of human conversation.¹⁴ The future of mathematics is unpredictable, because if it were predictable we would now know the mathematics that is supposed to be in the future. It wouldn't be future.

The same is true of vast swathes of human activity, from fashion to engineering.¹⁵ The static economics that Moore and Hayek criticize worked just fine before the Revaluation, and it still illuminates for the short and medium run many routine parts of the economy. Don't throw it away. But the economy after the late eighteenth century became increasingly non-routine, startled by steam engines, electrified by generators, confused by computers, and above all revived by Revaluations.

In 1767 Josiah Wedgwood (he of fine china) was writing that "a revolution was at hand," at any rate in the making of pottery.¹⁶ In 1783 Samuel Johnson declared "The age is running mad after innovation; all the business of the world is to be done in a new way; men are to be hanged in a new way," and himself took an interest in new ways of brewing.¹⁷ By 1787 the dissenting preacher, political radical, and insurance actuary Richard Price was still more broadly optimistic:

It is the nature of improvement to increase itself. . . . Nor are there, in this case, any limits beyond which knowledge and improvement cannot be carried. . . . Discoveries may, for aught we know, be made in future time which, like the discoveries of the mechanical arts and the mathematical sciences in past time, may exalt the powers of men and improve their state to a degree which will make future generations as much superior to the present as the present are to the past.¹⁸

As was the chemist Humphrey Davy in 1802: "we may look for . . . a bright day of which we already are beyond the dawn."¹⁹ By 1814 the merchant and calculator Patrick Colquhoun was admiring "the improvement of the steam engines, but above all the facilities afforded to the great branches of the woolen and cotton manufactories by ingenious machinery, invigorated by capital and skill, and beyond all calculation."²⁰

And by 1830 an historian like Macaulay, as I have noted, respectful of the economics of his day but with a long view, could see the event better than could most of his economist friends. He wrote: "If we were to prophesy that in the year 1930 a population of fifty million, better fed, clad, and lodged than the English of our time, will cover these islands, that Sussex and Huntingdonshire will be wealthier than the wealthiest parts of the West Riding of Yorkshire now are, . . . that machines constructed on principles yet undiscovered will be in every house, . . . many people would think us insane."²¹ Later in the nineteenth century and especially in the socialist days of the mid-twentieth century it was usual to deprecate such optimism, and to characterize Macaulay in particular as hopelessly "Whiggish" and progress-minded and pro-

innovation. He certainly was all that, a bourgeois to the core. But Whiggish and progress-minded and pro-innovation or not, he was in his prediction exactly right, even as to British population in 1930 (if one includes the recently separated Republic of Ireland, he was off by less than 2 percent).

The pessimists of Macaulay's times, both economists such as Mill and anti economists such as John Ruskin, were off the mark, though at the time most fashionable—Schumpeter remarks in this connection that “pessimistic views about a thing always seem to the public mind to be more ‘profound’ than optimistic ones.”²² You look less of a fool if you predict disaster and it doesn't happen than if you predict progress and it doesn't happen—witness the career of the biological doomster Paul Ehrlich, which flourishes despite errors of prediction that would ruin the credibility of a scientist in most other fields, and even in economics. Or maybe it arises from a feeling that the gods or the devils will be angry if you predict progress. Better understate—such is said to be the origin of pessimistic routines of conversation among Yiddish speakers, even before the Holocaust made their pessimism look prescient.²³ People from Francis Bacon to Macaulay were the optimists of the Enlightenment. They thought of unlimited progress, not merely the respectable yet modest gains from trade. During the 1830s and 1840s the optimists (as Schumpeter did call them), Henry Carey in the United States and Friedrich List in Germany, with engineers like Babbage in England, “saw vast potentialities looming in the near future.”²⁴ Optimistic fools they were (and Carey and List were foolish protectionists as well). But they were correct about the magnitude of the rising tide. Their opponents the classical economists were in their pessimism quite wrong. It could make one suspicious of fashionable pessimists nowadays.

Surely the slow start (faster probably than the Two Nicks say, but in any case slow by later standards) explains why industrial change was largely invisible to economists and some others watching it—though not to many possessed of common sense and eyes to see. Macaulay wrote in 1830, “A single breaker may recede; but the tide is evidently coming in.”²⁵ The tide indeed: the economics, as I said, explains the shape of the tide's fingers invading the land, but not the force of the hand itself. The early Victorian poet Arthur Hugh Clough did not praise innovation—though the son of a cotton manufacturer, he hated the whole thing, as did most Romantics—and he would be irritated to see his verse used to capture what happened economically down to, say, 1860:

For while the tired waves, vainly breaking,
Seem here no painful inch to gain,
Far back, through creeks and inlets making,
Comes silent, flooding in, the main.

* * * *

When did it start? Various emblematic dates have been proposed – the five months in 1769 during which Watt took out a patent on the separate condenser in his steam engine and Arkwright took out a patent on the water frame for spinning cotton; or 1 January 1760, when the furnaces at Carron Ironworks, Stirlingshire, were lit; or the famous day and year 9 March 1776, when Adam Smith’s *The Nature and Causes of the Wealth of Nations* provided a rhetoric for the age. It sometimes seems that every economic historian has a favorite date, and a story to correspond. Eleanora Carus Wilson spoke of “an Industrial Revolution of the thirteenth century.” She found that the fulling mill (that is, a machine for thickening wool cloth) was “due to scientific discoveries and changes in technique,” especially the control of water power, and “was destined to alter the face of medieval England,” crushing the urban centers formerly leading in cloth. ²⁶ Looking at the matter from 1907 the American historian Henry Adams could see a “movement from unity into multiplicity, between 1200 and 1900, . . . unbroken in sequence, and rapid in acceleration.” ²⁷ The economic historians Eric Jones and Joel Mokyr have taken a similar long view of European exceptionalism. ²⁸ But the most widely agreed period of the beginning of It, whatever exactly It was that led to the factor of sixteen, is still the late eighteenth century.

If the onset of modern economic growth fed on itself, then its start could be a trivial accident. Joel Mokyr identifies a pitfall in storytelling: rummaging among the possible acorns from which the great oak of the Industrial Revolution grew “is a bit like studying the history of Jewish dissenters between 50 B.C.E. and 50 C.E. What we are looking at is the inception of something which was at first insignificant and even bizarre,” though “destined to change the life of every man and woman in the West.” ²⁹ In the case of the Industrial Revolution now the East. Yet one might wonder – the point will be made many times here in various different ways – why then it did not happen before. “Sensitive dependence on initial conditions” is the technical term for some “nonlinear” models – a piece of so called “chaos theory.” But under such

circumstances a history becomes untellable.³⁰ It may be so—the world may be in fact nonlinear dynamic, as Basil Moore argues. But then we will need to give up our project of telling its history, because the true causes will consist of lost horseshoe nails and butterfly effects too small to be detected. The reasons are the same as those that make it impossible to forecast distant weather: “Current forecasts are useful for about five days,” writes a leading student of such matters, “but it is theoretically impossible to extend the window more than two weeks into the future.”³¹ It is “theoretically” impossible because the fluid mechanics, the radiative transfer, the photochemistry, the air-sea interactions, and so forth “are violently non-linear and strongly coupled.” The flap of the wings of a butterfly in China can three weeks later cause a hurricane in Cuba.

Anyway industrialization happened at a stately pace. Britain was no factory in the mid-nineteenth century. In 1851 the number of British people employed in textiles, the frontier of innovation, was much smaller than in agriculture and a little smaller than in “domestic and personal service,” neither of which was much altered from eighteenth-century technologies — though agriculture was beginning to be.³² The economic historian John Clapham made the point in 1926, observing that in 1831 “the representative Englishman . . . was not yet . . . either a man tied to the wheels of iron of the new industrialism, or even a wage earning in a business of considerable size.”³³ “As late as 1851, he noted, half the household lived in “rural” districts, and only some of these contained factories or coal pits. “At what point” in the nineteenth century, he concluded, “the typical worker may be pictured as engaged on tasks which would have made earlier generations gape is a matter for discussion. It may be suggested here that this point will be found some rather long way down the century.”³⁴ The massive number of household servants makes the point, but even in manufacturing it was true. As Maxine Berg and Patricia Hudson have noted, some technologically stagnant sectors (building, say, or the making of clothing, or indeed all services) saw large expansion and bigger employment, some technologically progressive sectors saw little or none (paper making, until the stamp taxes were repealed). Some industries working in large scale units did little to change their techniques (naval shipyards early in the period). Some in tiny firms were brilliant innovators (the metal trades, from Britain’s big lead in using coal to boil stuff).³⁵ Immense mills in the famous sectors were not the whole of the factor of two down to the

middle of the nineteenth century, and nothing like all of the later factor of sixteen. And steam power in Britain increased from 1870 to 1907 (“some rather long way down the century”) by a factor of fully ten, long after the dark satanic mills first enter British consciousness.³⁶

The central puzzle is not why there was in Britain after 1760 or so a burst of what Joel Mokyr calls “macroinventions” (steam, textile machinery) but why the burst did not fizzle out later, as earlier times of innovation had—such as during the “industrial revolution of the thirteenth century.” “The ‘classical’ Industrial Revolution in the eighteenth century,” Mokyr notes, “was not an altogether novel phenomenon.”³⁷ Not altogether. But the continuation certainly was. As Mokyr says elsewhere, “perhaps the really important question is not one of why did the great inventions of the 1760s and 1770s take place, but why the wave of technological progress did not peter out after 1815 or so, as it had always done in the past.”³⁸

Productivity change 1780 1860 was famously fast in textiles, and did nothing like fizzle or peter out. But even without considering new products the conservatively measured rise in national income can be seen in other ways. Cotton cloth that was a luxury in 1700 had become the commonest, cheapest cloth by the middle of the nineteenth century. It found new uses—new products were a push. In a small way the same thing has happened since 1982 in the making of “sandwashed” silk. And so for every fabric. Synthetic fibers like the first one, rayon, or the next big one, nylon, were once pretty expensive. Now you have a closet full of clothing made of all sorts of historically cheap fibers. A big closet. Six of them. I once helped a friend in New Jersey sort through and re-hang merely the T-shirts that her family had accumulated. We got to 300 that afternoon and stopped counting. Your great-great-great-great grandmother had a dress for church and a dress for everyday and maybe a coat, or at least a shawl, and maybe some shoes, or at least some clogs. In summer and in warm climes she went barefoot, and got hook worm.

You can best see productivity change in the prices of the things produced. Prices give the best if underused way of measuring productivity change before we get modern statistics on aggregates like “the capital stock” and other fancies. A piece of cotton cloth that was sold in the 1780s for 70 or 80 shillings (two months’ wages for a workingman) was by the 1850s selling for around 5 shillings (a few days’ wages), on its way by now to a few minutes’ wages. Cotton cloth moved from being fashionable like silk to commonplace like wool, in the same

manner a century and a half later as did nylon (first called “artificial silk”) and other synthetics, or indeed at length silk itself. A very little of the decline in the price of finished cotton cloth was attributable to declines in the prices of raw cotton itself after the introduction of the cotton gin (perfected in 1793 on the basis of numerous earlier machines) and especially the four-fold increase in yields of cotton coming from breeding experiments in the American South, and the resulting expansion of cotton growing in America.³⁹ But in other ways the price of inputs rose. By 1860, for example, wages of cotton workers had risen markedly over what they were in 1780. Why then did the price of manufactured cloth fall? It fell because organization and machinery were massively improved in cotton textiles, 1780 to 1860—though not as massively as was yet to come.

The case is typical in showing more about the variation around average performance than one might at first think knowable. The calculation shows for example that productivity change slowed in cotton, because power weaving, which came late, was apparently less important than power carding of the raw wool and power spinning of the wool into yarn. And it exhibits one of the main findings of economic historians—that invention is not the same thing as innovation.⁴⁰ The heroic age of invention in cotton textiles ended by the late 1780s, by which time Hargreaves, Arkwright, Kay, Crompton and Cartwright had flourished. But the inventions saw steady improvement later. The pattern is typical, invention being only the first step—the same is true, for example, of railways, which improved in scores of small ways right into the twentieth century, with large falls in real costs. The real cost of cotton textiles had halved by the end of the eighteenth century. But it was to halve twice more by 1860. And then again and again.

Few sectors were as progressive in the classic period of the Industrial Revolution as cotton textiles. Productivity in iron grew a half to a third as fast, which makes the point that productivity is not the same as production. The production of iron increased enormously in Britain 1780 to 1860—by a factor of 56, in fact, or at 5.5 percent per year.⁴¹ (“Small’ growth rates,” as you might be inclined to think that 5.5 is, make for big factors of increase if allowed to run on: 5.5 percent is explosive industrial growth by historical standards, a doubling every $72/5.5 = 13.2$ years; thus South Korea since 1953.) The expanding British industry crowded out the iron imported from Sweden and proceeded to make Britain the world’s forge. But the point is that it did so mainly by

applying a somewhat improved technology (called puddling) to a much wider field, not by the spectacular and continuous falls in cost that cotton witnessed. The calculation goes thus: The cost of inputs to iron (mainly coal) changed little from 1780 to 1860. During the same span the price of the output (wrought iron) fell from £20 a ton to £8 a ton, another Good Thing, surely. The fall in real costs, again, is a measure of productivity change. So productivity in wrought iron making increased by a factor of about 2.5, an admirable factor of change. Yet over the same years the productivity in cotton textiles, we have seen, increased by a factor of 7.7.

Other textiles imitated the innovations in cotton, significantly cheapening their products, though less rapidly than the master industry of the age: as against cotton's 2.6 percent productivity change per year, worsteds (wool cloth spun into a thin yarn and woven flat, with no nap to the cloth) experienced 1.8 percent and woolens 0.9 percent. ⁴²Coastal and foreign shipping experienced rates of productivity change similar to those in cotton textiles (some 2.3 percent per year as compared with 2.6 in cotton). The figure is derived from North's estimates for transatlantic shipping during the period, rising to 3.3 percent per year 1814-60. ⁴³ Again the "low" percentage is in fact large in its cumulative effects: freights and passenger fares fell like a stone, from an index of around 200 after the Napoleonic Wars to 40 in the 1850s. Canals and railways experienced productivity change of about 1.3 percent. ⁴⁴ Transportation was therefore among the more notably progressive parts of the economy.

But many other sectors, like iron as we have seen, experienced slower productivity change. The productivity change in agriculture was once believed to be slower still, dragging down the economy-wide average. The Two Nicks, supported by the researches of the ingenious Gregory Clark and other agricultural historians, believe it did much better, some 0.7 percent per year in productivity change. ⁴⁵ Anyway, taking one year with another 1780-1860, agriculture was still nearly a third of national income, and so mattered a good deal, and its productivity change was slower than such leaders as cottons and worsteds and canals and railways. Productivity change varied radically, as it has continued to do, one sector taking the lead in driving up the national productivity while another settled into a routine of fixed technique, computers taking over the lead from chemicals and electricity. Agriculture itself, for example, came to have quite rapid productivity change in the age of the reaper and the steam tractor in the nineteenth

century, and selective breeding of animals and plants was probably even more important—still more so in the age of genetic engineering in the twentieth century. ⁴⁶ But from 1780 to 1860 textiles and transport were the leaders. Bravo for the brave British.

Notes

1. Schumpeter 1954, p. 571. "In the 1940s" because he died early in 1950; the book was published posthumously.
2. Bronk 2009, p. 55.
3. Knight 1923, p. 39, his italics.
4. Schumpeter 1926, p. 93f.
5. Berg 1985; McCloskey 1991; Berg and Hudson 1994; Temin 1997, 2000.
6. Harley 1982; Crafts and Harley 1992, 2004; Harley and Crafts 2000; Crafts 1985, 1994, 2004a, 2004b. Their views are similar to the very unpopular ones of Cameron 1994 and Cameron 1993, pp. 165-167.
7. Mathias 1953 (1979), p. 209; and Mathias 1959.
8. [back] For a contrary view, claiming in the Two Nicks style that "output growth before 1800 was largely driven by an 'Industrious Revolution' "[to use Jan de Vries' terminology], see Broadberry 2003, p. 253.
9. Macaulay 1830.
10. It is customary, by the way, to use Carlyle's phrase "the dismal science" to encapsulate the pessimistic conclusions of the classical economists. But that was not its origin. Carlyle called his friend John Stuart Mill and Mill's colleagues "dismal" because they opposed slavery, which institution Carlyle found sweet and medieval and appropriate to the sadly deficient abilities of black people (Persky 1990; Levy 2001; Levy and Peart 2001).
11. Mill 1845.
12. Personal correspondence.
13. Moore 2006.
14. Hayek 1945.
15. As is argued at length in McCloskey 1990.
16. Letter to Thomas Bentley, quoted in Mokyr 2008, p. 89 [***or thereabouts]
17. Boswell 1791, for 1783 (Vol. 2, p. 447).
18. Price 1787.
19. Quoted in Mokyr 2008, p. 89 [***or thereabouts]

20. Quoted in Mokyr 1999a, p. 4.
21. Macaulay 1830: I, ii, p. 185.
22. Schumpeter 1954, p. 572n5.
23. Wex 2006, p. 95.
24. Schumpeter 1954, p. 572.
25. Macaulay 1830, p. 185.
26. Carus-Wilson 1941, p. 41.
27. Adams 1907 (1918), p. 498.
28. Jones 1981, 1988; Mokyr 1990.
29. Mokyr 1985, p. 44.
30. McCloskey 1991a.
31. Boyd 2008, p. 16. The two-week limit is why below I use three weeks as the timing of the "butterfly effect."
32. Mitchell 1962, p. 60. Marx made a similar calculation, using the 1861 census to support his claim that machinery disemployed workers (Marx 1867 [1887], p. 488).
33. Clapham 1926, p. 67.
34. Clapham 1926, p. 74.
35. Berg 1985; Hudson 1986, 1992; Hudson, ed. 1989,.
36. Musson 1978, pp. 8, 61, 167 8. By the way, the usual identification of Blake's image with cotton mills, used here, is doubtful. He probably meant "mills" in the sense of the monotonous and utilitarian grinding of grain.
37. Mokyr 2008, p. 93 *** or so.
38. Mokyr 2003, p. 55.
39. Olmstead and Rhode 2008a, 2008b.
40. Compare Chapman and Butt 1988.
41. Davies and Pollard 1988.
42. McCloskey 1981, p. 114.
43. North 1968.
44. Hawke 1970.
45. Harley 1993, Table 3.6, p. 200.
46. Olmstead and Rhode, 2008a and 2008b.

Chapter 9: But Britain's, and Europe's, Lead was an Episode

Yet one must take care. In the face of such wonderful activities in the eighteenth and early nineteenth centuries it is customary for Europeans, and especially British Europeans, to puff with pride, and start talking about how anciently exceptional the Europeans, and especially the British, have been. Alan Macfarlane has long argued, and persuasively, that English individualism was ancient, showing up for example in marriage patterns among the Anglo-Saxons, at any rate when they got to England, and in the non-collectivist notions of property in the Germanic law before they had.⁴⁷ But the Chinese, after all, have their own exceptionality, which could plausibly have contributed to early industrialization. The people who managed to organize such astounding projects of collective engineering as the Great Wall and the Grand Canal and Admiral Zheng He's expeditions to Africa are not obviously incapacitated for economic growth. The same could be said of the Egyptians, the Romans, the Inca, or for that matter the Mississippian mound builders. But in the event the northwest Europeans and especially the British started modern economic growth, and so they tend to congratulate themselves, and view themselves as the naturally Top Nations. The rhetoric of nationalism, not to speak of racism, rather easily slips in. It provides a nice, self-justifying warmth if you are European, and most especially if you are British.

But until the nineteenth century, as sociologists and historians and economists such as Jack Goldstone, Kenneth Pomeranz, and Robert Allen have argued, the rich areas of, say, China were comparable in income to those of Europe, such as Britain.⁴⁸ The assertion has not been without challenge, from for example Broadberry and Bishnupriya (2005), who asserted that the rich areas of China looked more like the poor areas of Europe well before 1800. Hans-Joachim Voth and Nico Voigtländer (2008), building on the point, argue for a "first divergence," that is, higher real wages in northwestern Europe than in the Yangtze Valley before 1800. Their argument is remarkable: the Black Death enticed people into towns, where they died (the Chinese cities were healthier), thus relieving Malthusian pressure and allowing real wages to rise. But no one disagrees that China was ahead in, say, 1500, and fell dramatically behind during the nineteenth century (the second and more

important divergence). And that is the main point: European superiority was not ancient.

The group who in the past couple of decades have made the China-admiring discovery are called the “California School” (because many of its teachers are in California).⁴⁹ The School has taught (after graduate work, so to speak, with Jack Goody and Joseph Needham) that many of the claims of deep-set European exceptionalism—such as the European marriage pattern, or the inventiveness of Europeans in water- and wind-mills and the like, or Europe’s long lead in riches, or Marx’s analysis of the shift from oriental despotism through feudalism to the triumph of the bourgeoisie (Marx’s theory is the grand-daddy of Eurocentrism)—are erroneous.⁵⁰ “Some of the errors,” the historical sociologist Goldstone charitably suggests, “come simply from comparing a fairly detailed and learned understanding of change in Europe with a rather vague and over-simplified understanding of change in Asia.”⁵¹ Thus Marx (1818-1883), for example, or the historian David Landes (1924-).

Joseph Needham (1900-1995) and his sinologist colleagues inspiring the California School have shown in the past fifty years that the Chinese were in fact astoundingly inventive for millennia before the West caught the bug. (One awaits a similar demonstration for the South Asians: begin with cotton cloth and scientific grammar. Or the Arabs: begin with universities and astronomy and horticulture.) The West did not realize how much it owed to the Chinese, or in what ways it was anticipated—commonly by many hundreds of years, such as the blast furnace (which was thought to be Swedish) or thin castings of iron (thought to be Dutch). The Chinese had mapped their realm with gridded precision hundreds of years before Europeans cartographers were still inclined to fill empty places on maps with the equivalent of the proverbial “here be dragons.” Remarkably, until Needham’s scholarship the Chinese themselves, in the face of Western hubris, forgot their pioneering.

Robert Temple wrote in 1986 an engaging popular exposition of Needham’s twenty-four stout volumes.⁵² He gives in the third, 2007 edition a table of 110 inventions anticipated by the Chinese, and often used on a large scale. (Simon Winchester’s popular biography of Needham has a fuller list of about 275, including such miracles as a wheelbarrow *with sails* from the sixth century C.E., and soil science or ecology from the fifth century B.C.E.).⁵³ We all know about paper, invented and in common use in China in the second century B.C.E. (even for clothing; though not used for writing until the first century C.E.). It

was not manufactured in the West until the thirteenth century C.E., a lag of 1500 years. Or consider cardboard, invented two centuries before Europe caught on. Or the compass, invented and in common use in China in the fourth century B.C.E. (though not used for navigation at sea until the late first millennium C.E.), not adopted in the West until the twelfth century C.E., a lag again of 1500 years.⁵⁴ About the gun the Westerners were more urgently curious, and the lag was only 50 years after its invention in China in 1180 C.E. An economist would know of paper money, too, with a lag of 850 years until the desperate New Englanders thought to use it. An agricultural historian might have known that the iron-share, curved-moldboard plow, invented by the Chinese 500 years B.C.E., came from China to Holland in the seventeenth century, and thence to England. But few could have known before Needham that the Chinese invented the seed drill 1800 years before its use in the West, the crank handle 1100 years before, deep-drilling for natural gas 1900 years, the wheelbarrow 1300 years, a place for zero in a decimal system 1400 years, and knowledge of the circulation of the blood 1800 years before Harvey.

Needham's work established the now-accepted truth that European technology was inferior to Chinese (or Japanese or Indian or Arab or Persian or Ottoman) until about 1500, and in many ways was inferior still in 1700 (by which time Europeans still had not yet reverse-engineered or mechanized thin-wall iron castings, thin-wall porcelain, japanning lacquers, or the making and printing of fine cotton cloth). Other research has shown that up until about 1800 the per capita real incomes of the more prosperous parts of the West and the East were all about the same. The recent lead of Europe was nothing like ancient. Needham and collaborators and followers have shown that the claim by the historians Lynn White and David Landes for unusual European innovativeness stretching back to the tenth century appears to be overstated. The windmill, for example, was Arabic. True, the Europeans in the Middle Ages invented all by themselves the fulling mill to thicken wool cloth, and perfected the mechanical clock (given special emphasis by White, but invented according to Needham in the eighth century C.E. in China, and not until 1310 by the Europeans, having heard of the Chinese machine), and invented eye glasses, and dubiously independently, if you insist on Euro-centrism worthy of the old Soviet regime, invented the blast furnace in Sweden—though long after the Chinese, and using, funnily enough, exactly the design of furnace

pioneered in China in the century before.⁵⁵ Good for the Europeans. But by now most students of technology agree that the Europeans had to learn from the Chinese or others, starting in the late first millennium, the stirrup, horse collar, printing, multiple-masted fore-and-aft rigging, and literally hundreds of other inventions large and small. China ruled. Peter Perdue explains that the expenses of overland transport on the Silk Road required precisely “a mysterious fabric whose production technology China monopolized for two thousand years,” namely, that silk, finally stolen by the wily Italians, along with noodles.⁵⁶ In the early seventeenth century, Needham writes, “Francis Bacon had selected three inventions, paper and printing, gunpowder, and the magnetic compass, which had done more, he thought, than any religious conviction, or any astrological influence, or any conqueror’s achievement, to transform completely the modern world. . . . All of them were Chinese.”⁵⁷

But Needham’s work shows something else, too, which he emphasized and puzzled over and which is most relevant to our story here. From the seventeenth century on the Europeans in a rising wave of creativity stole, copied, adopted, improved, extended, reverse-engineered, and above all applied what they had learned from the Chinese, and from anybody else they chanced to meet on their fanatical and profitable peregrinations—coffee from the Ethiopians via the Ottomans, tobacco from the Native Americans. Lady Mary Wortley Montagu (1689-1762) brought the Ottoman method of inoculation for smallpox back to England, using it with success on her own children.⁵⁸ Down to 1800, true, one can argue as Goldstone does that the Europeans were merely “catching up with the advanced civilizations of Asia, which already produced high-quality cotton, porcelain, and cast iron in vast quantities.”⁵⁹ But while catching up, the Europeans were coming to admire bourgeois virtues, such as a hopeful and courageous project of innovation . . . and innovation and innovation and innovation.

By contrast in the few centuries before 1800 the Chinese (and the Japanese and the Ottomans and the Mughals and Aztecs and Incas) became for various reasons fatally satisfied with their own panoplies. For the Ottomans, Metin Cosgel, Thomas Miceli, and Jared Rubin note the contrast between the nearly three-century delay after Gutenberg in allowing books to be printed in Arabic script, against the lightening fast adoption of gunpowder technology.⁶⁰ Sheer conservatism might well explain the hostility of the Qing regime at Beijing to innovation, but it evidently cannot explain the print-gun case at Istanbul. Cosgel, Miceli,

and Rubin show that gunpowder, if monopolized, strengthened the state, but the printing press was seen as a potential threat to the monopoly of religious authorities—and these provided the non-violent half of the state's support, by offering loyalty to its legitimacy. Needham had argued that the “relentless experimentation” that overcame Europe around 1700 was “like the merchant's standard of value.” Precisely. Merchants in Europe—not state bureaucrats—came to rule, at any rate in matters of port improvements and glass making and trade to the Indian Ocean. In speaking to Western visitors Chairman Mao is supposed to have summarized the conventional regret about the three Baconian inventions: “Our fathers were indeed wise. They invented printing, but not newspapers. They invented gunpowder, but used it only for fireworks. Finally, they invented the compass, but took care not to use it to discover America.” His formulation (if indeed he said it) contains more than a little Orientalism, and the details are not exactly true. But there's something in it.

Why the difference? One conventional argument is that the (often) unified Chinese state was bad for the bourgeoisie and their disruptive projects of innovation, at any rate by the eighteenth century. Owen Lattimore expressed the conventional explanation in 1940: “Europe changed in a way that led to a money economy [it did in fact not happen] and industrialism, while China changed in a way that created a centralized imperial bureaucracy, of which the personnel was recruited generation by generation from the landed gentry, whose combination of landed interest and administrative interest kept innovation well in check and prevented industrial development almost entirely. In Europe a varying landscape encouraged a number of different kinds of extensive farming and mixed farming. Even under feudalism there was a considerable need for trade.”⁶¹ Since then doubt has accumulated that such a picture is entirely correct, and it is certainly not correct to believe that Europeans were forward in the development of a “money economy.” After all, the Chinese had even paper money centuries earlier.

But again there's something in it. True, the Chinese invention of an educated bureaucracy beginning with the First Emperor (unifying China with fire and sword 221 B.C.E.) was preceded by imperial administrations in the ancient Near East, and reinvented by the Europeans as the imperial notion of Alexander's and Caesar's descendents in the Mediterranean, and then re-re-reinvented by the European nation state in the sixteenth and especially the seventeenth

centuries C.E. and later (the Prussians were to call their version of it the *Beamtentstaat*: the bureaucracy state). The point in any case was to subordinate everyone to the emperor/king by robbing a senatorial class or a feudal aristocracy of its separate power. Centralization on the scale of the whole of Europe had precursors in the bureaucracy of the Church, copied from that of the Roman Empire. Yet later and secular versions of the Europe-wide project could not be sustained—despite the earnest efforts of Charlemagne, Philip II, Louis XIV, Napoleon, and Hitler—at any rate until the peaceful conquests in our own times by the treaties of Rome and Maastricht.

The Chinese version, by contrast, was thorough and continuous—“a civil service unimaginable in extent and degree of organization to the petty kingdoms of Europe.”⁶²(Chinese economic history can therefore be investigated with a wealth of statistics unimaginable in Europe until its own bureaucratic and statistical era after 1800.⁶³) The Chinese bureaucracy, Needham argues, “in its early stages strongly helped science to grow,” albeit sometimes for such purposes as accurately casting the horoscopes of the emperor’s fourth son. But in its later stages, just as the Europeans learned to use such Chinese inventions as the belt drive, the suspension bridge, the spinning wheel, decimal fractions, the canal pound-lock, and sea mines, and indeed the examination bureaucracy itself, the bureaucracy “forcibly inhibit[ed] further growth, and in particular prevented a break-through which has occurred in Europe.” ***is this Needham?? The Hungarian-French sinologist Étienne Balazs found deeper historical roots: writing of “China as a permanently bureaucratic society,” he claimed that the sprouts of capitalism were crushed by the Confucian mandarins.⁶⁴ The historical sociologist Michael Lessnoff summarizes the supposed results of neo-Confucianism under the Qing: “the Chinese state, which earlier [say, from the First Emperor through the Sung] frequently sponsored technological innovation and economic enterprise, became the disseminator and enforcer of an anti-technological, antiscientific and anti-mercantile culture.”⁶⁵ European-style centralized states have done similar work in the twentieth century, forcibly if often democratically inhibiting growth in a protectionist New Zealand or a populist Argentina or an authoritarian North Korea.

What Lessnoff calls “the second Weber thesis” (the first and more famous being the erroneous one that Calvinism accounts for modern economic growth) is that “compared with their Islamic, Chinese, and Indian counterparts, European cities, not only in antiquity but in the

Middle Ages, enjoyed much greater independence.”⁶⁶ According to Weber, Lessnoff points out, “the concept and reality of citizenship were unique to the West. . . . The cities of China and Islam were amalgamations of clan and tribal groups, not unified communities.” This might well be true, and is amplified in fact by Balazs.⁶⁷ But we must again be wary of falling into the habit that Goldstone points out of starting with our detailed knowledge of our own West and contrasting it with a mythological picture of a Mysterious East. At its center, for example, the Roman Empire looked like the Eastern sultanate vivid in the Western imagination, Nero burning the city of Rome for seven days on a whim. But its bureaucracy and even its army was always small, and its cities governed themselves within the Empire. The city states of early Greece find answer in the free cities like Lübeck of the Holy Roman Empire, at any rate by the time in the European Middle Age it had become neither holy nor Roman nor an empire.

The dignity of cities in the West surely presages the Revaluation of the seventeenth and eighteenth centuries. It may have been new. Many Englishmen were taught by the astounding successes of the Dutch city states to turn away from the projects of honorable display characteristic of an aristocratic society. Joyce Appleby observed that “envy and wonder stimulated a great deal of economic thinking in England during the middle decades of the seventeenth century. . . . The sustained demonstration of . . . Dutch commercial prowess acted more forcefully upon the English imagination than any other economic development.”⁶⁸ Not all of the English abandoned aristocratic values: many Englishmen continued to charge nobly for the guns, or to stake their wealth on the turn of a card. By the eighteenth century, however, many of them, especially the bourgeois among them and a surprisingly large number of embourgeoisified noblemen and gentry, were launched on careers of generating a wave of gadgets that has not yet ceased sweeping over us (to use the unconsciously brilliant phrase of an English schoolboy on an exam paper in economic history long ago).⁶⁹ An original accumulation of habits of free publication and vigorous discussion created, as Mokyr argues in *The Gifts of Athena*(2002), “a world in which ‘useful’ knowledge was indeed *used* with an aggressiveness and a single-mindedness that no other society had experienced before. . . . It was the unique Western way.”⁷⁰ Well, perhaps not unique until the explosion of the nineteenth century – China in the second century B.C.E. looks pretty good at such using, as did fifth-century B.C.E. Greece, or first-century C.E. Rome. And

not so incidentally the criterion of “usefulness” is not intrinsic in the invention itself, but is economically determined by consumer valuations.²¹ Casting horoscopes about the coming battle will seem more “useful” in some systems of value than inventing another siege engine. But anyway the West kept going, and going, to all our gain.

We do not yet know for sure why the using of knowledge kept going in northwestern Europe, though many economic historians suspect that Europe’s political fragmentation, “the ancient clotted continent,” led to comparative liberty for enterprise.²² Yet against this the German lands, fragmented thoroughly up to 1871, were not until the nineteenth century places of much innovation in machinery (though very much so by the eighteenth century in music and philosophy). And India was at many times fragmented, with hundreds of rajas and languages, without a great deal of innovation coming out of it. And again, second-century B.C.E. China was unusually centralized but unusually inventive, too. Goldstone notes that being a part of a fragmented Europe sometimes helped and sometimes hurt.²³ Portugal, the very soul of entrepreneurial exploration in the fifteenth and sixteenth century, emerged from its union with Spain in 1640 without recapturing the spirit of “we must sail,” and became one of the least literate and least entrepreneurial of Western European nations.

Perhaps the fragmentation of Europe worked instead by way of a free press (remember Mao’s formula), acquainting more people with the new idea of applying new ideas. Such an argument would date the unusual creativity of European conversations properly, beginning small in the late fifteenth century and becoming cacophonous by the eighteenth century. On August 18, 1520 the press of Melchior Lotther at Wittenberg issued 4000 copies, as Luther put it, of a “broadside to [the Emperor] Charles and the nobility of Germany against the tyranny and baseness of the Roman curia,” *To the Christian Nobility of the German Nation*, and the next week the press was preparing over 4000 more of a longer version.²⁴ Perhaps had the Emperor Charles V or Pope Leo X been able to exercise the sort of control over the presses of Germany that Suleiman the Magnificent of the Ottomans or the Qianlong Emperor of China could, the outcome would have been different.

The improved rhetoric permitted by a free press was slow in coming. Until the late seventeenth century, indeed, the press was doubtfully free even in England. In 1579 Queen Elizabeth, outraged by a pamphlet written by the Puritan John Stubbs attacking her negotiations

for marriage into the French royal family, had his right hand struck off by a cleaver hammered home by a croquet mallet—after which he removed his hat with his left hand and shouted “God save the Queen!” But Cyndia Clegg has argued about this and other Elizabethan cases that the censorship was unsystematic—in the Stubbs case, for example, the law evoked was an arguably obsolete one referring to the former Queen Mary’s husband, not a claim to a routine right to censor all publications.⁷⁵ Stubbs, his publisher, and his printer were prosecuted for libel, not treason (had it been treason the punishment would not have been mere maiming but a slow death worthy of a Mel Gibson movie; Elizabeth in fact disingenuously claimed to seek a charge of treason in order to impress her French allies against the Spanish). Grave matters of national survival, Clegg argues, hung on the long dalliance of Elizabeth with the heir to the French throne. The time was, after all, before the defeat of the Armada. Censorship in China was much more thorough, such as in the eighteenth century executing a man and enslaving his family for printing the character for the Emperor’s name. Later censorships in Europe, such as the Index of Forbidden Books, were routinely undermined by publication in other jurisdictions, first Venice and then Holland, and smuggling. Remember the *Chatterley ban*, or *The Tropic of Cancer*.

Notes

47. Macfarlane 1978.

48. Goldstone 2003, Pomeranz 2000, Allen 2008.

49. Goldstone 2002; he names R. Bin Wong, Kenneth Pomeranz, Richard von Glahn, Wang Feng, Cameron Campbell, Dennis Flynn, Arturo Giraldez, James Z. Lee, Robert Marks, and himself (all at the time residents of the Golden State); and Andre Gunder Frank, Jack Goody, James Blaut, and Janet Abu-Lughod. To which I would add Robert Allen and Francesca Bray. I myself was a spectator at some early conferences on the matter, and declare now that besides joining tardily the Cambridge/Johns Hopkins School of intellectual history I am an adjunct member of the California School of world history.

50. Goody 1996.

51. Goldstone 2009, p. 19; compare p. 47.

52. Temple 1986 (2007).

53. Winchester 2008, pp. 267-277.

54. Temple 1986 (2007): paper, pp. 92-95, compass, pp. 162-166.

55. Needham himself makes the point about the blast furnace, in his introduction to Temple 1986 (2007), p. 10.
56. Perdue 2003, p. 491.
57. In Temple 1986 (2007), p. 10.
58. Jacob 2001, p. 23.
59. Goldstone 2009, p. 32.
60. Cosgel, Miceli, and Rubin 2009.
61. Lattimore 1940, p. 393.
62. Needham in Temple 1986 (2007), p. 10.
63. Rawski 1996 and Rawski and Li 1992.
64. Balazs 1964
65. Lessnoff 2003, p. 363
66. Lessnoff 2003, p. 362.
67. It is sharply criticized by Goody 2006, Chp. 8.
68. Appleby 1978, p. 73.
69. Ashton 1948, p. 59.
70. Mokyr 2002, p. 297.
71. A point made to me by Pete Boettke of George Mason University.
72. O'Neill 2009, p. 46. On the history see for instance Baechler 1971; McNeill 1982; Jones 1988; Tilly 1990; Macfarlane 2000, p. 274-275.
73. Goldstone 2009, p. 45.
74. Lehmann 1970, p. 4.
75. Clegg 1997, Chp. 6.

Chapter 10: And Followers Could Leap Over Stages

At any event the results of the compounding of ancient Chinese (and Arab and Ottoman and Inca and African) inventions with modern European creativity lie around you right now—computers, electric lights, electric machinery, precision tooling, plastic printers, plastic fabrics, telephones, pressed wood, plywood, plaster-board, plate glass, steel framing, reinforced concrete, automobiles, machine-woven carpets, central heating and cooling, all invented in the nineteenth and twentieth centuries in a Europe that practiced science and innovation with a lunatic enthusiasm, and had no emperor to gainsay the practice. Therefore the old stage theories dating from the eighteenth century, which use an analogy with the growth of trees, are inapt. Smith, Marx, the German Historical School, Modernization Theory, the American economic historian Walt Whitman Rostow were all off the mark.⁷⁶ Countries do not resemble trees in growing strictly on their own, from the leaf, the blossom, or the bole.

And likewise, for the same reasons, the tree-like and stage-dependent metaphors that characterizes modern “growth theory” in technical economics are misleading. No stages must be grown through of acorn, sapling, young tree, old oak. The younger “trees” can skip stages by borrowing leaves or whole branches directly from the older trees—just as the West borrowed from China, and now China is borrowing from the West. At the meetings of the International Economic History Association in September 1994 I asked a Uruguayan economic historian much infected by the new growth theory how long he thought it would take his country to catch up to the North. “Two centuries,” he replied. A theory, it seems, can drive sober scholars insane. It is contradicted by the historical evidence, from Germany in the nineteenth century to Taiwan in the twentieth, that a country that honors and liberates its bourgeoisie can achieve modern standards of living in a couple of generations.

The other popular and anti-economic metaphor is of a footrace, in which, naturally, countries that start later must take longer to catch up. Thus Gustav Schmoller of the German Historical School in 1884 justifying mercantilist regulations protecting the silk industry in Prussia:

Berlin in 1780-1806 stood *almost on a level* with all the other places where the silk industry was carried on. It was mainly through the silk industry that Berlin became an important factory town, and the town whose inhabitants were

distinguished by the best taste in Germany. Of course people in Berlin could not yet produce quite so cheaply as the manufactures of Lyons *which were three centuries older*; in many of the finer wares they *were behind* Krefeld, Switzerland and Holland; but they *had caught up with* Hamburg and Saxony. ^z

But earlier and later starts for the footrace do not matter in a world in which people can listen to each other, and learn. They can cut across the race track, or take a taxi to the head of the marathon.

For the same reason the recent theories popular in schools of business of “competitiveness” are not persuasive. Michael E. Porter’s book in 1990 *The Competitive Advantage of Nations* was largely ignored by economists, but created a stir among business-school academics. It speaks in baseball terms of competitiveness as depending on success in four corners of a “diamond” originating from a “home base.” The long distances in the great free-trade area of United States, for example, gave it a competitive advantage in the making of very large engines for motor trucks. Howard Davies and Paul Ellis, though, put their finger on the central confusion underlying Porter’s book—it confuses “‘competitiveness’ construed as productivity and ‘competitiveness’ construed as the market share held by a sub-set of industries.”⁷⁸ Being productive, producing a great deal with few inputs, is a good idea. No one would dispute that. It is called Getting Rich By Being Smart. But getting a large market share has little to do with Getting Rich, or Being Smart. Market share is determined by what economists since David Ricardo have called *comparative* advantage, not by absolute advantage. That India has a comparative advantage in outsourced computer advice, and a large market share, does not make India richer than the United States, which itself has in fact an *absolute* advantage in computer advice—merely better uses for its graduate engineers than answering hysterical calls from elderly lady professors of economics in Chicago about the wretched Microsoft product she has been condemned to use.

The best that human frailty is likely to achieve in confusing comparative and absolute advantage is an old book of 1985 by Lester C. Thurow, an economist and then-dean of the business school at MIT. *The Zero-Sum Solution: Building a World-Class American Economy* treats income as being extracted like success in a footrace or American-football yardage from non-Americans, especially from Asian non-Americans (it is 1985 and the anti-Japanese panic is at its height). “To play a competitive game is not to be a winner,” Thurow declares. “Free-market battles can be lost as well as won.”⁷⁹

Thurow is off the mark. If the “competitive” game is free exchange and innovation, then almost everyone who plays the game wins, if not as a producer, then as a consumer.⁸⁰ Modern economic growth has *not* been “zero sum,” a point on which as I have said most economic historians of whatever politics agree. In the trade-and-imitate game the people in different countries exchange goods and services. Superior technologies in one place are soon enough adopted in another. It is not easy, but it happened massively 1800 to the present. In the long run it doesn’t matter that Davy, Swan, Edison, Latimer, Whitney, and Coolidge co-invented the incandescent light bulb in England and the United States. It burned brightly, and promptly, in Naples and Beijing. If you insist on looking at exchange and innovation as games, then they are games in which almost everybody wins, like square dancing. The “beaten” countries in the “competitive” game such as Britain end up richer than some of the “winners.” True, looked at from the factory floor a market with competing suppliers in Japan—or for that matter in California—is zero sum, which gives Thurow’s assertions an air of plain common sense. You can hear recent versions of the same xenophobic common sense from Lou Dobbs nightly on CNN. The game metaphor looks at one side of the economy, the producing side. Mercantilists of all ages have favored it. But as Adam Smith said, “Consumption is the sole end and purpose of all production [and therefore it is the end and purpose of all exports]; and the interest of the producer ought to be attended to only so far as it may be necessary for promoting that of the consumer.”⁸¹ We do not live to work, or to export. We work, or export, to live.

The metaphor of the zero-sum footrace in the theories of Defoe or List or Schmoller or Thurow or Porter or Dobbs or your local politician gets some of its appeal from a wider tragedy in which it plays, namely, the tragedy that eventually the rest of the world caught on to what northwestern Europe and its offshoots had stumbled into during the eighteenth and nineteenth centuries. Britain was first, and what happened in Britain has therefore been of interest. A Britain tragically surpassed in the footrace of nations tells a story easy to lament. The historian David Landes, for example, has long interpreted modern history as a footrace between Britain and the rest, in for example his classic work of 1965, reprinted and extended as a book in 1969, containing a conference paper of 1954, *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present*. His metaphor of “leadership” in a race pervades his

rhetoric, as in his chapter headings—“Closing the Gap,” “Short Breath and Second Wind”—and “Some Reasons Why,” taken from a poem about a cavalry charge. He asks in the middle third of the book, “Why did industrial *leadership* pass in the closing decades of the nineteenth century from Britain to Germany?”⁸² He answers that the British racers in the lead slacked off, and were beaten. “Thus the Britain of the late nineteenth century basked complacently in the sunset of economic hegemony. . . . Now it was the turn of the third generation, the children of affluence [‘affluence’? British real national income per head in 1880 was about \$3500 in 1990 prices, equal in real terms to that of Sri Lanka in 2001], tired of the tedium of trade and flushed with the bucolic aspirations of the country gentleman. . . . They worked at play and played at work.”⁸³

The evidence for such Victorian economic failure is slight. And in truth it would be strange if a Britain “beating” the world in the 1850s suddenly by the 1870s could do little right. The facts show that nothing so strange occurred.⁸⁴ Similar facts undermine the current fable in which the United States is cast in the role of the leader suddenly unable to finish the race. But what is more important here is that the entire business of thinking of ranks and league tables and races and football yardage in which nations are “beaten” or “decline” or “lose” tells the story the wrong way. The prize for merely second place was not poverty, or even loss of political hegemony. “Beaten” Britain is still the fifth-largest economy in the world, the second-largest source of direct foreign investment, a permanent member of the United Nations Security Council, and London is the second-largest financial center in the world. Before the British, the leading cases of “failure” were the Dutch of the eighteenth and nineteenth centuries. With what result? Disaster? Poverty? True, the Netherlands has ended small and militarily weak, a tiny linguistic island in a corner of Europe. Yet by any historical or international standard it remains fabulously wealthy (at \$38,000 per year per head in 2006), and indeed is still among the most influential investors in the world. Relative “decline” is no decline at all. As his children grow up, a father does not lament that his share in the poundage of the house declines. And on the other side of the league tables, after all, a relatively primitive Russia in modern times literally beat Napoleon, and then for an encore, though still relatively primitive, literally beat Hitler.

The foot-race metaphor mixes up political dominance with economic prosperity. The fevered essays in most issues of *Foreign Affairs* that predict the “rise” of China, say, or the “decline” of the United States freely mix the two. The rise and decline of nations, to borrow the book title by the economist the late Mancur Olson (1981), or the rise and fall of the great powers, to borrow the title by the historian Paul Kennedy (1987), suggests that coming in first matters vitally, in the style of Teddy Roosevelt’s “strenuous life.” It doesn’t. Kennedy is the most explicit, but the assumption that military strength explains why Westerners have a lot of cargo pops up all over.⁸⁵ It is nonsense, even from wise heads. The brilliant ornithologist and world historian Jared Diamond, for example, wrote in 1997 that “technological and political differences as of A.D. 1500 were the immediate cause of the modern world’s inequalities.”⁸⁶ Why? Because “empires with steel weapons were able to conquer.” But does military conquest make the conqueror rich? True, it makes him richer than his victims dead from smallpox and steel swords. But it does nothing to explain the gigantic enrichment 1800 to the present of the West and the North, and now the East and the South. Being Top Nation militarily is caused by being rich. It does not on the whole cause the riches. Killing aborigines or bossing around impoverished traditional peoples is not the way to get plate glass, political freedom, long retirement, stereo sets, magnesium ladders, the forty-hour week, and the higher education for serious spiritual growth.

* * * *

As the inventive panoply multiplies it becomes easier and easier to take advantage of it, and to adapt the panoply to one’s own purposes, good or bad. The metaphors of a tree’s growth or a football game or a foot race should give way to one of an exchange of ideas—though even the mutual advantage of a mere “exchange” of ideas is itself not quite apt. Tunzelmann has wisely remarked that technology “cannot be reduced to information, such as often found in economist’s treatments. . . [It] has to be learned . . . through processes only partially understood.”⁸⁷ These are what the chemist and philosopher Michael Polanyi called “tacit knowledge.”⁸⁸ Tunzelmann gives Polanyi’s example of learning to ride a bicycle: “no amount of printed instruction on how to ride will enable most people to hop on a bicycle for the first time and confidently pedal off.” Another economic historian, the late John R. Harris, showed in detail that transfers of furnaces technology for making iron and glass between so similar nations as Britain and France 1710 to 1800 depended

on tacit knowledge difficult to convey.⁸⁹ It is a point that the sociologist of science Harry Collins has made about experiments. The tacit practices of one laboratory are difficult to reproduce, especially at the frontier of science where things are necessarily difficult.⁹⁰ Likewise here. And therefore the merely economic metaphor of a smooth “exchange of ideas” does not tell the whole story.

Anyway, England in the eighteenth century could not possibly have experienced the present-day Chinese growth rate of real income per head of 10 percent per year, even in its greatest booms – the Chinese of course depend on inventive ideas developed earlier in the West, such as earth-moving equipment and computers. The doubling of income per head in a mere seven years that such a rate implies could not happen before very recent times, with gigantic piles of the already-invented ideas such as the light bulb waiting to be adopted, if one will but let people use them for their profit and cease from sneering at and stealing from and executing those who do. Remember Edgerton and “the shock of the old.” Invent as you will paper or cast iron slowly over many centuries, it will not be enough for the breakthrough. What’s needed, wrote Madame Chen Zhili, State Councilor of China for Education, Science, Technology, and Culture in a touching preface to Temple’s popularization of Needham in 2007, is “innovation [which] is the spirit of a nation and the endless momentum for a nation’s prosperity.”⁹¹ The innovation in China did not depend on China reaching the correct stage of growth, but on Madame Chen Zhili and her colleagues in the Central Committee finally allowing local mayors and businesspeople to try out experiments in non-communist economics, such as not shooting manufacturers or re-educating land speculators. Neighboring Burma and North Korea show what happens if you carry on with socialist or militarist policies to the contrary.

China and India, in other words, can take off the shelf the inventions laboriously developed by the Watts and the Edisons of the past three centuries – and by the Chinese and Indian inventors of earlier centuries, together with the Inca potato-breeders and the brass-casters of Benin, all of whose inventions had been taken up eagerly by the curious Westerners. Indians invented fine cotton cloth, which then became the staple of Manchester, but latterly in its mechanized form became the staple of Mumbai. The Chinese invent cast iron, which then became the staple of Swedish Uppland and English Cleveland and American Gary, but latterly with some additional chemical engineering the staple of the

Kamaishi Works in Japan and now the Anshan works in China. And so Sweden in the late nineteenth century and then Japan in the early and middle twentieth century and China in the early twenty-first century caught up astonishingly quickly.⁹²

A poor country that adopts thorough-going innovation, therefore, can catch up to the West in about two generations. It has happened repeatedly. Consider such miracles of leaping over putatively inevitable stages as Taiwan or Hong Kong or Singapore. Perhaps we should stop being gobsmacked every time it happens. Give people liberty to work and invest, and treat them with dignity, and you get fast catching up. Goldstone puts it this way: “What Japan’s success does demonstrate is something that has been shown in Korea and Taiwan as well—that a unified people under firm government direction determined to import and implement Western industrial technology can do so in about four decades. This is about the time it has taken to transform South Korea from an African level of agricultural poverty to one of the world’s leading industrial economies; similarly for Taiwan. Both have risen to this level from minimal beginnings after the Korean War of the 1950s and the Chinese Civil Wars of the 1940s.”⁹³

Richard Easterlin would agree with the speed implied by the metaphor of “taking technology off the shelf.” He wrote in 2003 that “Since the early 1950s, the material living level of the average person in today’s less-developed countries. . . , which collectively account for four-fifths of the world’s population, has multiplied by threefold,” much faster than presently rich countries grew in the nineteenth century.⁹⁴ It has led to Paul Collier’s Top 5½ Billion. Similarly rapid has been the rise in life expectancy and the fall in fertility and the rise of literacy: on all counts it is “a much more rapid rate of advance . . . than took place in the developed countries in the past.”

In other words, what does not need much scientific inquiry is how the Indians and Chinese, having been denied innovation for decades by imperial edict and warlord destruction and socialist central plan and lack of widespread education (the last is Easterlin’s argument), can get rich quickly by gaining peaceful access to well-stocked shelves of inventions, from the steam engine to the forward contract to the business meeting.⁹⁵ Routine economics says that after decades of disastrous economic luck the misallocations and spurned opportunities will be so great that considerable fortunes can be made pretty easily, and the average income of poor people can be raised pretty easily, too. Economists say, “People

will pick up \$500 bills on the sidewalk” – unless, indeed, you jail people who specialize in picking up the bills, as once in Albania and still in Cuba. If Brazil and South Africa can be persuaded to adopt the liberal economic principles that are enriching China and India (and that enriched Britain and Italy more slowly and therefore less obviously), there is no reason why in forty years the grandchildren of presently poor Brazilians and South Africans cannot enjoy Western European standards of living. That’s not ideological prejudice, some wild neo-con fantasy in support of American imperial power. It’s a soberly obvious historico-experimental fact, which has already curbed American power. On the other hand, if Brazil and South Africa persist in unhelpful economic policies (such as South-African labor laws based on German models and supported by leftist ideologues and trade unionists eager to give the really poor corrupting handouts to keep them away from the job market), they can retain a gigantic underclass and an inferior position relative to the United States, just as long as they find that attractive.

So the modern spread of economic growth is no great puzzle. It is worth scientific inquiry, of course, but has the character of normal science, or normal investment. Permit people to take technologies off the shelves and adapt them to Brazilian or South African circumstances for personal profit, and the local bourgeoisie will do well for the nation, too. The Bourgeois Deal is “Let me get very rich by buying innovations low and selling them high (and please refrain from stealing from me, or from anyone else), and I’ll make *you* pretty rich, too.” The bigger scientific puzzle is how the shelves, or the sidewalks, got so well stocked in the first place.

Notes

76. Readers of a certain age will pause at the name Rostow. Yes, he was the same man who advised President Johnson to carry on fighting in Vietnam. In part for that reason, after the late 1960s Rostow, who in the 1940s and 1950s had been a Nobel-worthy pioneer in applying economics to economic history, became persona non grata in economic history.

77. Schmoller 1884 (1897), italics supplied.

78. Davies and Ellis 2000, p. 25 of internet version.

79. Thurow, p. 59.

80. Compare Krugman 1996 attacking Thurow and James Fallows on just these grounds, for what he calls "pop internationalism."
81. Smith 1776, IV.viii.49, p. 179. I will give citations to Smith in book-chapter-paragraph form because of the numerous editions with varying pagination, but page citations are to the Glasgow edition.
82. Landes 1969, p. 326, *ita*

Part V. Saving, Investment, Greed, and Original Accumulation Do Not Explain Growth

Abstract

Thrift was not the cause of the Industrial Revolution or its astonishing follow on. For one thing, every human society must practice thrift, and pre-industrial Europe, with its low yield-seed ratios, did so on a big scale. British thrift during the Industrial Revolution, for another, was rather below the European average. And for still another, savings is elastically supplied, by credit expansion for example (as Schumpeter observed). Attributing growth to investment, therefore, resembles attributing Shakespeare's plays to the Roman alphabet: "necessary" in a reduced sense, but in fact an assumed background, not the cause in any useful sense. Certainly Europeans did not develop unusual greed, and the Catholics – in a society of bourgeois dignity and liberty – did as well as the Protestants (in Amsterdam, for example). Ben Franklin, for example, was not (as D. H. Lawrence portrayed him in a humorless reading of this most humorous man) "dry and utilitarian." If capitalism accumulates "endlessly," as many say, one wonder why Franklin give up accumulating at age 42. The evidence also does not support Marx's notion of an "original accumulation of capital." Saving and investment must be used when they are made, or they depreciate. They cannot accumulate from an age of piracy to an age of industry. Yet modern growth theory, unhappily, reinstates as initiating the theory of stages and, especially, capital accumulation. They are not initiating, whether in physical or human capital. Innovation 1700-2010 pushed the marginal product of all capitals steadily out, and the physical and human capital followed.

Chapter 11: It Didn't Happen Because of Thrift

How, then? How and why did the first Industrial Revolution happen, with its astonishing follow-on in the nineteenth and twentieth centuries? In this book we specialize in widely believed explanations that don't work very well. One widely believed explanation is thrift.

The word "thrift" in English is still used as late as John Bunyan to mean simply "wealth" or "profit," deriving from the verb "thrive" as "gift" from "give" and "drift" from "drive" (the derivation was still vibrant in 1785 to a scholarly poet like William Cowper, who laments the working poor in *The Task* [17 ; Book IV], "With all this thrift they thrive not"). But its sense 3 in the *Oxford English Dictionary* is our modern one, dating significantly from the sixteenth century: "so I will if none of my sons be thrifty" (1526); "food is never found to be so pleasant . . . as when . . . thrift has pinched afore" (1553).

The modern "thrift," sense 3, can be viewed as a mix of the cardinal virtues of temperance and of prudence in things economic. Temperance is the cardinal virtue of self-command facing temptation. Lead me not into temptation. Prudence, by contrast, is the cardinal virtue of practical wisdom. Give us this day [a way to make prudently and laboriously for ourselves] our daily bread. It is reason, know-how, *savoir faire*, rationality, getting allocation right. Prudence lacking temperance does not in fact do what it knows it should thriftily do. Temperance lacking prudence, on the other hand, does not know in practice what to do. A prudent housewife in the "Ladder to Thrift," as the English agricultural rhymester Thomas Tusser put it in 1580, "makes provision skillfully." Without being full of skill, that is, prudent, she does not know how to be thrifty in saving tallow for candles or laying up salt mutton for Eastertide.

Prudent temperance has in a sense no history, because it happens by necessity in every human society. The Hebrew bible, for example, speaks of thrift, though not very often, usually associating it with diligence: "The sluggard will not plough in the autumn by reason of the cold; therefore shall he beg in [the] harvest, and have nothing"; "Seest thou a man diligent in his business? He shall stand before kings" (Proverbs 20:4; 22:29). Jesus of Nazareth and his tradition used parables of thrift to point to another world, though again the parables of thrift are

balanced by parables of liberality, such as changing water into wine to keep the party going. “Eat and drink,” advises the Koran, “but do not be wasteful, for God does not like the prodigals” (7:31). In the Koran, as in the Jewish and Christians books, thrift is not a major theme.

Of course other faiths than the Abrahamic admire on occasion a prudent thrift. The Four Noble Truths of Buddhism, to be sure, recommend that life’s sorrow can be dissolved by the ending of desire, in which case advice to be thrifty would be somewhat lacking in point. Be “thrifty” with your modest daily bread in your monk’s cell? Buddhism is similar in this respect to Greek and Roman stoicism, which advocated devaluing this world’s lot, an inspiration early and late to Christian saints of thriftiness. But Buddhism allows for prudent busy-ness, too. The “Admonition to Singâla” is in the Buddhist canon “the longest single passage . . . devoted to lay morality.”² Buddha promises the businessman that he will “make money like a bee” if he is wise and moral:

Such a man makes his pile
As an anthill, gradually.

And then it counsels an astounding abstemiousness far beyond that contemplated even in Max Weber’s worldly asceticism:

He should divide
His money in four parts;
On one part he should live,
With two expand his trade,
And the fourth he should save
Against a rainy day.

The rate of savings recommended is fully 75 percent—though with no allowance for charity, which made Buddhist commentators on the text uneasy.

In England the thirteenth-century writers of advice books to Norman-English landowners start with a little bit on thrift and then go on to the prudent details of managing an agricultural estate. The third paragraph of *The Husbandry* by Walter of Henley, after a bow in the second paragraph to the sufferings of Jesus, prays “that according to what your lands be worth yearly . . . you order your life, and no higher at all.”³ And then in the same vein for five more paragraphs. The anonymous *Seneschaucy*, written like *Walter* in Norman French in the late thirteenth century, instructs the lord’s chief steward “to see that there is no extravagance. . . on any manor . . . and to reduce all unnecessary expenditure. . . which shows no profit. . . . About this it is said: foolish

spending brings no gain.”⁴ The passage deprecates “the practices without prudence or reason” (*lez maners saunz prudence*). So much for a rise of prudence, reason, rationality, Calvinist asceticism, and thrift three or four centuries later. From the camps of the !Kung to the lofts of Chicago, humans need to live within their incomes, being by their own lights “thrifty.”

The prehistory of thrift, in other words, extends back to the Garden of Eden. It is laid down for example in our genes. A proto-man who could not gain weight thriftily in feast times would suffer in famine and leave fewer children, and therefore his descendent in a prosperous modern society needs irritatingly to watch his weight. Prudent temperance does not require a stoic or monkish or Singâla abstemiousness. A ploughman burning 3000 calories a day had better get them somehow. One should be thrifty in eating, says Tusser, but not to the point of denying our prudent human solidarity:

Each day to be feasted – what husbandry worse!
Each day for to feast is as ill for the purse.
Yet measurely feasting with neighbors among
Shall make thee beloved, and live the more long.”⁵

And so too actual luxury, the opposite of thrift. “Depend on it, sir,” said Samuel Johnson in 1778, “every state of society is as luxurious as it can be. Men always take the best they can get,” in lace or food or education.”⁶ Marx noted cannily that “when a certain stage of development has been reached, a conventional degree of prodigality, which is also an exhibition of wealth, and consequently a source of credit, becomes a business necessity. . . . Luxury enters into capital’s expenses of representation.”⁷ It sounds plausible enough. Otherwise it would be hard to explain the high quality of lace on the collars of black-clad Dutch merchants in paintings of the seventeenth century, or indeed the Dutch market for the paintings in their hundreds of thousands that reflected back in oily richness the merchants and their world.

The average English and American-English person from the sixteenth through the eighteenth century, then, surely practiced thrift. But this did not distinguish her from the average English or American-English person before or after, or for that matter from the average person anywhere on Earth since the Fall. “‘My other piece of advice, Copperfield,’ said Mr. Micawber, ‘you know. Annual income twenty pounds, annual expenditure nineteen nineteen and six, result happiness. Annual income twenty pounds, annual expenditure twenty pounds

ought and six, result misery.' . . . To make his example the more impressive, Mr. Micawber drank a glass of punch with an air of great enjoyment and satisfaction, and whistled the College Hornpipe. I did not fail to assure him that I would store these precepts in my mind, though indeed I had no need to do so, for, at the time, they affected me visibly."⁸

Thrift in the sense of spending exactly what one earns is indeed forced by accounting. Not having manna from heaven or an outside Santa Claus, the world must get along on what it gets. The getting and spending must happen if the free gifts of nature such as sunlight are to be of any use. If we do not at least hunt or gather, we do not eat. The world's income from the effort must equal to the last sixpence the world's expenditure, "expenditure" understood to include investment goods. So too Mr. Micawber. If he spends more than he earns he must depend on something turning up, such as a loan or a gift or an inheritance. He draws down his credit. In the meantime his transfers from his diminishing balance sheet – what he owns and owes – pays to the last sixpence for his glass of punch and his house rent.

Thrift in the sense of spending less than one earns and thereby accumulating investments is again a matter of accounting. You must allocate everything you earn somehow, to bread or bonds or house-building. If you can resist consuming soft drinks and other immediate consumption goods, "abstaining from consumption" in the economist's useful way of putting it, you necessarily save. That is, you add to your bank account or to your investment in education or in battleships. But of course you can allocate foolishly or well, to bombs or to college educations, to glasses of punch or to a savings account.

There is nothing modern about such accounting. It comes with life and the first law of thermodynamics, in the Kalahari or in Kansas City. In particular the pre-industrial European world contrasted with modern times needed urgently to abstain from consumption, "consumption" understood as immediate expenditures that are not investments in some future. Yields of rye or barley or wheat per unit of seed planted in medieval and early modern agriculture were extremely low: only 3 or 4 – they are 50 or so now for wheat, and 800 for maize. (In monsoon Asia the flooding rains allow the cultivation of rice, which has always had a high yield-seed ratio, with the additional benefit that the annual and sometimes biannual flooding fertilized and weeded the fields, without plowing. Rice was introduced by the Muslims into Spain and Sicily, and it spread by the fourteenth century into, say, the Po Valley in northern

Italy. But it was not raised in the flooding way of the East, and of course it was never grown in northern Europe.”⁹) The low yields forced Europeans in the good old days if they did not want to starve next year to refrain from a great deal of consumption this year. That is, one quarter to one third of the grain crop had to go back into the ground as seed in the fall or the spring, its fruit to be harvested the next September. It had better. In an economy in which the grain crop was perhaps half of total income, that portion alone of medieval saving implied an aggregate saving rate of upwards of $\frac{1}{2}$ times $\frac{1}{4}$, or 12 percent. The rate of saving in modern industrial economies is seldom above 10 or 20 percent. No wonder there was little savings available for trying out innovations, and the less so because the crops were variable. Medieval life was precarious, and innovation correspondingly dangerous.

The trade in grain was restricted to the parts of Europe served by rivers and seas, since overland cartage was enormously expensive when roads were mere tracks through mud – and even water transport was usually expensive as a share of the price. The price of wheat in Valencia, Spain in 1450 was 6.7 times the price in Lwow, Poland (by 1750 it had fallen to a few percentage points of difference).¹⁰ Therefore local grain storage for local consumption was also high by modern standards. In recent times if the grain crop does poorly in America the market easily supplies the deficiency from the other side of the world. In the late Middle Ages some grain did flow from the Midlands to London or from Burgundy to Paris. But it began to flow to Western Europe in large amounts from as far away as Poland only gradually in the sixteenth and seventeenth century, by the efforts of thrifty Dutch merchants and shipbuilders. Only in the nineteenth century did it come from as distant a clime as Ukraine or, later, North and South America, or finally Australia. Until the eighteenth century therefore the grain crops in the narrow market tended to fail together. The potato famine of the 1840s was the last big replay in Europe of a sort of undiversified catastrophe commonplace there in the 1540s and more so in the 1340s. Grain storage, in other words, amounted to another desperate form of saving, crowding out more modern forms of investment.¹¹ In such circumstances you stored grain in gigantic percentages of current income, or next year you died (in West Germanic languages except English, and in English itself until modern English, the word cognate with “starve” [for example, German *sterben*] is the main word for “die”).

Such desperate scarcities were broken in the New World of British Americans, who ate better than their Old – World cousins within a generation of the first settlements. It was not a remarkable achievement, considering that the rivers were full of fish and the woods full of game, and that their English cousins were then passing through the worst times for the workingman since the early fourteenth century.”¹² Plentiful land in Massachusetts or Pennsylvania, at any rate on the literal frontier, made it unnecessary to save so much in grain, and freed the forced thrift for other investments.

But notice: although the North American English became even in the late seventeenth century pretty well off by the poor British standards, and therefore freed from using up its savings protecting next year’s grain crop or grain store (which anyway was in good part Indian corn with a high ratio of yield to seed), British North America was by no means the home of the Industrial Revolution. It was too small, too tempted by agriculture, too far away from a mass of consumers, or for that matter too restricted by British mercantilism. The northeast of the United States, like southern Belgium and northern France, was to become a close follower, of course, in the 1790s and 1800s. “Yankee ingenuity” is not a myth, as the quick industrialization of New England was to show. The North American colonies did indeed contain many ingenious inventors willing to get their hands dirty. Even the slave areas were not inventive deserts by any means: look at Jefferson’s ingenuity, and the improvement of cotton varieties. But the leaders of industrialization, from the 1760s, were northwest England and lowland Scotland. These were lands of grindingly necessary thrift. Yields of agriculture were still low – the real “agricultural revolution” came finally in the nineteenth century with guano, selective breeding, steel plows, cheap water transport, reaping machines, commodity exchanges, and clay-pipe drainage, not as used to be thought in the eighteenth. In short, the homeland of the Industrial Revolution was not a place of excess savings waiting to be redirected to factories.

The point is that there is no aggregate increase in thrifty savings to explain the modern world. Thrifty saving is not peculiar to the Age of Innovation. There was no rise of thrift or prudence or greed in the childhood of modernity. Actual saving was high before modern times, and did not change much with modern innovation. We were thrifty long before we were mainly urban, and long, long before we came to celebrate

bourgeois dignity and bourgeois liberty and the creative destruction they wrought.

Looking at thrift in a cheerful way, the starting point used to be said to be (according to Max Weber in 1905, for example) a rise of thriftiness among Dutch or especially English Puritans. Marx characterized such classical economic tales, from which Weber later took his inspiration, as praise for “that queer saint, that knight of the woeful countenance, the capitalist ‘abstainer’.”¹³ We can join him for a moment in disbelieving the optimistic tale-noting further, and contrary to his own pessimistic version of the same tale, that abstention is universal. Saving rates in Catholic Italy or for that matter Confucian China were not much lower, if lower at all, than in Calvinist Massachusetts or Lutheran Germany. According to recent calculations by economic historians, in fact, British investment in physical capital as a share of national income was strikingly *below* the European norm – only 4% in 1700, as against a norm of 11%, 6% as against 12% in 1760, and 8% against over 12% in 1800.”¹⁴ Britain’s investment, though rising before and then during the Industrial Revolution, showed less, not more, abstemiousness than in the less advanced countries around it.

The evidence suggests, in other words, that saving depends on investment, not the other way round. You should by all means innovate, with a modest stake borrowed from your brother, and then earn the additional savings to reinvest in your expanding business. When in the nineteenth century the rest of Europe started to follow Britain into industrialization, its savings rates rose, too. The rest of Europe’s markedly higher rates during the eighteenth century did not cause it then to awaken from its medieval slumbers. Saving was not the constraint. As the great medieval economic historian, M. M. Postan, put it, the constraint was not “the poor potential for saving” but the “extremely limited” character in pre-nineteenth-century Europe of “opportunities for productive investment.”¹⁵

And innovation, not the sheer piling of productive investments, dominates economic growth. The late Charles Feinstein, who pioneered the estimation of the national accounts of Britain back into the mid-nineteenth century and before, disagreed. He argued that “in the earlier stages of economic development, increases in the stock of physical capital accounted for a large part of the rise in output per man hour; workers were able to produce more because they had more capital to work with.”¹⁶ Yet such capital-induced rises in output per man hour were

limited. Doubling the number of horses that a plowman works with does indeed raise wheat output per man hour some – though much less than a doubling (it will raise it by 100 percent [from the doubling of the horses] multiplied by the share of horses in the cost of producing wheat, 5 percent perhaps).¹⁷ Multiplying the traditional equipment in scythes and open drains and barns *without innovating* does not come close to yielding a factor of sixteen. Innovating in clay-pipe under-drainage and plant breeding and forward markets and mechanical reapers and experimental stations and diesel tractors and rail car delivery systems and hybrid corn and farm cooperatives and chemical herbicides does. Feinstein knew all this, of course. He was a great and learned economic historian. He observed that “more recently [than ‘the earlier stages of economic development’] . . . advances in the quality of equipment have become progressively more important.” But he could not let go of what William Easterly (2001) has called “capital fundamentalism.” Innovation “must be embodied in physical equipment,” Feinstein declared, thus retaining investment in the leading role. (His assertion is true for reaping machines and diesel tractors; but it is largely false for organizational innovations such as selective breeding.) The embodiment “made investment and saving . . . crucial to economic growth.” The assertion is true in an accounting sense – no investment, no reaping machine. But it is false in an economic sense. Attributing the Age of Innovation to piling up of capital is like attributing Shakespeare to the English language or to the Roman alphabet. Yes, he needed the language and even the alphabet. Granted. But is “crucial” the right concept of causation to use?

The supply of saving to one region such as Lancashire or one country such as Britain – even economically dominant Britain around 1840 – came at a fixed rate of interest, 4 or 6 percent. The demand for saving was the usefulness of a loan to build a barn or a machine, a usefulness that economists call the “marginal product of capital.” Piling brick on brick, or even machine on machine, led to rapidly diminishing returns. Think of a bricklayer oversupplied with bricks, or a 100-acre farm with six tractors. During the 1930s and early 1940s the prospect of diminishing returns deeply alarmed such economists such as the American Keynesian at Minnesota and Harvard, Alvin Hansen.¹⁸ They believed that the technology of electricity and the automobile was exhausted and that sharply diminishing returns to capital were at hand, especially in view of declining birthrates. People would save more than could be profitably invested, the economists believed, and the economy

would stagnate. In line with the usual if doubtful claim that spending on the War had saved the world's economy, they believed that 1946 would see a renewal of the Great Depression. But it didn't. Stagnationism proved false.¹⁹ Instead, world income per head grew faster from 1950 to 1974 than at any time in history, and the liberal countries boomed.

That is, innovation prevented the return to capital from declining. Improved washing machines and better machine tools and innovative construction techniques and a thousand other fruits of resourcefulness made people richer, and incidentally kept investment profitable. In terms an economist will understand, the demand curve for capital moved steadily rightward, and has been doing so since the eighteenth century. Tunzelmann argues that in some cases technological change works mainly through increasing the capital employed, not only by raising productivities.²⁰ (To continue with an audience of economists for a moment, the area under the marginal product of capital is of course national income as a whole. You can devise models in which saving out of the rising national income becomes innovation, which raises income, which raise innovation, in a virtuous spiral. But then you have to explain why such a mechanism only applies to the past two or three centuries. You are back to having to explain the Age of Innovation by something unique to the Age of Innovation. It can't be wholly endogenous.²¹) Human resourcefulness that was rare before 1700 and increasingly common afterwards made us rich. Like Shakespeare's alphabet, the saving and investment required to express the innovations were rather easily supplied.

The ease shows in Feinstein's own splendid table of investment as a share of gross national incomes of a dozen countries, 1770-1969.²² The claim is that investment was "crucial" for innovation. From 1770 to 1839 Britain was the most innovative economy on earth, and later it was no slacker, arriving at last among the richest countries. And yet savings/investment rates in Britain were lower than in most of the dozen countries, as I noted, and by the late nineteenth century about half the savings was invested abroad. Britain's rate 1770-1839 was about 7.5 percent, and not until the 1960s did it briefly exceed 15 or 16 percent. The early, 7.5 percent figure was exceeded by every one of the other eleven countries in the table, taken over the two or three decades in which their figures begin to be available — decades which usually corresponding to their entry into industrialization. It is Feinstein who introduces the talk of "stages," and so there cannot be a complaint that France in the 1820s

and 1830s is not to be compared with Britain earlier: the comparison is at the same “stage.” And setting stage thinking aside, in any given decade across the table the British rates are commonly lower than in the other countries. If investment and saving were crucial to economic growth, then Britain with its low rates of investment would not have been the leader in industrialization. Rates of investment and saving rose as a *result* of innovation. They did not cause it.

What was indeed “crucial” was the innovation itself, the steam engines and the steel ships, the hybrid corn and the agricultural cooperatives. What was crucial was working smarter, not harder, as the South African economist Stanislav du Plessis puts it. Du Plessis is summarizing what all economists and economic historians have known since the 1960s – that sheer accumulation of frozen labor in capital is not what has made us rich. Yet in 2003 Feinstein (also by the way a South African) was still resisting the finding, part of which he himself had established. He quoted with approval an opinion of the economist Arthur Lewis in 1954, when capital fundamentalism was forming and before the scientific work showing it to be misleading had been done, that “the central problem. . . is to understand . . . [how] a community which was previously saving and investing 4 or 5 percent of its national income or less converts itself into an economy where voluntary saving is running at about 12 or 15 percent.”²³ I have noted that in an agricultural economy with low yield-seed ratios the figure has to be much higher than 4 or 5 percent. Perhaps Lewis meant by “voluntary saving” the saving above “involuntary” – net of depreciation, say, and the storing of seed. But in that case the innovations that made physical depreciation lower or that made unnecessary massive “involuntary” saving for seed are what explains the modern world, not piling brick on brick. And anyway the Lewis-Feinstein argument would have led to modern economic growth in, say, ancient Greece or China, in which savings rates could so easily be driven up to 12 or 15 percent: merely force the slaves in the silver mines of Laurion, or the workers before they were entombed in the Great Wall, to eat less.

Capital fundamentalism, in short, has been rejected scientifically, despite echoes in the minds of economists who very much want it to be true. Capital is a fine thing to have. But it is easily gotten by loan when the prospect for innovation is large. Capital is not the constraint, not in the long run. Smarter, not harder or more extensive (and capitalized) work did the modernizing. Innovation puts smartly into practice the idea

of a light bulb or of limited liability. The word “capitalism,” with its hidden assumption that piling up frozen labor does the trick, du Plessis notes, was applied in the nineteenth century to the system of property rights coordinated by prices before we grasped that the innovation encouraged by such a system is what chiefly matters.

Schumpeter defines capitalism variously at various times. His definition in *Business Cycles* (1939) is “that form of private property economy in which innovations are carried out by borrowed money.”²⁴ In other words, “we shall date capitalism as far back as the element of credit creation,” by which he means fractional reserve banking – in effect any sort of money storage in which the storer is not legally or practically liable to keep all the money on hand all the time. He notes that such institutions existed in the medieval Mediterranean before they existed in Northern Europe, and so he would be unsurprised to find business cycles there. (He did not realize that Asia had such institutions hundreds of years before.) He claimed in his posthumous *History of Economic Analysis* that “by the end of the fifteenth century most of the phenomena we are in the habit of associating with that vague word Capitalism had put in their appearance.”²⁵ And yet it would be three more centuries before modernity emerged, economically speaking. Finance and saving and investment cannot have been crucial, or else Florence or Augsburg (or Beijing) would have innovated us into the modern world.

Capitalism on Schumpeter’s 1939 definition forms part of a private enterprise economy, but there can be private enterprise and innovation without credit and therefore without “capitalism.” Note, however, that what is at stake in Schumpeter’s argument is the use to which the thrift is put, *not* its total amount. Schumpeter said it was used for innovation. Yet even Schumpeter, the inventor of innovation in the modern analysis of the economy, allows himself to be tempted by the word “capitalism” into discussing finance. It is not thrifty finance, however, that changed everything – as he himself elsewhere agrees. What changed everything was using trust for innovation, Newcomen’s tinkering with atmospheric engines, Rothschild’s style of massive arbitrage, Edison’s first generator in Manhattan, Alfred P. Sloan’s years at General Motors.

Notes

1. Tusser 1588, p. 13.
2. Introduction by A. L. Basham, p. 120, to the passage in Embree, ed., *Sources of Indian Tradition*, Vol. I. The passage below is *Dīgha Nikāya* 3.182ff., reprinted p. 123.
3. Walter, late thirteenth century, in Oschinsky 1971, p. 309.
4. Senechaucy, late thirteenth century, in Oschinsky 1971, p. 269.
5. Tusser 1588, p. 18.
6. Boswell 1791, April 14, 1778 (vol. 2, p. 203), quoted in Mathias, p. 302.
7. Marx 1867, Chp. 24, Sec. 3, p. 651.
8. Dickens, *David Copperfield*, 1849-50, Chapter 12.
9. Goldstone 2009, p. 11.
10. Braudel and Spooner 1967, Figure 23, p. 477.
11. McCloskey and Nash 1984. Compare Cipolla 1994, p. 89.
12. Innes 1988, p. 5.
13. Marx 1867, Chp. 24, Sec. 3, p. 656.
14. Crafts, Leybourne, and Mills 1991, Table 7.2, p. 113; and Feinstein 2003, p. 45.
15. Postan is thus quoted with approval by another great student of the times, Carlo Cipolla, in Cipolla 1994, p. 91.
16. Feinstein 2003, p. 47, from which subsequent quotations are also taken.
17. According to the "marginal productivity theory" developed by economists from the 1890s to the 1940s, the share in total costs of an input into production such as horses or land or labor is the farmer's opinion of the percentage change in final output that will come from 1 percent more of the input. The theory is true if farmers face constant returns to scale and have no market power and are in the economist's sense rational.
18. Hansen 1938, 1941, out of Keynes 1937.
19. Fogel 2005.
20. Tunzelmann 2003, p. 89.
21. McCloskey 1995.
22. Feinstein 2003, p. 45. The table stands as a monument to the massive scholarly effort of numerous economic historians since Simon Kuznets invented the methods in the 1930s and 1940s.
23. Feinstein 2003, p. 46.
24. Schumpeter 1939, Vo. I, p. 223. The next quotation is from p. 224.

25. Schumpeter 1954, p. 78.

Chapter 12: Nor Because of a Rise of Greed or of a Protestant Ethic

Nor does modern innovation have anything unusually “greedy” about it. In characterizing capitalism in 1867 as “solely the restless stirring for gain” Marx said he was quoting the bourgeois economist J. R. McCulloch’s *Principles of Political Economy* (edition of 1830): “This inextinguishable passion for gain, the *auri sacra fames* [‘for gold the infamous hunger’], will always lead capitalists.”²⁶ But it leads everyone else, too. *Auri sacra fames* is from *The Aeneid* (19 B.C.E.), Book III, line 57, not from Benjamin Franklin or *Advertising Age*. In 1905 Max Weber, writing when the German Romantic notion that medieval society was more sweet and egalitarian than the Age of Innovation was just starting to crumble in the face of historical research, thundered against such an idea that greed is “in the least identical with capitalism, and still less with its spirit.” “It should be taught in the kindergarten of cultural history that this naïve idea of capitalism must be given up once and for all.” In his posthumous *General Economic History* (1923) he wrote, “the notion that our rationalistic and capitalistic age is characterized by a stronger economic interest than other periods is childish.”²⁷ The lust for gold, “the impulse to acquisition, pursuit of gain, of money, of the greatest possible amount of money, has in itself nothing to do with innovation. This [greedy] impulse exists and has existed among waiters, physicians, coachmen, artists, prostitutes, dishonest officials, soldiers, nobles, crusaders, gamblers, and beggars. One may say that it has been common to all sorts and conditions of men at all times and in all countries of the earth, wherever the objective possibility of it is or has been given.”²⁸

People have indulged in the sin of greed, for food or money or fame or power, since Eve saw that the tree was to be desired, and took the fruit thereof. Soviet Communism massively encouraged the sin of greed, as its survivors testify. Medieval peasants accumulated no less “greedily” than do American corporate executives, if on a rather smaller scale. Hume declared in 1742 that “Nor is a porter less greedy of money, which he spends on bacon and brandy, than a courtier, who purchases champagne and ortolans [little song birds rated a delicacy]. Riches are valuable at all times, and to all men.”²⁹ Of course.

Many readers of the magnificent historical Chapters 25-31 of *Capital* will find all this hard to believe. Marx's eloquence persuades them that someone writing in 1867, very early in the professionalization of history, nonetheless got the essence of the history right. Another of his great riffs, Chapter 15 on "Machinery and Modern Industry" (150 pages in the Modern Library edition of the English translation), trumpeted the truth that he was witnessing an Age of Innovation. But he subordinated the tune to his historical harmonizing, the growth of surplus value. The history that Marx thought he perceived went with his erroneous logic that capitalism—drawing on an anti-commercial theme as old as commerce—just is the same thing as greed. Greed is the engine that powers his sequence of $M \rightarrow C \rightarrow M'$. It says: Money starting through some original theft or thriftiness as an amount M gets invested in Capital (commodities used for profit), which is intrinsically exploitative (and so amplifies the original theft or thrift), generating surplus value appropriated by the capitalist to arrive at a new, higher amount of money, M' . "We have seen how money is changed into capital; how through capital [a] surplus-value is made, and from surplus value more capital." And then again and again and again, in the inaccurate English translation of Marx's German, "endlessly."³⁰

The classical and Marxist idea that capital begets capital, "endlessly," is hard to shake. Thus Immanuel Wallerstein in 1983 spoke of "the endless accumulation of capital, a level of waste that may begin to border on the irreparable."³¹ It has recently revived a little among economists, in the form of so-called "new growth theory," which amounts to giving $M \rightarrow C \rightarrow M'$ a mathematically spiffed-up form. The "endless"/"never-ending" word, by the way— which was echoed during the Dark Ages in rural and monkish economic theory and still resonates in all our notions of "capitalism"—originated twenty-four centuries before Marx in the Greek aristocratic disdain for commerce. People of business (declared aristocratic Plato and aristocrat-loving Aristotle) are motivated by *apeiros*, unlimited, greed. Thus Aristotle in the *Politics*. The "no limit" in Aristotle is about buying low and selling high.³² In the thirteenth century Aquinas, referring to Aristotle with a little less than his customary enthusiasm for The Philosopher, retails the usual complaint against retailing, which depends on "the greed for gain, which knows no limit and tends to infinity."³³ As the political scientist John Danford observes, "the belief that there is something objectionable about [arbitrage] has persisted for more than two thousand years. . . . The

enduring legacy . . . was. . . the view that . . . commerce or the acquisition of wealth is not merely low; it is unnatural, a perversion of nature, and unworthy of a decent human being.”³⁴

For all Marx’s brilliance—anyone who does not think he was the greatest social scientist of the nineteenth century has not read enough Marx, or is blinded by ideology or by the unhappy effects of Marxian writings on the politics of the twentieth century—he got the history wrong. Whatever the value of his theories as a way of asking historical questions, you cannot rely on Marx for any important historical fact: not on enclosures, not on the fate of the workers, not on the results of machine production, not on the false consciousness of the working class. The great Marxist historian Eric Hobsbawm, for example, a proud member of the Communist Party of Great Britain until its dissolution in 1991, admits that the historical knowledge of Marx and Engels was on many points “thin.” No serious Marxist historian writing in English, such as Hobsbawm or Christopher Hill or E. P. Thompson, has taken historical facts from Marx.³⁵

It is not some special Marxian fault. The same is true of the other practitioners of merely philosophical history before the facts started at last arriving in bulk after the full professionalization of history, during the twentieth century. Locke, Hume, Rousseau, Smith, Hegel, Macaulay, Tönnies, Durkheim, and even, a late instance, Max Weber on many points, and still later Karl Polanyi (and less excusably the many recent followers of Polanyi), got the historical facts more or less wrong, and tended to get them wrong in the same way.³⁶ You would be foolish to depend mainly on Polanyi or Weber or even my beloved and liberal Macaulay, or even my worshipped and liberal Adam Smith, for your understanding of the past. The theory of capitalism that educated people to this day carry around in their heads springs from the anti-bourgeois rhetoric of Marx, St. Benedict, and Aristotle. It is economically mistaken. And the point here is that it is historically mistaken as well.

The myth of *Kapitalismus* says that thrift among the bourgeoisie consisted precisely in the absence of a purpose other than accumulation for its own sake, solely the restless stirring for gain. Declared the man himself in 1867, capitalism entails “accumulation for accumulation’s sake, production for production’s sake.” “Accumulate, accumulate! This is Moses and the prophets!”³⁷ Thus the left-wing economist, my misled but princely acquaintance the late Robert Heilbroner: “capitalism has been an expansive system from its earliest days, a system whose driving

force has been the effort to accumulate ever larger amounts of capital itself.”³⁸ Thus Weber, too, in 1905: “the *summum bonum* of this ethic [is] the earning of more and more money. . . . Acquisition . . . [is] the ultimate purpose of life.”³⁹ Weber here, contrary to his thundering quoted above, retails Marx, money-to-capital-to-money. True, skill at acquisition is an “expression of virtue and proficiency in a calling.” But innovation was in historical fact not skill at accumulation. Imagination was not restless stirring for gain. Socially profitable originality was not duty in a calling. What made us rich was a new rhetoric favorable to innovation, imagination, originality—not accumulation restlessly stirring, or mere duty to a calling, which are ancient and routine and uncreative, though often Good Things.

At the level of individuals there has never been any evidence for the historical change that is supposed to characterize modern forms of greedy thrift. People were greedy and thrifty, I repeat, long before. The chief evidence for a change in thriftiness that Weber himself gives in *The Protestant Ethic and the Spirit of Capitalism* is a humorless reading of Benjamin Franklin’s two-page *Advice to a Young Tradesman* (1748). He misses for example the deflating sting in the last lines: “He that gets all he can honestly, and saves all he gets . . . will certainly become rich, if that Being who governs the world, to whom all should look for a blessing on their honest endeavors, doth not, in His wise providence, otherwise determine.” So nothing is “certainly,” young tradesman, even if you bizarrely save *all* you get (as Franklin assuredly did not). And he missed in “He that murders a crown, destroys all that it might have produced, even scores of pounds” the parodic echo of the previous year’s “Speech of Miss Polly Baker.” Avid Franklin readers, of which there were many, would have noted the echo. Prosecuted for giving birth to her fifth illegitimate child, Polly as ventriloquised by Franklin chides “the great and growing number of bachelors in the country, many of whom, . . . have never sincerely and honorably courted a woman in their lives; and by their manner of living leave unproduced (which I think is little better than murder) hundreds of their posterity to the thousandth generation. Is not theirs a greater offence against the public good, than mine?” The Yale historian and editor of the massive Franklin Papers, Claude-Anne Lopez, once remarked that Franklin will lack an adequate biography until someone with a sense of humor attempts it.

Weber read Franklin’s *Autobiography*, and like many others he took as the man’s essence the famous printed account book of virtues that a

young printer in Philadelphia used to discipline himself. Declared Weber, “the real Alpha and Omega of Franklin’s ethic. . . in all his works without exception” is that expression of proficiency in a calling. No it isn’t. Like many other readers of Franklin, especially non-American readers – most famously D. H. Lawrence in his *Studies in Classic American Literature* (1923) – Weber missed the joke. Lawrence called Franklin “the sharp little man. . . . The pattern American, this dry, moral, utilitarian little democrat,” and other Europeans have viewed him with similarly humorless and uncomprehending scorn.⁴⁰ Weber’s nephew wrote a book in 1936 explaining why Uncle Max got Franklin so wrong: “Nations are curiously incapable of understanding each other’s sense of humor. . . . [Weber] carefully constructed an elaborate theory of Franklin’s ascetic economic ethos as one of the essential foundations of modern capitalism, . . . which is repeated uncritically from all kinds of pulpits. . . with learned mien and a pronounced shyness to consult the sources.”⁴¹

The frontiersman, wigless, “ascetic” image that Franklin projected for political purposes in France was contradicted even there by his actual behavior in humorous (and innocent) dalliances with the wives of French aristocrats. And he was nothing like singlemindedly devoted to his calling as a printer and businessman, even when before age 42 he was practicing it. Young and old, Franklin was multiminded. Weber failed to note Franklin’s actual behavior as a loving and passionate friend and patriot, a deeply curious man very willing to wander from his calling to measure the temperature of the Gulf Stream, though getting the current job done on time; or his amused self-ironies about his young self. Amused self-ironies were a *franklinische*, and later an American, specialty. The most well-known of the amused self-ironies in Franklin’s *Autobiography* is his comment about a late addition to his checklist of virtues, Humility: “I cannot boast of much success in acquiring the reality of this virtue; but I had a good deal with regard to the *appearance* of it.” It is hard miss the nudge in the ribs. But some people have nonetheless missed it, in their eagerness to pillory the bourgeoisie.

Franklin’s writing, when not dead serious (after all, he helped draft the Declaration of Independence and the Treaty of Paris), is jammed with such clowning around. In 1741 *Poor Richard’s Almanac* predicted only sunshine, every day of the year. “To oblige thee more,” Poor Richard explained to his dear reader, “I have omitted all the bad weather.” The parody shouts itself. Yet many readers of Franklin don’t get it – most influentially in his self-parodying compilation of Poor Richard’s

proverbs, "The Way to Wealth." It was published in 1758, when Franklin was precisely *not* pursuing wealth as a printer, or anything else of proficient and profitable calling, but representing the Pennsylvania Assembly in London, at his own considerable expense, having entirely given up the "duty of the individual to increase his capital" that Weber sees in him. Jill Lapore notes that "The Way to Wealth" is "among the most famous pieces of American writing ever, and one of the most willfully misunderstood." Its thrifty recommendation of "no gains without pains" and other supposedly bourgeois formulas "has been taken for Benjamin Franklin's – and even America's – creed." ⁴²

Yet only a humorless reading would find in it a sharp little capitalist, a pattern American, declaring for Prudence Only. Mark Van Doren tried in 1938 to get people to read Franklin rightly, complaining for example that the "dry, prim people" "praise [Franklin's] thrift. But he himself admitted that he could never learn frugality, and he practiced it no longer than his poverty forced him to." Quoting Van Doren, Lapore lists Franklin's massive purchases in 1758 sent back to his wife in Philadelphia. Franklin attached a proud spender's notation that "there is something from all the china works in England." ⁴³ The misreaders, Van Doren had continued, "praise his prudence. But at seventy he became a leader of a revolution."

Lapore points out that most of Poor Richard's proverbs in the almanacs themselves were not in fact about Prudence Only. Franklin selected the money-making ones for "The Way to Wealth" because his mission in London was to try to persuade the British government to remove some small taxes on their fellow countrymen in the colonies. To his fellow colonists, in line with his optimism that with temperance on both sides the Empire could hold together, he was noting in the voice of Father Abraham that "the taxes are indeed very heavy. . . but we have many others, and much more grievous to some of us. We are taxed twice as much by idleness, three times as much by *pride*, and four times as much by *folly*." The figure of argument was ancient, and nothing like American or utilitarian. Seneca wrote: "Show me a man who isn't a slave. One is a slave to sex, another to money, another to ambition. . . . There's no state of slavery more disgraceful than one that's self-imposed." ⁴⁴ And "Franklin might have chosen to collect," Lepore notes, "the dozens of Poor Richard's proverbs advising *against* the accumulation of wealth. *The poor have little, beggars none;/ The rich too much, enough not one.*" ⁴⁵

Lepore agrees with all careful students of Franklin that, as the man himself put it, he “would rather have it said, *He lived usefully*, than, *He died rich*.” Greedy thrift in the Marxian tale, by contrast, has the sole *telos* of dying rich. Charles Dickens, brought up in the law in London, who himself was an entrepreneur in theatre and publishing but could not understand other profitable trades, gave us Scrooge, and his Disney descendant Scrooge McDuck—accumulate, accumulate. Max Weber modified the pointlessness of the impulse to accumulate, accumulate by claiming that “this philosophy of avarice” (allegedly Franklin’s, remember) depends on a transcendent “*duty* of the individual toward the increase of his capital,” yielding a “worldly asceticism.”⁴⁶ But Franklin, who after all had lost most other traces of his ancestors’ Calvinism, whether spiritual or worldly (by contrast with his abstemious young friend and enemy John Adams, for example). He abandoned at age 42 “endless” accumulation and devoted the other half of his long life to science and public purposes, and world-relishing consumption.⁴⁷ If, as Weber argued, the religious element drops out and accumulation takes over, one would like to know why accumulation did *not* take over, in Franklin or in Carnegie or in Gates. The same could be said, and has been by Joel Mokyr, for the rigorous Calvinists of seventeenth century Holland—the same ones who spent their incomes on merchant palaces along the Singel, and on luscious oil paintings officially warning of the vanity of mere matter by showing a polished silver tray with a half peeled lemon and a beaker full of the warm south. So much for “worldly asceticism” or “ever larger amounts of capital itself” or a “duty toward the increase of capital” or “accumulate, accumulate.”

Many fine scholars have taken in with their mother’s milk a belief that modern life is unusually devoted to gain, and that thrift is therefore something recent, dirty, and bourgeois, though lamentably profitable—because of exploitation in $M ? C ? M'$. “The unlimited hope for gain in the market,” writes the otherwise admirable political theorist Joan Tronto, “would teach people an unworkable premise for moral conduct, since the very nature of morality seems to dictate that desires must be limited by the need to coexist with others.”⁴⁸ But running a business, unlike professing at a university, would teach anyone that gain is limited. Dealing in a market, unlike sitting in the Reading Room of the British Museum during the 1850s and 1860s writing burning phrases against the market, would teach that desires must be limited by the need to coexist with others. The tuition of a market society in scarcity, other-

regarding, and liberal values works as an ethical school. As the historian Thomas Haskell put it in 1985, “contrary to romantic folklore, the marketplace is not a Hobbesian war of all against all. Many holds are barred. Success ordinarily requires not only pugnacity and shrewdness but also restraint,” that is, the virtue of temperance.⁴⁹

Even so fine an historian as Alan Macfarlane believes the Aristotelian /Marxist/ Weberian lore: “the ethic of endless accumulation,” he writes, “as an end and not a means, is the central peculiarity of capitalism.”⁵⁰ If it were, the miser would be a strictly modern figure, and not proverbial in every literature in the world. Around 1665 the poet Abraham Cowley (a royalist version of Milton) wrote of avarice that “there is no vice that has been so pelted with good sentences, and especially by the poets, who have . . . moved, as we say, every stone to fling at it,” and gave an example from his own pen:

What would content you? who can tell?
Ye fear so much to lose what ye have got
As if ye lik'd it well,
Ye strive for more as if lik'd it not.

He translates Horace to the same effect, and quotes a line he attributes to Ovid: *Desunt luxuriae multa avaritiae omnia* (Many things are wanting to Luxury, [but] everything to Avarice).⁵¹ As Cowley implies, however, go anywhere in literature or preaching or law from Mesopotamia to the moderns and you will find similar sentiments about the avaricious miser – who is supposed in modernist theorizing to arise suddenly around 1750 out of Calvinist ancestry in the form of the sharp little man, this dry, moral, utilitarian little democrat. In China the poet Tang Bo Ju-yi (772-846 C.E.) complains of the salt-tax monopolist that “The salt merchant’s wife/ has silk and gold aplenty,/ but she does not work at farming [the only honored source of things],/. . . Her gleaming wrists have gotten plump,/ Her silver bracelets tight.” Or Liu Zong-yuan (773-819 C.E.), in a parable comparing the miser to a pack beetle: “Those in our own times who lust to lay hold of things will never back away when they chance on possessions by which to enrich their household [just like the beetle carrying whatever useful he encounters twice his weight on his back]. They don’t understand that it encumbers them, and fear only that they won’t accumulate enough.”⁵²

“In this consists the difference between the character of a miser,” wrote Adam Smith in 1759, “and that of a [thrifty] person of exact economy and assiduity. The one is anxious about small matters for their

own sake; the other attends to them only in consequence of the scheme of life which he has laid down for himself.”⁵³ He might as well have been describing Ben Franklin before he was wealthy, or his friend Mr. William Crauford, a merchant of Glasgow, whom he did describe in 1758: “Who to that exact frugality, that downright probity and plainness of manners so suitable to his profession, joined a love of learning, . . . an openness of hand and a generosity of heart. . . . candid and penetrating, circumspect and sincere.”⁵⁴ Accumulate, accumulate, or plumping ones wrists, or laying hold of everything like a pack beetle, is not a “scheme of life” in the ethical sense that Smith had in mind.

At the level of the society as a whole there is “unlimited” accumulation, at any rate if rats and fire and war do not intervene. Corporations are streams of such accumulation, having legally infinite lives – though in truth many little corporations die every year, and a few big ones (thus Lehman Brothers, Washington Mutual, WorldCom, and General Motors).⁵⁵ The individual economic molecules who make up the river of innovation may not always want to accumulate, accumulate beyond age 42, but the river as a whole, it is said, keeps rolling along. It is true, and to our good. The books and machines and improved acreage and splendid buildings and so forth inherited from an accumulating past are good for us now. Thanks be to the ancestors.

But there is no historical case for “accumulate, accumulate” being peculiar to modern times. Crassus and Seneca accumulated. The presence of old buildings is not historically recent, suddenly accumulated in the Age of Innovation. Very long-lived institutions like families or churches or royal lineages existed before 1700, and were themselves, too, sites of accumulation. Thus the long-lived improved acreage could spread up the hillsides under the pressure of population before the Black Death. Thus the long-lived medieval cathedrals were raised over centuries. Thus the long-lived Oxford colleges were built, and endowed with long-lived real estate, itself the accumulated investment in long-lived drains and stone fences and brick barns. Thus the canals of China and the roads of Peru.

The classical economists from Adam Smith to Marx were writing before the upsurge in real wages of British and French and American working people in the last half of the nineteenth century, and long before the explosion of world income in the twentieth century. They imagined a moderate rise of income per person, perhaps at the most by a factor of two or three, such as might conceivably be achieved by Scotland’s

Highlands becoming similar to capital-rich Holland (Smith's view) or by manufacturers in Manchester stealing savings for reinvestment from their poor workers (Marx's view) or by the savings generated from globalization being invested in European factories (John Stuart Mill's view). (To speak again to my economist colleagues, they contemplated moving down the marginal product of capital—not its shocking lurch to the right.) But the classical economists, to repeat, were mistaken.

The prehistory of thrift was revolutionized around 1960 when economists and economic historians realized with a jolt that thriftiness and savings could not explain the Industrial Revolution. The economists such as Abramowitz, Kendrick, and Solow discovered that only a smallish fraction even of recent economic growth can be explained by routine thrift and miserly accumulation. At the same time the economic historians were bringing the news that in Britain the rise in savings was too modest to explain much at all. Simon Kuznets and later many other economists such as Charles Feinstein provided the rigorous accounting of the fact—though as students of capital accumulation they could never quite overcome their initial hypothesis that Capital Did The Trick. The aggregate statistical news was anticipated in the 1950s and 1960s by numerous economic historians of Britain such as François Crouzet and Philip Cottrell and Sidney Pollard, in detailed studies of the financing of industry. Peter Mathias summarized the case in 1973: “considerable revaluation has recently occurred in assessing the role of capital.”⁵⁶ That is no overstatement.

The trouble is that savings and urbanization and state power to expropriate and the other physical-capital accumulations that are supposed to explain modern economic growth have existed on a large scale since the Sumerians. Yet modern economic growth—that wholly unprecedented factor in the high teens (or low hundreds if quality of goods is measured properly)—is a phenomenon of the past two centuries alone. Something happened in the eighteenth century that prepared for a temporary but shocking “great divergence” of the European economies from those of the rest of the world.

The classical and flawed view, overturned by the economic historians of the 1950s and 1960s, is that thrift implies saving which implies capital accumulation which implies modern economic growth. It lingered in a few works such as Walt Rostow's *The Stages of Economic Growth* (1960), and most unhappily in what Easterly called the capital fundamentalism of foreign aid, 1950 to the present. The belief was that if

we give Ghana over several decades large amounts of savings, leading to massive capital investments in artificial lakes and Swiss bank accounts, and give Communist China not a cent, Ghana will prosper and Communist China will languish. ^{sz} Inevitably. The mathematics on the blackboard says so.

Notes

26. Quoted in Marx 1867 (*Capital*, Vol. I, p. 171n2). I can't find the phrase in any of the on-line editions of McCulloch's *Principles*. Note by the way the use of the word "capitalist," which occurs in McCulloch over 100 times (and "capitalism" never). The *Oxford English Dictionary* gives Arthur Young's *Travels in France* of 1792 as the first quotation for "capitalist." Ricardo used the word little. The first quotation in the OED for "capital" in the economic sense is 1709.
27. Weber 1923, p. 355.
28. Weber 1905, p. 17.
29. Hume , "Of Refinement in the Arts" ***[1742: "Of Luxury"] in Haakonssen, ed., p. 111.
30. For example, Marx 1867, Chp. 24, Sec. 1, p. 641; and Chp. 26, p. 784.
31. Wallerstein 1983 (1995), p. 100. "Waste" such as decent housing for the Chinese.
32. Aristotle, *Politics* 1257a20, *kai apeiros dê houtos ho ploutos*.
33. Aquinas 1251-1273, Second Part of the Second Part, Question 77, Art. 4, "I answer that."
34. Danford 2006, pp. 328-329.
35. Hobsbawm 1964, "Introduction" to Marx, *Pre-Capitalist Economic Formations*, cited by Pipes 1999, p. 52n.
36. Santhi Hejeebu and I have laid out the case in favor of Polanyi's understanding of second best against Polanyi's economic history in Hejeebu and McCloskey 2000 and 2003.
37. Marx 1867, Chp. 24, p. 652.
38. Heilbroner 1953, p. 201. Compare p. 156, "an owner-entrepreneur engaged in an endless [*apeiros*] race," and so forth.
39. Weber 1905, p. 53.
40. Lawrence 1923, p. 23; compare for example Robert Louis Stevenson's sneer at the teachers of our average men, who "from Solomon down to Benjamin Franklin . . . have inculcated the same ideals of manners, caution, and

respectability" (Stevenson 1881, p. 876). Even Alasdair MacIntyre, that perceptive Scot resident in America, mistakes Franklin.

41. Baumgarten, "Benjamin Franklin: Der Lehrmeister der amerikanischen Revolution," 1936, quoted in Roth 1987, p. 19. Lujo Brentano, the German economist, whose English (as Roth explains) was much better than Weber's, made the same point.
42. Lepore 2008, p. 78.
43. Lepore 2008, pp. 82, 81.
44. Seneca, Letter XLVII, 17, p. 95, ending *nulla seroitus turpior est quam voluntaria*.
45. Lepore 2008, p. 82.
46. Weber 1905, p. 51, italics supplied.
47. See the section "Retirement," pp.126-128 in Isaacson 2003.
48. Tronto 1993, p. 29.
49. Haskell's remark is quoted in Innis 1988, p. 39n61.
50. Macfarlane 1987, p. 226.
51. Cowley c. 1665, pp. 198, 197. The Horace is the First Satire (beginning "How comes it to pass, Maecenas, that no one lives content with his condition?"), but the Ovid is actually Publilius Syrus, maxim 121, with *inopiae*, "to poverty," substituted for *luxuriae*, (www.thelatinlibrary.com/syrus.html), and was quoted in Seneca.
52. From Owen 1996, pp. 501, 617-618.
53. Smith 1759 (1790), III.6.6, p. 173.
54. Smith, *Essays on Philosophical Subjects*, p. 262.
55. Lex Donaldson (1995, p. 75), following Alfred Chandler, argues that of the largest American corporations only 2 percent vanish every year, and few of these from closing down—they get merged instead. But those are the big boys, too big to fail. Siegel (2002, p. 638, Fig. 14-1) reckons that all U.S. enterprises with any sort of payroll, not merely the big ones, have death rates of about 17 percent in each of their first couple of years, decreasing to 7 percent per year if they survive to age 14.
56. Mathias 1973 (1979), p. 88.
57. Rostow 1960; Easterly 2001.

Chapter 13: Nor Because of Original Accumulation

Of course, if you think up a waterpower-driven spinning machine, as both the Chinese and the British did, you need some thrifty savings somehow accumulated to bring the thought to fruition. But another of the discoveries of the 1960s by economic historians was that the savings required in England's heroic age of mechanization were modest indeed, nothing like the eventually massive offspring of the "original accumulation of capital" that Marxist theory posits. Early cotton factories were not capital-intensive. Even in the 1830s, as François Crouzet noted, the percentage of all capital "sunk into fixed assets. . . was indeed small (25 percent, 20 percent or less) even in the most 'capital intensive' firms."⁵⁸ The source of the industrial investment required was short-term loans from merchants for inventories and longer-term loans from relatives-not savings ripped in great chunks from other parts of the economy. Such chunk-ripping "capitalism" awaited the Railway Age.

The *marxisant* analysis is that what happened earlier was the original accumulation of capital. The original or primitive accumulation was according to Marx the seed corn, so to speak, or better the starter in the sourdough, in the growth of capital. We're back to thrift or savings, not by historical fact but by blackboard logic. "The whole movement," Marx reasoned, "seems to turn on a vicious circle, out of which we can only get by supposing a primitive accumulation, . . . an accumulation not the result of the capitalist mode of production, but its starting point."⁵⁹ The reasoning sounds plausible. It appeals, like Malthusian predictions of limits, to a mathematics. But it didn't happen. As the economic historian Alexander Gerschenkron put it in 1957, with characteristic sarcasm, the primitive or original starting point is "an accumulation of capital continuing over long historical periods-over several centuries-until one day the tocsin of the Industrial Revolution was to summon it to the battlefields of factory construction."⁶⁰

Marx's notion in *Capital* was that an original accumulation was a *sine qua non*, and had nothing to do with "that queer saint . . . of the woeful countenance, the capitalist 'abstainer'." There was no saintliness about it. The original accumulation was necessary (Marx averred) because masses of savings were necessary, and "conquest, enslavement, robbery, murder, briefly, force, play the greater part."⁶¹ He instanced

enclosure in England during the sixteenth century (which has been overturned by historical findings that such enclosure was economically minor) and in the eighteenth (which has been overturned by findings that the labor driven off the land by enclosure was a tiny source of the industrial proletariat, and enclosure happened then mainly in the south and east where in fact little of the new sort of industrialization was going on). ⁶² He gave a large part then to regulation of wages in creating a proletariat for the first time in the sixteenth century (which has been overturned by findings that nearly half of the labor force in England as early as the thirteenth century already worked for wages; and that attempts to control the labor market did not work). ⁶³ And then to the slave trade: "Liverpool waxed fat on the slave-trade. This was its method of primitive accumulation" (which has been overturned by findings that the alleged profits were no massive fund). ⁶⁴ Later writers have proposed as the source of the original accumulation the exploitation by the core of the periphery (Poland, the New World). ⁶⁵ Or the influx of gold and silver from the New World-strange as it is then that imperial Iberia did not industrialize. Or the exploitation of workers themselves during the Industrial Revolution, out of sequence. Or other loot from imperialisms old and new, too small to matter much, and also too late. Or, following on Marx and Engels' assertion in the *Manifesto*, even seventeenth-century piracy, tiny impositions on the flow of Spanish treasure by Sephardim venturing from Jamaica and runaway slaves from Hispaniola. ⁶⁶

None of these, it has been found, makes very much historical sense. If they happened at all, they are too small to explain what is to be explained. Such historical findings are in truth not very surprising. After all, conquest, enslavement, robbery, murder-briefly, violence-has characterized the sad annals of humankind since Cain and Abel. Why did not earlier and even more thorough expropriations result in an industrial revolution and a factor of sixteen or twenty or one-hundred in the widened scope of the average Briton or American or Taiwanese? Something besides thrifty self-discipline or violent expropriation must have been at work in northwestern Europe and its offshoots in the eighteenth century and later. Self-discipline and expropriation have been too common in human history to explain a Revolution gathering force in Europe around 1800.

And as a practical matter a pile of physical capital financed from, say, Piet Heyn's seizure of the Spanish treasure fleet in 1628 would by the year 1800 melt away to nothing. It does not accumulate. It

depreciates. And as Gerschenkron noted, “why should a long period of capital accumulation *precede* the period of rapid industrialization? Why is not the capital as it is being accumulated also invested in industrial ventures?” ⁶⁷ Why not indeed. In the story of original accumulation the clever capitalists are supposed to let their capital lie idle for centuries until the “tocsin” sounds.

People seem to be mixing up financial wealth and real wealth. Financial wealth in a bank account is merely a paper claim to the society’s real wealth by this person against that person. The society’s real wealth itself, on the other, is a house or ship or education. From the point of view of the society as a whole the real wealth is what’s needed for real investment, not paper claims or gold coins. The paper claims are merely ways of keeping track of who owns the returns to the capital. They are not the real capital itself. You can’t build a factory with pound notes, or dig a canal with bank accounts. You need bricks and wheelbarrows, and people skilled to wield them. Mere financing or ownership can hardly be the crux, or else the Catholic Church in 1300, with its dominate command of tokens of wealth, would have created an industrial society. Or the Philips II, III, and IV of Spain—who after all were the principal beneficiaries of the treasure fleets the English and Dutch privateers preyed upon—would have financed industrial revolutions in Bilboa and Barcelona instead of obstructing them.

Any original accumulation supposed to be useful to any real industrialization must be available in real things. But as the Koran says, “what you possess [in real, physical things] will pass, but what is with God will abide” (16:96). “These lovely [earthly] things,” wrote St. Augustine, “go their way and are no more. . . . In them is no repose, because they do not abide.” ⁶⁸ A real house made in 1628 out of Piet’s profit from robbing Spain would be tumbled down by 1800, unless in the meantime its occupants had continued to invest in it. A real educated person of 1628 would be long dead, a real machine would be obsolete, a real book would be eaten by worms. The force of depreciation makes an original accumulation spontaneously disappear.

This is not to say, note well again, that conquest, enslavement, robbery, and murder play no part in European history. A Panglossian assumption that contract, not violence, explains, say, the relation between lord and peasant defaces the recent work on “new” institutionalism, such as that of Douglass North. ⁶⁹ Yet, pace Marx, modern economic growth did not and does not and cannot depend on

the scraps to be gained by stealing from poor people. It is not a good business plan: it never has been, or else industrialization would have happened when Pharaoh stole labor from the Hebrew slaves. Stealing from poor people, when you think about it, could hardly explain enrichment by a factor of sixteen, not speak of one hundred. Would you do so well by robbing the homeless people in your neighborhood, or by breaking into the home of the average factory worker? Would grabbing stuff from the poor of the world enrich the average person in the world, including those poor victims themselves, by a factor of ten since 1800? Does it strike you as plausible that British national income depended on stealing from an impoverished India? If so, you will need to explain why real income per head in Britain went up sharply in the decade after Britain “lost” India, and so too for all the imperial powers after 1945: France, Holland, Belgium, and at length even Portugal.

Modern economic growth has not depended on saving, and therefore has not depended on stealing to get the saving, or any other form of original accumulation, even the peaceful practice of the knights of the woeful countenance abstaining from consumption. Turgot and Smith and Mill and Marx and the new growth theorists among the economists, all of whom emphasize capital accumulation, get the story quite wrong. That the oldsters got it so wrong is unsurprisingly considering the stately pace at which the economies they were looking at were improving, at least by contrast with the frenetic pace after 1848 and especially after 1948, and most especially after 1978. (The youngsters of the new growth theories have no such excuse; they should have learned by now that modern economic growth is unique.) The early economists had a notion of modest modernization to the level of, say, the prosperous Netherlands in 1776, easily achievable by peace and routine investment, not a transformation to a level of suburban America in 2010, achievable only by a rate of innovation each year such as had never happened before. “All the authors [who] followed the Turgot-Smith line,” wrote Schumpeter as the frenzy was becoming apparent, “[were] at fault in believing that thrift was the all-important [causal] factor.”²⁰ Most savings for innovation, Schumpeter had noted twenty years earlier, “does not come from thrift in the strict sense, that is from abstaining from consumption. . . but [from] funds which are themselves the result of successful innovation” (in the language of accounting, “retained earnings”).²¹ The money for the few massive and capital-intensive innovations such as railways, he argues, comes from banks using

“money creation.” (The mysterious phrase “money creation” means simply the loans beyond the gold or dollars in their vaults that venturing bankers can make, on the hopeful supposition that not everyone will want their gold or dollars back at the same time. In a word, it is credit.)

But Schumpeter did not fully appreciate that even in the twentieth century of wide markets and big laboratories a company can expand without massive loans, rather in the way that the first innovations of the Industrial Revolution relied on retained earnings, trade credit, and modest loans from cousins and scriveners and solicitors. The big public offerings required 1840-1940 by capital-intensive industries such as railways, steel, chemicals, automobiles, electricity generation, and oil exploration and refining were unique. Economics as a science grew up in the Age of Capital (as the historian Eric Hobsbawm called it). Naturally the economists such as Mill or Marx or Marshall became obsessed with physical accumulation. But as Hobsbawm and other historical materialists who have long lamented the dominion of capital do not sufficiently appreciate (though employed in the industry supplying education), 1840-1940 became an age increasingly *of human* capital. By now in rich countries the returns to human capital account for a much higher share of national income than do the returns to the land and especially to the machinery that so exercised the very first generation of economic historians-Marx, Arnold Toynbee (uncle of the historian of universal history), and their contemporaries.

* * * *

But human capital without the Revaluation of bourgeois innovation would have piled up merely another item in the Age of Capital, and would now give no persuasive explanation of enrichment. The economic historian David Mitch, the doyen of the educational historians of Britain, has shown that education of the masses played a small role in the early stages of the Industrial Revolution. “England, during its Industrial Revolution 1780 to 1840, experienced a notable acceleration in economic growth yet displayed little evidence of improvement in the educational attainments of its workforce.”²² Granted, a wholly illiterate country could hardly have taken advantage of the steam engine in the way the British did. Mitch makes the point with a hilarious counterfactual (intentional hilarity being not all that common in economic history) in which he imagines switching the populations of Britain and the Eskimo far north.²³

By contrast, Richard Easterlin has answered the question “Why isn’t the whole world developed?” by pointing to “the extent of [a]

population's formal schooling." The difference between the two writers can be explained by the periods that Mitch and Easterlin are studying. Lately human capital has become indubitably important. But around 1840 it's hard to make the case that it was important for coal miners or cotton mill workers. Easterlin points out that the spread of technology is personal, in just the sense that the chemist and philosopher Michael Polanyi used the word in his book *Personal Knowledge* (1958), and quotes the economist Kenneth Arrow: "it seems to be personal contact that is most relevant in leading to . . . adoption" of a technique.⁷⁴ Technical knowledge is largely tacit, non-write-downable, and requires people quick on the uptake. Quickness of uptake-most relevant to recent years in which the technology to be taken up is so ample-can be encouraged by literacy.

But it can also be discouraged by literacy, leading to a rote-learning bureaucracy hostile to innovation. And if by itself teaching many more people to read was good for the economy, as it surely has been recently, it must be explained why Greek potters around 600 B.C.E. signing their amphora did not come to use water power to run their wheels and thence to ride on railways to Delphi behind puffing locomotive. And if not in 600 B.C.E, then why not later in the long history of the unusually literate Greeks? Easterlin in fact agrees, noting that high educational attainment in Spain early on was offset by the rigid (and anti-bourgeois) control by the post-Reformation Church.⁷⁵

Education can make people free without making them rich. The historian George Huppert has told of the invention of widespread education in Europe from the sixteenth-century on.⁷⁶ The secular "grammar" schools prepared young men for careers in the clerisy, such as Huppert's hero the naturalist Pierre Belon (1517-1564), or Pierre Ramus (1515-1572), the Huguenot reformer and underminer of the medieval rhetorical tradition. The mushrooming merchant academies had a more practical curriculum than the grammar schools, seeking bourgeois and thrifty ways of making and doing things. In France especially, Huppert argues, education down to the level of village schools for peasants became a passion in the sixteenth century, and a worry for the Church: "even in the smallest towns of the kingdom," a priest wrote, "merchants and even peasants find ways of getting their children to abandon trade and farming in favor of the professions."⁷⁷

Yet education without the new bourgeois rhetoric is merely a desirable human ornament, not the way to human riches. It makes for a

clerisy that may in fact be hostile to bourgeois values, and very willing to become serviceable to the anti-economic projects of the emperor or the lord bishop. "For two centuries," wrote Mill in 1845, "the Scottish peasant, compared with the same class in other situations, has been a reflecting, an observing, and therefore naturally a self-governing, a moral, and a successful human being-because he has been a reading and a discussing one; and this he owes, above all other causes, to the parish schools. What during the same period have the English peasantry been?"

⁷⁸ Yet the superior education, right up to the notable superiority of Scottish and German over English and French universities in the eighteenth century, did not make Scottish or German economic growth superior to English, or for that matter French. Education proved to be of little use without the liberal rhetoric that made innovation possible.

The economic historian Lars Sandberg spoke of Sweden as "the impoverished sophisticate": in 1800, though among the poorest countries in Europe, Swedes read at least the Good Book, because Luther had demanded it, and indeed Sweden boasted in Uppsala one of the oldest universities in Europe. In the late nineteenth and especially in the twentieth century Sweden could take advantage of its literacy, and there is no doubt that education does matter mightily to its standing now as one of the richest countries in the world. ⁷⁹ But without a liberalized attitude towards innovation, such sophisticates would have kept their country impoverished. The educated Chinese elite did. The educated Spanish elite did. The Afrikaners during the nineteenth century were, as Calvinists, supposed to become literate enough to read the Bible. Many in fact didn't, until the reforms of Afrikaner education after 1900, which was accompanied by a self-conscious attempt to adopt pro-innovation views formerly disdained. ⁸⁰

The truth remains that education by itself does not yield much. Cubans nowadays go to school, if strictly limited in what they are permitted to read (a bookstore in Havana has the usual books on technical subjects like engineering; but in history or the social sciences it has nothing beyond the Marxist-Leninist orthodoxy). Yet Cubans cannot start a restaurant or take their farm produce to markets, and so they remain cripplingly poor because they are disabled from exercising bourgeois virtues-in sharp contrast to their cousins in Miami. Cuba's income per head by 2001 was still about what it had been in 1958, while all around it since the Revolution income per head had almost doubled. ⁸¹ You will say, "But Cubans as you admit are educated, and well cared

for in their hospitals.” Yet so they were before 1959, too, by the standards of those days. And yet they fled after 1959 to Miami. The sociologists Victor Nee and Richard Swedberg note that in recent decades China, which had ruined its educational system in the Great Leap Forward, has grown vigorously, while Russia, which led the world in education during the communist period, and which in some ways still does, yet is notably lacking in the toleration for bourgeois innovation that China has developed, did not grow except when oil prices were high. ⁸² Specialize in ping pong and sending professors to re-education camps, like the Chinese, and prosper. Win chess matches and lead the world in certain fields of mathematics, like the Russians, and stagnate.

* * * *

“Capitalist production,” Marx declared, “presupposes the pre-existence of considerable masses of capital.” ⁸³ No it doesn’t. A modest stream of withheld profits will pay for repairing the machines and acquiring new ones, especially the uncomplicated machines of 1760, and now again the complicated but capital-cheap machines of the computer age. In 1760 the most complicated European “machine” in existence was a first-rate ship of the line, itself continuously under repair. Even then Chinese junks were better ships, with such innovations as watertight compartments to prevent sinking, and in their heyday they were gigantically larger than European sailing ships-in the fifteenth century 600 feet in length, as again the pathetic 98 feet of Columbus’ Santa Maria. But the “Ming Ban” on ocean-going trade after 1433 effectively stopped the building and use of big ships for the very long-distance trade in which the Europeans a little later came to delight. Had the Emperor and his successors continued the (highly unprofitable) trade beyond southeast Asia and India, and had Europe not come to admire bourgeois life and innovation, by now all of North and South America, and much of Africa, would be speaking Chinese, and wondering why the Europeans had been slow to industrialize. And so far as the origin of capitalist production is concerned, the “masses” of capital could be in 1760 modest in magnitude-again the starter in sourdough bread-and could come from small change anywhere, not only from some great original sin of primitive accumulation.

The conviction that innovation was born in sin, though, has proven hard to shake. It gets its staying power from guilt meeting zero sum. We are rich. Surely we got so by stealing. As the Master himself put it, “primitive accumulation plays in Political Economy about the same part

as original sin in theology.”⁸⁴ Most intellectuals, who do not grasp the productivity of cooperation in markets or especially the productivity of creative destruction, take such illogic as a known fact. The historian Louis Dupré pauses in his recent survey of the French Enlightenment to gesture towards the quite different Enlightenment going on in Scotland at the time. He commends Smith for “a genuine concern for the fate of the workers,” but then asserts as though we all know it to be true that “an unrestricted market economy could not but render their lot very harsh, especially during the early period of industrial innovation when accumulation of capital was largely to be earned at their expense.”⁸⁵ Not surprisingly, Dupré offers no evidence for such an obvious truth. It is part of our intellectual upbringing, not something requiring evidence—that accumulation is the key to growth and that accumulation depends on the sacrifice of workers. Thus Sellar and Yeatman in their spoof of English history, *1066 and All That* (1931), describe “the Industrial Revelation” as the most memorable of the discoveries made around 1800, namely, “the discovery (made by all the rich men in England at once) that women and children could work for 25 hours a day in factories without many of them dying or becoming excessively deformed.”⁸⁶ Most educated people believe such a history is approximately correct, and credit Charles Dickens as an accurate reporter on industrialization. Dickens seldom ventured north of London, knew nothing of industrialization, and spoke instead of poverty of a traditional sort in London itself, which he viewed from a perch in the bourgeoisie. The claim that immiserization is inevitable, a God-given equilibrium short of the Second Coming, arises from Malthus in 1798, reaffirmed by *The Communist Manifesto* in 1848, and comes more deeply from a Christian embarrassment of riches.

But economic historians have shown original accumulation to be mistaken on both counts. Accumulation was not the key, and sacrificing the workers was not how the accumulation that did happen was achieved. Workers in industrial areas of Britain were to be sure wretchedly poor. But so were Dickens’ London poor. And so was every ordinary person in the world in those times before the greater day of the bourgeoisie and invention and innovation—all of our ancestors lived on that miserable \$3.00. True, children worked. But they always had, and late-nineteenth century industrialization reduced rather than increased their number picking coal or retying broken yarn. Factory work was seen by the children themselves as better than farm work.⁸⁷ Wages rose

relatively in the industrial areas of England or Scotland or Belgium, despite a rising population overall and the weight of the Napoleonic struggle. The coal miners and cotton mill workers were notably better off than their country cousins, which is why the industrial workers left the farms in the first place. Innovation, as many have noted since Friedrich Hayek and Max Hartwell and Thomas Ashton spoke out in the 1950s against the Fabian socialist version of British history, was not born in a sin of expropriation. ⁸⁸

What did not happen in any case, I've noted, was a big rise in European thrift. Nothing much changed from 1348-1700 or from 1700 to 1848 in the actual circumstances of thriftiness. And the modest changes did not matter much. Individual Dutch and English speaking people who initiated the modern world did often practice personal thrift-or often did not; as they still do, or do not. Look at your improvident cousin with a \$20,000 of credit-card debt, or on the other side your miserly neighbor. And changes in *aggregate* rates of saving drove nothing of consequence. No unusual Weberian ethic of high thriftiness or Marxian anti-ethic of forceful expropriation started economic growth. East Anglian Puritans learned from their Dutch neighbors and co-religionists how to be thrifty in order to be godly, to work hard in order, as John Winthrop put it, "to entertain each other in brotherly affection." ⁸⁹ That's lovely, but it's not what caused industrialization-as indeed one can see from the delay of modern (as against early-modern) industrialization even in the Protestant and prosperous parts of the Low Countries, or for that matter in East Anglia.

The habits of thriftiness and luxury and profit, and the routines of exploitation, are humanly ordinary, and largely unchanging. A surprising support for such a point comes from a follower of Karl Polanyi: "There are always and everywhere potential surpluses available. What counts is the institutional means for bringing them to life. . . . for calling forth the special effort, setting aside the extra amount, dividing the surplus." ⁹⁰ As the theologian and social observer Michael Novak puts it, "Weber stressed asceticism and grind; the heart of the system is actually creativity." ⁹¹ That's what was new. Modern economic growth depends on applied innovation in crafting gadgets (organizational and intellectual gadgets such as law partnerships and the calculus as much as physical ones), what the philosopher Whitehead called the invention of invention. The invention of invention appears in turn to depend on bourgeois dignity and liberty-at any rate when the

ingenious gadgets were first invented, not merely borrowed, as later the USSR and the People's Republic of China were able to do (though sluggishly when under central planning). "We doubt not," wrote a pamphleteer against machine-breaking in 1675, "but innovation will find encouragement in England."⁹² And so it did.

There are many tales told about the pre-history of thrift. The central tales are Marxist or Weberian or now growth-theory-ish. They are misled. Accumulation has not been the heart of modern economic growth, or of the change from the medieval to the early-modern economy, or from the early-modern to the fully modern economy. It has been a necessary medium, but easily supplied, like Shakespeare's alphabet. The substance has been innovation. If you personally wish to grow a little rich, by all means be thrifty, and thereby accumulate for retirement. But a much better bet is to have a good idea and be the first to invest in it. And if you wish your society to be rich you should urge an acceptance of creative destruction and an honoring of wealth obtained honestly by innovation. You should not urge thrift, not much. (Nor should you recommend sheer wealth acquired by stealing, such as the program of making a "middle class" in certain African countries by enriching the state bureaucrats in the main cities at the expense of farmers.⁹³) You should work for your society to be free, and thereby open to new ideas, and thereby educable and ingenious. You should try to persuade people to admire properly balanced bourgeois virtues, without worshipping them. Your society will thereby become very, very rich. American society nowadays is notably unthrifty. The fact is much lamented by modern puritans left and right. But because the United States accepts innovation and because it honors Warren Buffett, it will continue to be rich, in frozen pizzas and in artistic creativity and in scope for the average person.

"Thrift" has been much praised in American civic theology. "Work hard, follow the rules," say the American politicians: "Anyone can achieve the American Dream." No, sadly, they cannot. But like many other of the sacred words, such as "democracy" or "equality" or "opportunity" or "progress," the rhetoric of thrift and hard work and following the rules turns out to be more weighty than its material force. Time for the old tale of thriftiness to be retired, and a new history of innovation to replace it.

Notes

58. Crouzet 1985, p. 9.
59. Marx 1867, p. 784.
60. Gerschenkron 1957 (1962), p. 33.
61. Marx 1867, p. 785.
62. McCloskey 1975a, and works cited there.
63. Postan 1966, p. 622, that "in order to subsist an average smallholder [more than one half of the population in a sample of 104 manors in southern England] had to supplement his income in other ways." Postan was not optimistic that all would get wage work, but from the hiring side he inferred that many did (p. 623).
64. Marx 1867, p. 833.
65. Wallerstein 1974.
66. Kritzler 2008.
67. Gerschenkron 1957 (1962), p. 34.
68. Augustine, Confessions, 398 AD, IV, x.
69. See Ogilvie's devastating empirical inquiry Ogilvie, 2004 into such Panglossian hypotheses.
70. Schumpeter 1954, p. 572n2.
71. Schumpeter 1926 [1934], p. 72.
72. Mitch 2003, p. 6; and Mitch 1992, 1999, 2003, 2004. Compare West 1978.
73. Mitch 2004, p. 6.
74. Arrow 1969, quoted in Easterlin 2004, p. 61.
75. Easterlin 2004, pp. 67-68.
76. Huppert 1977, 1999.
77. Huppert 1999, p. 100.
78. Mill 1845.
79. Sandberg 1979.
80. Gilomee 2003, pp. 210-212, 319, 371, 405-406. Olive Schreiner wrote a novel about Afrikaner farm life in the 1860s. Her character the Afrikaner Tant' [Aunt] Sannie declares, "Didn't the minister tell me when I was confirmed not to read any book except my Bible and hymn-book, that the Devil was in all the rest?" (Schreiner 1883, p. 113). There was some doubt that Tant' Sannie could read much even of these.
81. Maddison 2006, p. 525.

82. Nee and Swedberg 2007, p. 3.
83. Marx 1867, p. 794.
84. Marx 1867, Chp. xxvi, p. 784.
85. Dupré 2004, p. 178.
86. Sellar and Yeatman 1931, p. 92-93.
87. Honeyman 2007.
88. Hayek, ed. 1954; Hartwell 1961; for the pessimistic case, see Hobsbawm 1957.
89. Winthrop quoted in Innes, "Puritanism and Capitalism," 1994, p. 106.
90. Pearson, p. 339, quoted in Hirschman 1958 (1988), p. 5n11.
91. Novak 2007, p. 227.
92. Earle 1989, p. 337, quoting in turn Wadsworth and Mann 1931, p. 103.
93. Schultz 1964 and Bates 1981.

Part VI. Domestic Reshufflings, Such as Transport and Coal, Do Not Explain the Modern World

Abstract

Transportation improvements cannot have caused anything close to the factor of 16 in British economic growth. By Harberger's (and Fogel's) Law, an industry that is 10% of national product, improving by 50 percent on the 50% of non-natural routes, results in a mere one-time increase of product of 2.5% ($= .1 \times .5 \times .5$), when the thing to be explained is an increase of 1500%. Nor is transport rescued by "dynamic" effects, which are undermined by (1.) the small size of the static gain to start them off and (2.) the instable economic models necessary to make them nonlinear dynamic. The same holds for many other suggested causes of the modern world: enclosure, for example, or the division of labor or the Kuznets-Williamson Hypothesis of reallocation from agriculture to industry, country to town. Wider geographical arguments, such as Diamond's or Sachs', turn out to be ill-timed to explain what we wish to explain. And "resources," such as oil or gold, have both the Harberger Problem and the timing problem. Not even coal – the favorite of Wrigley, Pomeranz, Allen, and Harris – can survive the criticism that it was transportable and substitutable. The factor-bias arguments of Allen have the old problem of the Habbakuk Hypothesis, namely, that all factors are scarce. Even if we add up all the static and quasi-dynamic effects of resources, they do not explain Britain's lead, or Japan's or Hong Kong's catching up.

Chapter 14. Transport or Other Domestic Reshufflings Didn't Cause It

The economic historians have not so far discovered any single *material* factor essential to British industrialization. A long time ago Gerschenkron argued that the notion of essential prerequisites for economic growth, single or multiple, is one that needs skeptical handling.¹ He gave examples from the industrialization of Germany, Italy, and Russia that showed substitutes for what looked like prerequisites from the British history. The big banks in Germany in the 1870s and state enterprises in Russia in the 1890s, he claimed, substituted for vigor in entrepreneurship and honesty in trade that were by 1750 taken for granted in Britain.

Gerschenkron's economic metaphor that one thing can "substitute" for another applies to Britain itself as much as to the other countries (there is some doubt, actually, concerning the other countries). Economists believe with good reason that there is more than one way to skin a cat. If foreign trade or entrepreneurship or saving had been lacking, the economist's argument goes, other impulses to growth could have taken their place (with a loss, but usually a modest one). A vigorous domestic trade or a single-minded government or a forced saving from the taxation of agriculture could take the place of the British ideal of the merchant left alone by government to reinvest his profits in a cotton factory.

Transportation, for example, is often cast in the hero's role. The static tale is most easily criticized. Canals carrying coal and wheat to the docks at a lower price than cartage, better public roads bringing coaching times down to a mere day from London to York, and then the railway steaming into every market town were all of course Good Things. But their effect on national income can be shown to be small.

The way it can be shown is a technique much used by economists, which will be worked hard here. Think of a sector such as transportation as having a certain share of national income and a certain percentage increase in productivity. If you multiply the two you have calculated the national gain from the increase in productivity. The technique depends on the economist's metaphor of the economy as a "production function," a sort of sausage machine of inputs yielding outputs—the $Q = F(K, L)$ mentioned earlier. The robustness of the calculation is a consequence of

what is known informally among economists as Harberger's Law (after A. C. Harberger, a Nobel-worthy economist at Chicago and then UCLA, famous for such calculations). That is, if one calculates a gain amounting to some fraction from a sector that amounts to again a fraction of the national economy one is in effect multiplying a fraction by a fraction. Suppose G percent of gain comes from a sector with a share of s percent of national income. It follows from highly advanced mathematics (don't try this at home) that the resulting fraction, G times s , is smaller than either of its terms, since both are fractions less than 1.0. For most sectors and most events—here is the crucial point that will make the technique work for the story here—the outcome is a small fraction when set beside the 1,500 percentage points of growth to be explained 1780 to the present, or even beside the 100 percentage points of growth to be explained 1780 to 1860.

Transportation is never more than 10 percent of national income—in Britain it was something like 6 percent 1780 1860. Britain was well supplied with good harbors for its massive coastwise transportation, and in England the rivers flowed gently like sweet Afton when large enough for traffic at all. Mother Nature had given Britain a low cost of transportation by water, even when the waterways were unimproved by river dredging and stone-built harbors. The further lowering of the cost by introducing canals and railways would yield an improvement of, say, 50 percent (a figure easily justified by looking at freight rates and price differentials). But the 50 percent fall in transport cost applies only to the portion of traffic not carried on unimproved water—say likewise 50 percent. By Harberger's Law, 50 percent of 50 percent of 10 percent will save a mere 2.5 percent of national income. One would welcome a tiny share of 2.5 percent of national income as one's personal income; and even spread among the population it is not to be scorned. But it is not by itself the stuff of "revolution," and it is nothing like 1500 percent.

Yet did not transportation above all have "dynamic" effects? It seems not, though historians and economists have quarreled over the matter and it would be premature to claim that the case is entirely settled.² The most powerful case against the importance of dynamic effects was mounted by Robert Fogel on a long evening in Toronto against the speculations of the economic historian Paul David to the contrary.³ David had harshly criticized on "dynamic" grounds Fogel's calculation of social saving in Fogel's book of 1964, *Railroads and American Economic Growth*. In a 54-page rebuttal (which Fogel read that

night after dinner in its entirety), he calculated the possible dynamic effects and found them small.⁴

In framing the calculation a few points need to be kept in mind. For one thing the attribution of dynamism sometimes turns out to be erroneous double counting of the static effect. Historians will sometimes observe with an air of showing the large effects of transport that the canals or the railways caused transport costs to fall *and* increased the value of coal mines or made possible larger factories—“dynamic” effects (the word is protean). But the coal lands and factories were made more valuable simply because the cost of transporting their outputs was lower. The higher rents or the larger markets are alternative means of measuring what is the same thing, the fall in the cost of transporting coal or pottery or beer.⁵ To add them together is to count the same effect twice.

For another, some of the dynamic effects would themselves depend on the size of the static, 2.5 percent effect. For example, one “dynamic” effect is that new income is saved, to be reinvested, pushing incomes up still further, by the much honored logic of “accumulate, accumulate.” The trouble is that the additional income in the first round is very small. A 2.5 percent first round leads to a much smaller second, and a still smaller third round.

And if it would lead to a bigger second and still bigger third round, there’s something strange about the model—perhaps “economies of scale” have been thrown into the model at just the right time to make it explosive, as in modern growth theory. In that case anything, simply anything, could have started off the dynamo, and at any time from Tyre and Rome to the present. Explosive models that give no reason for becoming explosive exactly in 1700 or 1800 have not explained the sharpest upturn of real incomes per head in history. They have merely renamed the upturn “economies of scale.” The new growth theory in economics revives an idea of Alfred Marshall in 1919 and of Allyn Young in 1928 that bigger is better, if you have smart neighbors, especially in its economies-of-scale and especially in its economies-of-neighborhood form initiated by among others Paul Krugman and David Romer and Charles Sabel (the latter two, I am pleased to note, were my students as undergraduates; I wish Krugman had been, too: I would have taught him some intellectual humility). For example, people gathered in cities sometimes do a little better. But sometimes a little worse. The theories anyway are often a trifle exiguous. Though humility is not Krugman’s

most prominent virtue, he does charmingly admit that his version of the “new economic geography” shares some of these handicaps. He quotes against himself a “sarcastic physicist” as remarking, “So what you’re saying is that firms agglomerate [in cities; or in economic growth] because of agglomeration effects?”⁶ And measurements of such effects show them to be small, on the order of perhaps 10 percent. That’s enough to explain why Chicago beat out Moline or St. Louis, and so explains the geography of production and consumption. A good thing to know. Interesting. Let me show you the mathematical model. But the 10 percent does not go very far to explaining an enrichment of 100 percent or 1500 percent.

And there’s a deeper problem with transport dynamics. Such truly dynamic effects as externalities leading to agglomeration effects may arise from expensive as much as from cheap transportation. Forcing more industry into London in the early nineteenth century – imagine for example humming cotton mills down at Kew in lilac time – might have achieved economies of scale in 1776 or 1815 which were in the event dissipated by the country locations chosen under the regime of low transport costs (and, to be serious about the history, without the constraints of regulations in the literal City of London or its westward extensions). In fact, precisely because of its advantages in transport costs to its numerous consumers at home and abroad, greater London before the eighteenth century *was* the manufacturing center of England, having fully ten percent of the English population in the mid-seventeenth century. Once you introduce the possibility of economies of scale, in other words, the balance of swings and roundabouts has to be calculated, not merely asserted – after all, that is the anti-invisible-hand point of industrial policy and infant-industry protection and path dependence and other allegedly practical implications of what economists call “non-convexities.” Manufacturers did relocate to Manchester and Birmingham at the call of a little cheaper labor and a little cheaper transport. So?

* * * *

Sector by sector the older heroes have fallen before the research of the economists and historians. Marx put great emphasis for instance on the enclosure of open fields, that is, the dissolution of the medieval agricultural community and its translation into compact, individualistic farms. Marx claimed that enclosure enriched the investing classes and drove workers into the hands of industrialists. Most educated people believe the tale as gospel truth, and are quite sure that a lot of industrial

investment came from the profits from enclosures, and that the workforce for industrialization was “pushed off the land.” Sellar and Yeatman capture the bits we can remember: “there was an Agricultural Revolution which was caused by the invention of turnips and the discovery that Trespassers could be Prosecuted. This was a Good Thing, too, because previously the Land has all been rather common, and it was called the Enclosure movement and was the origin of Keeping off the Grass, . . . [culminating] in the vast Royal Enclosure at Ascot.”^z

But by now several generations of agricultural historians have argued (contrary to the Fabian theme first articulated in 1911, following Marx) that eighteenth-century enclosures were in many ways equitable and did not drive people out of the villages.^s True, Parliament became in the eighteenth century an executive committee of the landed classes, and made the overturning of the old forms of agriculture easier than it had been under earlier and royal supervision. Oliver Goldsmith lamenting the allegedly deserted village wrote in 1770 that “Those fenceless fields the sons of wealth divide,/ And even the bare worn common is denied.” But contrary to the pastoralism of the poem—which reflects aristocratic traditions in poetry back to Horace and Theocritus more than evidence from the English countryside—the commons was usually purchased rather than stolen from the goose. One can point with sympathy to the damaging of numerous holders of traditional rights without also believing what is false—that industrialization in any important way depended on the taking of rights from cottagers to gather firewood on the commons. Industrialization, after all, occurred first in regions long enclosed and far to the north and west, such as Lancashire or Warwickshire, not in the East Midlands or East Anglia or the South, the places where the Parliamentary acts of the eighteenth century did transform many villages. And in such freshly enclosed areas the local populations *increased* after enclosure.

The result of enclosure was a little more efficient agriculture. Perhaps the efficiency is why enclosure increased employment, because it raised the quantity demanded for now more productive workers. But was enclosure therefore, to take the optimistic view, the hero of the new industrial age? By no means. Nothing much would have changed had English agriculture, like agricultures on the Continent, resisted enclosure until a century after industrialization.² The productivity changes were small, perhaps a 10 percent advantage of an enclosed village over an open-field village, and the profits small in national terms, though a high

percentage of the previous rents (about doubling, which explains why they happened: that's the most reliable method of calculating the productivity change).¹⁰ Agriculture was a large fraction of national income (shrunk perhaps to a third by 1800), but the share of land to be enclosed was only half of the land of England (the rest were those "regions long enclosed").¹¹ Harberger's Law asserts itself again: $(1/3) (1/2)$ (10 percent) = 1.6 percent of national income was to be gained from the enclosure of open fields. Improved road surfaces around and through the enclosing villages might well have been more important than the rearranging of scattered plots on which most historical attention has been lavished (straightening and resurfacing of roads went along with enclosure, but in the historical literature is seldom stressed).

Nor was Adam Smith correct that the wealth of the nation depended on the division of labor. To be sure, the economy specialized. Ann Kussmaul's pioneering work on rural specialization shows it happening from the sixteenth century onward.¹² Maxine Berg and Pat Hudson have emphasized that modern factories need not have been large, yet the factories nonetheless were closely divided in their labor.¹³ Most enterprises were tiny, and accomplished the division of labor through the market, as Smith averred. It has long been known that metal working in Birmingham and the Black Country was broken down into hundreds of tiny firms, anticipating by two centuries the "Japanese" techniques of just in time inventory and detailed sub contracting. A division of labor certainly did happen, widely.

That is to say, the proper dividing of labor, like the proper marshalling of transport and enclosure, made the economy more efficient. Gains were to be had, which suggests why they were seized (compare agglomeration effects explaining specialization of, say, Chicago in meat packing). French engineers at the time were amazed by the division of labor in Britain. But the division of labor was much noted in China at the time as well, yet did not result in an industrial revolution. And a new technique of specialization, like an advantage from agglomeration in Chicago, can be profitable to adopt yet lead to only a small effect on productivity nationally. The modest, if by no means unimportant, productivity changes from the puddling and rolling of iron amounted 1780 to 1860 to about 0.9 percent per year in the industry, which itself was not gigantic.¹⁴ The national gains were modest in the absence of dynamic effects, because the static gains from more complete specialization are limited by Harberger's Law.

Consider the following extreme thought experiment. Specialization in the absence of technological change can be viewed as the undoing of bad locations for production. Some of the heavy clay soil of the Midlands was put down to grazing, for example, which suited it better than wheat. Or the labor of the Highlands was ripped off the land, to find better employment—higher wages, if less Gaelic spoken—in Glasgow or Nova Scotia or North Carolina. The size of the reallocation effect can be calculated, à la Harberger. Suppose a quarter of the labor of the country was misallocated. And suppose the misallocation was bad enough to leave, say, a 50 percent wage gap between the old sector and the new. This would be a large misallocation, indicating a large-scale irrationality of laborers in not moving to better jobs—or, more likely, a large-scale blockage laid down by bosses or a government controlled by bosses. The wage gap created by South African apartheid were even greater than 50 percent, but it seems unlikely that British wage gaps were so large as can be created by a sophisticated and powerful modern state intent on discrimination. Now imagine the labor moves to its proper industry, closing the gap. As the gap in wages closes the gain shrinks, finally to zero. So the gain from closing it is so to speak a triangle (called in economics in fact a Harberger Triangle), whose area is half the rectangle of the wage gap multiplied by the amount of labor involved. So again: $(\frac{1}{2}) (\frac{1}{4}) (50 \text{ percent}) = 6.25 \text{ percent}$ of labor's share of national income, which might be half, leaving a 3 percent gain to the whole. The gain, as usual, is worth having. But it is not itself the stuff of revolutions. The division of labor: No.

The economic historian Jeffrey Williamson would in some ways disagree. In 1990 he argued that in the early nineteenth century in Britain “imperfect capital markets starved industry for funds, driving a wedge between rates of return in industry and agriculture. Since the industrial capital stock was, therefore, too small, industrial jobs were fewer than they would have been had capital markets been perfect.”¹⁵ That is, he claims there was an economically relevant gap between high returns to capital and labor in cotton mills and coal mines against low returns in agriculture. He uses a four-sector general equilibrium model of the sort he has pioneered in economic history and economic development to argue that factually speaking the capital-market gap and the labor-market gap amounted by 1850 (say) to a 7 percent lower GDP than would have obtained in a perfected world.¹⁶ Perhaps. One can quarrel with details of his model. And seven percent is not the stuff of

revolutions. Further, Williamson himself—who is always generously comprehensive in his historiography—notes that many people (such as Crouzet and, with much less authority, since unlike Crouzet she has not done primary research into the matter, McCloskey) do not believe the imperfections existed in the first place. Long ago the economist George Stigler wrote a devastating essay against the conversation-ending rhetoric of “imperfections in the capital market.”¹⁷ An historian ignores Stigler to his peril.¹⁸

And Williamson makes the crucial point against his own argument: “the view that wage and rate of return gaps represent disequilibrium and factor market disequilibrium may also be challenged.”¹⁹ Yes, it may. The question is whether an observed gap is “economically relevant.” A higher rate of return to the owner of a wool mill as against a sheep farm may come from a greater degree of risk in making cloth than in raising wool. A higher wage in the industrializing North than in the agricultural South of England may come from costs of moving, including cultural tastes, and the disamenities of smoky Halifax—a point that Williamson himself demonstrates is factually relevant to the period. He writes, “some portion of the higher earnings of urban residents may be simply compensation for the disamenities of urban life and work.”²⁰ If so, the gaps represent reasonable adjustments to available opportunities, not sluggish stupidity. A southern agricultural laborer ordered peremptorily to go north to Halifax would incur costs of travel, retraining, homesickness, nastiness (in his southern mind) of northern life, tearing of social bonds that would outweigh the future returns from a higher money income. If at liberty, and nobody’s fool, he would disobey the order. The capital and labor markets would then be, the economists would say, “in equilibrium,” despite the observed wage gap. Free lunches from reallocation would not be sitting around un-eaten, because they would not in fact be free of relevant cost.

Gaps between industrial and agricultural wages have persisted in every country in the world for decades, even centuries. For example, they persisted for the whole of the nineteenth century, as Williamson notes, in the fabled land of mobility and liberty and being nobody’s fool but your own, the United States. Such persistent gaps on the order of 50 or 100 percent, most economists would suspect, cannot be viewed simply as stupidly ignored free lunches. A mill owner could think of twenty different ways to pick up the lunch if it were merely a matter of stupidity. And the laborers have every incentive to pick it up themselves.

Yet some economists have felt comfortable calculating the gain from reallocating labor across the wage gap, decade by decade, as though it were a free lunch sitting on the kitchen counter for a hundred years, to be slowly, persistently dined on. In honor of a great economist scientist who made the error fashionable, the calculation might be called the Kuznets Fallacy. The Fallacy is to believe without historical inquiry that every price divergence represents an opportunity for arbitrage, buying low to sell high without costs of transaction. It doesn't seem so.

Notes

1. Gerschenkron 1957 (1962).
2. For the pro transport side in Britain, against my argument, see Szostak 1991 and 2003.
3. David 1969. Fogel's reply was his presidential address to the Economic History Association meeting that year in Toronto.
4. Fogel 1979.
5. The point was made as long ago as 1970 by Roger Ransom.
6. Krugman 1997, p. 52. The jibe apparently registered, since Krugman mentions it again in Krugman 2000, p. 55. Compare Luciani 2004, p. 4: "To say the clustering [of an industry in a city] is the result of localized external economies is too vague. It is a bit like saying agglomeration takes place because of agglomeration effects."
7. Sellar and Yeatman 1931, p. 94.
8. McCloskey 1972a and works cited there.
9. Federico 2005, p. 151.
10. McCloskey 1972a using the robust method of rent increases; compare McCloskey 1983; confirmed by Allen 1992, though using Arthur Young's dubious surveys, and processing them with dubious statistical methods (misusing statistical "significance," for example; see McCloskey 1995a).
11. McCloskey 1975a; Wordie 1983. Re-confirmed by later studies by Allen 1992.
12. Kussmaul 1981.
13. For example in Hudson 1989.
14. McCloskey 1981, 1994; reprised in Harley 1993, p. 200.
15. Williamson 1990, p. 203.
16. Williamson 1990, p. 207.

17. Stigler 1967.
18. Williamson does not in fact ignore Stigler. In Williamson 1975, p. 317ⁿ¹⁶ he argues, just as he does here, that Stigler ignores dynamic effects.
19. Williamson 1990, p. 212.
20. Williamson 1990, p. 232.

Chapter 15. Nor Geography, nor Natural Resources

Geography is still another popular explanation that does not in fact work very well. The title page of my copy of Jared Diamond's *Guns, Germs and Steel: A Short History of Everybody for the Last 13,000 Years* (1997) contains an excited notation from when I first read it, in August 2000: "The best book I've read in years." It's still true, and I read a lot of books. Diamond argues very persuasively that the east-west axis of Eurasia from Spain to Japan made for shared domestications of plants and animals—wheat, rice, horses, chickens—that the north-south places like sub-Saharan Africa or the isolated places like Australasia or the north-south *and* isolated places like the Americas could not enjoy. His is a powerful argument for why "advanced" societies tended strongly to be Eurasian, from China to Rome (though he does emphasize that in Africa and in Polynesia and the Americas the advance was coming along, slowly—though in the sixteenth through nineteenth centuries it was shorted out by European conquests).

Diamond reports the question of his New Guinean friend Yali, and says that he takes it as his guide: "Why is that you *white people* developed so much cargo?"²¹ Good question. But Diamond's geographical argument breaks down when the focus narrows geographically, as it must be narrowed to really answer Yali's Question: why did the *northwestern Europeans* (and their offspring the white settlers of Australia, and their imitators the Japanese, perhaps "white" from a New Guinean point of view) have an Industrial Revolution? The correct answer, which Diamond does not give, is that the northwest European "white people" had an Industrial Revolution and the other people—whether Eurasian or African or Mesoamerican—did not, until after the northwest Europeans had led the way. Italians, Iraqis, Indians, Chinese, and other beneficiaries of the 4000-year head start in civilization coming out of the Fertile Crescent did not get there first. The Dutch and British did, closely followed by the French and Germans and Americans. Why? Diamond's brilliant explanation of why China and Turkey both had domesticated chickens and wheat tells why you would not have expected an industrial revolution among the Incas or the Zulus—at any rate not in 1400 C.E. or 1800 C.E. But it sheds no light at all on why Holland and then Britain made the first modern economies out of the widely shared heritage of Eurasia, and therefore developed so much cargo.

Diamond in fact gets sidetracked, as people tend to do, into the very different question of why European people were so good at *violent* conquest after 1492. He gives for example an account of Pizarro's capture of the Inca emperor in 1533 in a long Chapter 3, "Collision at Cajamarca," concluding that "the title of this book will serve as a shorthand for [the] proximate factors," namely guns, germs [smallpox especially], [sword and armor] steel, horses, ships, empires, and writing.²² Such factors, and a mad confidence born from the myth of the Christian knight, certainly do explain Pizarro's exploits. But such exploits have nothing to do with steam engines and electric lights and cargo planes, which constitute the "cargo" that Yali asked about. After a while, for example, the conquered people had themselves, by the very fact of conquest, new access to the Eurasian crops and animals and iron so laboriously accumulated. The 8000-year-old divergence thereby became irrelevant to Yali's inquiry. What now mattered was the divergence after 1700 and especially after 1800 of Europe from the Chinese or the Ottoman or the Mughal or the other advanced Eurasian empires.

Indeed, the particular selection of Diamond's title—guns, germs, and steel—were irrelevant to the Industrial Revolution in the narrow sense. Before the late nineteenth century, steel in its exact chemical definition (iron with less than 2 percent carbon) was very expensive, and was therefore used only for edge weapons and armor for the aristocracy, the better to cut down peasants and Incan soldiers and most frequently other European aristocrats. You can argue correctly that boring of cannon led to precision boring of steam cylinders, but until the late nineteenth-century the metal bored was not low-carbon "steel": it was bronze available all over Eurasia and Africa, or cast iron produced in bulk, a technique invented by the Chinese or the Bantu Africans, take your pick. Asians bored cannon, too (and indeed steel made in modest bulk was an Indian invention around 300 B.C.E.). Muskets and pistols had little to do with industrialization (interchangeable parts could have come from any mass produced mechanical device—clocks, for example). Precision scientific instruments and clockmaking had more to do with ingenious cast and wrought iron (wrought iron is iron with very small amounts of carbon, but also with impurities in the form of embedded slag), and expensive steel machine parts such as springs on a tiny scale, than military production did. And anyway the cotton textile machinery was first made largely out of wood, and only later out of iron, and only

late in the nineteenth century did it come to made out of the newly cheapened steel. Germs derived from Eurasian domestic animals (smallpox from cow pox) killed 95 percent of native Australians and Americans, depopulating for example an Amazonia that before the Europeans sustained many millions of people in an agriculture that until recently was thought impossible with the poor, leached soils of the rain forest. But the holocausts during and after the sixteenth century contribute nothing to understanding why white people in the nineteenth and twentieth developed so much cargo—an abundance that stunned Yali and his countrymen into cargo cults attempting during and after World War II to bring back the big airplanes of the Japanese and European conquerors. Killing people, whether on purpose or by accident of disease, does not make you rich.

Diamond concludes the Pizarro chapter by announcing that the rest of the book will discuss “no longer the questions of proximate causation that this chapter has been discussing,” but “why all those immediate advantages came to lie more with Europe than the New World.”²³ He’s back to touting the advantages of Eurasia. But something has gone wrong with the line of argument. True, the conquests can be explained by the immediate advantages (most of it recently borrowed by the Europeans from the East). But conquest is not the same thing as enrichment by the factor of sixteen. In 1800 most Europeans still earned the ancient \$3 a day. Yali’s question about cargo in the late twentieth century has been lost in answers about violence in the sixteenth century. You can see it in the outcome of an incident Diamond relates. Pizarro extracted from the Incan emperor a ransom of 3000 cubic feet of gold (after getting it, of course, he killed the emperor anyway: Pizarro was no gentleman). It was a down-payment on the river of gold and silver that poured into Spain for hundreds of years. Yet by 1800 Spain was among the poorest countries in Europe, well into the \$3-a-day category, and stayed well behind northwestern Europe until late into the twentieth century. Though once far famed for violent conquest, Spain had not learned even by 1900, except in the Basque or Catalan regions, how to industrialize, and even by 1975 it had not learned how to post-industrialize. Diamond’s focus on the reasons for conquest after 1492 has diverted him from the reasons for the revolution after 1700 in the making of cargo. He doesn’t answer the question he poses.

* * * *

Jeffrey Sachs and his co-authors cannot be charged with not answering the question they pose: do “tropical ecozones and landlocked countries face obstacles to development not faced by temperate-zone and coastal economies”? Yes, they do: “the tropical regions are nearly uniformly poor, while temperate regions have a wide income range with a small proportion (7 percent) of the temperate-zone populations at income levels below \$2000, compared with 42 percent of the tropical-zone population.”²⁴ But Sachs is not asking how northwestern Europe stole a march after 1700 on other temperate-zone populations such as the Chinese or the Ottomans. His tropical focus is persuasively argued, and he is not claiming that the tropics are geographically doomed—merely that they need tropical-specific research, such as cheap vaccines for malaria. But the temperate-tropical division, like Diamond’s axes of continents, cannot explain what needs explanation historically: why English people got so much cargo, and why by contrast temperate-zone Chinese people in 1700 C.E. or temperate-zone Roman people in 100 C.E. did not. After all, northwestern Europe initiated the modern world when still debilitated by cholera and smallpox and tuberculosis and especially *by the malaria so devastating to modern Africa*, under the name of “ague” (from which Oliver Cromwell died), called among the industrious Italians *mala aria*, “bad air.”²⁵ Malaria reached its global peak, including much of Europe, in the nineteenth century, just as Europe was industrializing. Something other than disease patterns was involved in the Industrial Revolution.

Mellinger, Sachs, and Gallup also argue persuasively that in recent time access to cheap ocean-going transport is crucial. But their world map of “land within 100 km of an ice-free coast or sea-navigable river,” defined as the 9-meter draft of modern ocean-goers, shows north China and Egypt as instances.²⁶ In former times, with shallower drafts of smaller ships, and none of the post-industrial improvements in Europe and the United States of rivers and harbors (the St. Lawrence Seaway; the numerous European ship canals as in the Netherlands), the map in 1700 would look less favorable to Europe and the United States, and would look relatively more favorable to places like China, Japan, and the Ottoman Empire that nonetheless did not stage an industrial revolution. Sachs and his co-authors, of course, are not attempting to explain the Industrial Revolution geographically. They would probably agree—Montesquieu and Henry Buckle to the contrary—that geography does not explain Europe’s head start. The vigorous northern air featured in

geographical theories (by Europeans) weakened people through lung infection, such as the chronic bronchitis that plagues England to this day. And as I said the bad air too once carried female *Anopheles* mosquitoes.

* * * *

A subspecies of the geographical argument is “resources.” Economists call natural resources “the original and indestructible properties of the soil,” in Ricardo’s phrase, or simply “land.” Some economic historians continue to put weight on Britain’s unusual gifts from Nature. Most don’t. The gifts of nature are what non-economist journalists call “resources” when they wonder why Congo and Russia with so much gold, diamonds, copper, chromium, cassiterite, and coltan are not as rich as France and Japan with none. The journalists and diplomats talk about oil, say, as being essential—which they believe implies that conquering the oil is a good idea, invading (say) Sumatra or Iraq. Such fractured economic logic exhibits the political problem with supposing that land makes for growth. It supports a species of diplomatic stupidity about “resources” which the economists have tried and tried without success to dislodge. The result has been such political catastrophes as the Japanese-American disputes about oil in the 1930s, or German theories of *Lebensraum*.

The scientific problem, and the reason that most economists do not believe the resource theory, is that land has fallen steadily in importance since 1800. The share of land in national income, including the value of oil lands, has shrunk in a modern economy so much that the gifts of nature have ended as economically speaking trivial—at two or three percent of national income. We saw the unimportance of land during the run-up of oil prices in 2008. Prices at the pump that non-economists believed would herald the end of Western civilization had modest economic effects. People feel instinctively that oil is “basic,” because it enters into so many products. To this the economist answers that all products are basic, which is to say that all products enter directly or indirectly into the production of others. “Basic” is therefore pretty much meaningless. Pencils and flower pots and bed frames are as “basic” as oil. The shred of meaningfulness it maintains is the ball-bearing theory of strategic bombing—bomb the ball-bearing factories, you see, and the German war machine stops. But in the event the Germans (and the North Vietnamese and others on whom the theory has been tried) go elsewhere, such as underground, or in the Soviet case east of the Urals.

In one version the resource theory of growth resembles the accumulation theory of growth. You get some profit from land or fish or oil or coal, it is said, and then reinvest it, and get rich. (By the way, Ricardo emphasized the *indestructible* character of [say] land close to London, and pointed out that mere extraction of fertility or coal [or later oil] is not a use of land defined as indestructible but rather the use of capital defined as a stock to be used up. A stand of trees is a stock of capital, to be used up slowly or quickly depending on the rate of interest, not an “original and indestructible character” of the soil or location.) The resource theory has the same flaw as the accumulation theory – that it cannot explain the gigantic enrichment of the average modern person.

Belief in the resource theory, for example, distorted South African economic policy for decades. It then dawned on white South Africans that merely having a stock of gold and diamonds in the ground does not make a modern economy – and that most particularly it does not do so if innovations depending on high human capital do not get used because you are intent for quite different reasons on keeping blacks and coloreds uneducated. Hong Kong and Singapore and even Japan with little in the way of natural resources leapt into the modern world, while most of the South African population did not. The Icelanders, to pick a very different case, worship fish as the source of their wealth. Yet it was Icelandic education intersecting with the demands of a modern world, not the wide ocean, that made the place rich, and allowed it to recover so quickly in 2010 from its unhappy experiment with U.S. mortgage-backed securities. As the economic historian Eric Jones puts it, about the United States, “the more meaningful assets of the United States were [not its resource endowments but] markets and institutions capable of vigorously exploiting its endowment.”²⁷

Notes

21. Diamond 1997, p. 14, italics supplied.

22. Diamond 1997, p. 80.

23. Diamond 1997, p. 81.

24. Mellinger, Sachs, and Gallup 2000, pp. 173, 186

25. Reiter 2000.

26. Mellinger, Sachs, and Gallup 2000, p. 178.

27. Jones 2003, p. 60.

Chapter 16. Not Even Coal

Yet four impressive scholars recently have insisted on coal: Anthony Wrigley (1962, 1988), Kenneth Pomeranz (2000), Robert Allen (2006), and John Harris (1998). The historical demographer Wrigley has long claimed that the substitution of mineral fuel for wood and animal power made the Industrial Revolution. In one sense Wrigley is obviously correct, since wood could not have fueled the steam engines and blast furnaces of England—though observe that the United States used wood to power steamboats on the Mississippi and charcoal to refine iron in Pennsylvania well into the nineteenth century. But coal deposits do in fact correlate with early industrialization. The coal-bearing swath of Europe from Midlothian to the Ruhr started early on industrial growth. As Jones observes, however, a capability of exploiting an endowment may matter more. English coal was important from an early date in heating London's homes, blackening the Black Country, eventually running Manchester's steam engines for cotton mills—though Manchester, *New Hampshire's* cotton mills kept using falling water. It is hard to imagine big electricity generating stations running on logs. Eventually hydro-electric and especially atomic power do something to replace coal, and we all hope that wind and solar and geothermal power will prevail. But coal still matters a lot.

Yet the sheer availability of coal does not seem, at least on static grounds, to be important enough for the factor of sixteen, or even a doubling 1780-1860. Economically speaking a coal theory, or any other one-step geographical theory, has an appointment with Harberger. The share in national income of land was much higher in the eighteenth century than now (a third then as against 2 or 3 percent now), but the share of coal land within all land was small. The calculations would be worth doing, but they probably would turn out like the others. Gregory Clark and David Jacks have recently argued that substitutes for coal meant that an upper bound on the loss from a coal-less Britain would have been a mere 2% of national income—when what is to be explained is a 100% increase down to the mid-nineteenth century and much larger increases afterwards.²⁸

Especially, of course coal, could be moved, and was—it went to Amsterdam and London, like iron and lumber from Sweden, or French

salt, or Irish cattle. The presence of coal somewhere reachable at low cost may have been important for the steam stage of industrialization, say 1800-1950. And before the railway a transport route by sea would have been very important. But the point is that the coal didn't need to be on the spot. As Goldstone notes, if the coal fields had been located in Normandy, then London and the Cornish mines would have imported their coal from France, and we would have no sage talk about the necessity of British coal inside the legal confines of Britain. Yet Normandy would not necessarily have industrialized, if lacking the requisite dignity and liberty of the bourgeoisie (whose standing there may be inferred from *Madame Bovary*). The place where steam engines were most used was Cornwall, with no coal. Norrland in Sweden exported lumber and paper pulp, but did not make the house frames or the paper.

The coal advocates are right, however, to emphasize that any argument about industrialization needs to be made comparatively. The Chinese in the seventeenth century had long been using coal on a big scale to get the high temperatures to fire ceramics, exporting the result westward.²⁹ Kenneth Pomeranz argues for the importance of the accident that in Europe, especially in Britain, cheap coal existed close to populations. China's coal was far away from the Yangzi Valley—the Valley being until the nineteenth century a place which was in other ways, he argues, comparable to Britain in wealth, at the high end of the \$3 ± \$2 a day of our ancestors. The Valley was where the demanders of coal and in particular the skilled craftsmen were. China used coal (and natural gas, of all things) early, but its coal was inland, with no cheap water routes like London's "sea coal" from Newcastle, used in English lime kilns and glassmaking from the thirteenth century and increasingly for house fuel (the local price of firewood had sharply increased) around 1600.

Yet one might object that a more vigorous proto-innovation ("vigorously exploiting its endowment") would have *moved* the industry to, say, Manchuria (not entirely unnaturally, perhaps, under the rule of Manchus after 1644), or at any rate to some other coal-bearing lands of the gradually widening Central Kingdom, exporting the finished products instead of the raw coal. After all, eventually China did just that, as on a smaller scale the British did in the (newly) industrial northwest and northeast, or the Germans in Silesia, or on a larger scale the Europeans did in exporting finished products to the world. You do not

have to move coal, even before the railway made moving it cheap. You can move people and move finished goods.

Coal as merely a new source of heating, in short, does not work very well for explaining our riches. Robert Allen, who would disagree, has noted that coal was anyway relatively cheap in England. By the end of the eighteenth century, certainly in London, and even the once-poor north, English people enjoyed higher real wages than most of the Continent, except the Netherlands: “Craftsmen in London or Amsterdam earned six times what was required to purchase the subsistence basket [of goods], while their counterparts in Germany or Italy only 50% more than that standard.”³⁰ His argument is that cheap coal relative to scarce labor led to innovation. That is, he attributes the scale of British innovation to the pattern of factor scarcities. Labor was scarce relative to coal fuel in Britain, *and so* innovations would be labor-savings. *And so* Britain would have a large volume of innovations.

Neither “*and so*” makes much economic sense. The economic historian H. J. Habakkuk in 1962 made tentatively the same argument about the United States in the nineteenth century: labor was scarce relative to capital, *and so* America innovated by saving labor. Allen himself accurately summarizes one crushing point against such an argument, following critics such as Peter Temin and other economic historians reacting to Habakkuk: “one problem is that businesses are only concerned about costs *in toto*—and not about labor costs or energy costs in particular—so all cost reductions are equally welcome.”³¹ Well put. As another leading student of technology, Tunzelmann, remarks, “In truth, it is extremely difficult to make a logical theoretical argument for the seemingly self-evident proposition that scarce labor should induce labor-saving bias in technology.”³² A shilling got from saving not labor but coal—which was in fact the obsession of early users of steam engines, as Margaret Jacob has shown from their writings—is the same shilling that one got from saving labor (which Jacob notes was seldom mentioned in the writings of the engineers she has examined).³³ Later, in the nineteenth century, as Allen and I discovered some time ago, the British iron- and steel-making made advances mainly by saving coal, as for example Neilson’s recycling of hot gases from the blast furnace to cut coke usage by two-thirds, or the hard driving later in the century with similar results.³⁴ By that time Britain had even higher wages, and the real price of coal had not much changed. What happened, one may ask, to

the alleged labor-saving bias between the late eighteenth and the late nineteenth centuries?

If wages relative to coal prices were all that mattered, Jacob has also noted, Belgium and the extreme south of the high-wage Netherlands, both of which had coal, and in any case could import it very cheaply from Northumberland across the North Sea, would have been the Birminghams and Manchesters of the late eighteenth century. And to look at the point from the opposite side, why did not industry on the *low*-wage parts of the Continent away from the Netherlands therefore explode with *coal*-saving innovations? You can see the underlying illogic: something is always relatively scarce, “and so” innovation in saving the scarce input will be high. And so every age and place has an incentive to innovate in great volume. Something is wrong in the logic.

Cheap coal can indeed explain the location of power-hungry industries in Lancashire vs. Wiltshire, or Birmingham vs. Bordeaux (though, by the way, Allen does not sufficiently acknowledge the importance of water power). If one is willing to glide by the point that a shilling is a shilling, as Allen does so glide, after tipping his hat to the critics of Habbakuk, then the high ratio of wages to coal might be supposed, illogically, to affect the composition of innovations. But the matter to be explained in the Industrial Revolution is not the composition of innovation, but its magnitude. Patrick O’Brien and Calgar Keyder recognized the point long ago, arguing that France took “another path” than Britain did to the twentieth century. One could ask therefore why in eighteenth-century Italy or indeed China there was not a labor-*using* path to the modern world. That British innovations were biased (as the economists put it) towards labor saving, if they were (though in iron making, as I said, they definitely were not), says nothing at all about how many innovations in total the British would make. If spaghetti is cheap relative to rice in Italy compared with Japan you can expect Italians to eat relatively more spaghetti than rice. But such an expectation does not say anything about how much food in total the two countries will consume, one sort of food aggregated with another. In explaining modern innovation the aggregate is what matters, not the pattern.

It is easy to get confused about the economics here. China did use labor-intensive methods of all kinds. But doing so is merely using old technology (not innovating new technology) in a way determined by the abundance of labor relative to, say, land. In such matters Allen properly

affirms that relative prices matter. Yet using people to hoe the fields by hand instead of using capital-intensive methods such as great iron plows is not an advance of the sort that made us rich compared to our great-great-great-great-great grandparents. It is not an “advance” at all, in fact, but a choice of different routines from existing plans of business, different paths on the same map. Allen cites Rainer Fremdling, who has persuasively shown that the non-use of coke for iron on the Continent before the 1850s—it had been in use in Britain for a century by then—was not an entrepreneurial failure (as Landes for example had argued) but a matter of relative prices.³⁵ Peter Temin had argued earlier, likewise, that the use of charcoal for blast furnaces in the U.S. at the time was another case in point: wood for charcoal was cheap relative to coal there.³⁶ And I had done the same sort of research on British iron makers about a claimed “failure” to use now *Continental* techniques of by-product coking later in the century, or a “failure” to have in other ways the same pattern of use of technology as the Americans or Germans (David Landes again made the claim I was criticizing; Landes does tend to leap to scolding for sloth and incompetence whomever was not using whatever he asserts without quantitative inquiry was the best technique; it is a corollary of his race-to-the-swiftest, *élan-vital* theory of world history).³⁷

Splendid though such quantitative researches in historical economics are, however, they are not the same as explaining the innovativeness of British vs. Continental economies in the eighteenth and early nineteenth centuries, or the innovativeness of Europe generally 1700 to 1900. To explain the size as against the composition of innovativeness you need factors like a lead in the practical side of the Enlightenment (Jacob, Mokyr, Israel) or in entrepreneurial *élan vital* (Landes: though note how poorly the hypothesis does in the late nineteenth century) or—to come to the One True Explanation—in the extent to which a rhetoric of dignified and liberated business had been adopted (McCloskey). One needs, to put it again in economic jargon, an explanation of absolute, not comparative, advantage. Relative prices of the sort economists usually concern themselves with, in other words, have a highly doubtful connection with the amount of innovativeness in total. As Allen argues, the scale of Britain’s mining of coal and lead explains “why steam engine research was carried out in England.”³⁸ That sounds reasonable. Margaret Jacob for example would probably agree. For the same reasons, as Alan Olmstead and Paul Rhode have recently

argued, biological innovation in crops and livestock took place in the United States during the nineteenth century – this against still another version of the scarce-labor hypothesis (which claims that mechanization was the key to American agriculture).³⁹ But economies of scale to innovation in a leading industry is not a theory of the amount of innovation of all sorts, in banking and insurance and cotton and wool and glassmaking and printing. The total amount of innovation is what is to be explained.

The historian John Harris argued for coal in a way that makes more sense than the static arguments favored by the economists. He wrote that “the move [in Britain in the seventeenth century and before] to general use of a cheaper mineral fuel. . . . nearly always necessitated important technical change in order to accommodate the use of the equipment of the relevant industry,” such as glass-making or salt-making. “The long success with this change of fuel . . . over a couple of centuries was a major reason for a willingness to try new methods in other industrial fields and to be prised away from traditional practices.”⁴⁰ Yes: the accident of easy coal and expensive forests could lead to a tinkering mentality (say) about applications of heat. (Though again the Chinese were in such matters many centuries ahead.) But in this case the Coal Effect works through habits of the mind, not through relative prices directly, as the economist would wish. I stand instead with the admirable Tocqueville: “Looking at the turn given to the human spirit in England by political life; seeing the Englishman. . . inspired by the sense that he can do anything. . . I am in no hurry to inquire whether nature has scooped out ports for him, or given him coal or iron.”⁴¹

* * * *

How far have we gotten?

The claim is that the economist’s static model does not explain the factor of sixteen. The static model and its quasi-dynamic extensions can tell what did *not* cause the Industrial Revolution and its sequel, correctives to popular fable and sharpeners of serious hypotheses. But the kind of growth contemplated in the classical models, embedded nowadays deep within modern economics as a system of thought, was not the kind of growth that overtook Britain and in the late eighteenth century and then was gloriously continued in the nineteenth century and then in the wide world.

One might reply that many small effects, static and dynamic, could add up to the doubling of income per head to be explained: trade, coal, education, canals, peace, investment, reallocation. The late Charles Feinstein suggested this to me at a conference bringing the “new” economic history to Britain in the 1980s. I honor the liberal impulse to avoid uncausal explanations. On the other hand, the purpose of a science is to uncover causes, and if one cause such as gravity explains most of the phenomenon, such as a falling stone, then there can’t be a reasonable complaint that “uncausal explanations are always wrong in (physics or) history.” Sometimes they are right, or right enough for scientific purposes.

And another trouble—the historical trouble emphasized before—is that many of the suggested effects, whether in the first or the second century of modern economic growth, were available for the taking in earlier centuries. The mystery inside the enigma of modern economic growth is why it is so very modern. If canals, say, are to explain some major part of the growth of income it must be explained why a technology available since the beginnings of settled society, and used with increasing sophistication in many of them from the third millennium B.C.E. on, was suddenly so very useful as to cause an epochal rise in productivity. The Chinese invented the pound lock in 984 C.E. (it got to Europe in 1373) and in 1327 C.E. completed the Grand Canal of 1100 miles (the pride of French rationalistic engineering, the Canal du Midi, completed in 1681 C.E. from the Atlantic to the Mediterranean, was a mere 149 miles). China had elaborate systems of lockless transport canals many centuries earlier, as of course did ancient Mesopotamia and the Indus Valley civilization.⁴² The Iranians dug long tunnels through mountains to water their plains. The Romans led water for scores of miles on arches and through tunnels. What is so special about the Bridgewater Canal (1776) bringing coal to Manchester?

In any case, adding up the material causes proposed for the Industrial Revolution doesn’t seem to work, either. One trouble is that adding up a dozen effects shown to be individually on the order of 1 or 2 percent still does not come close to the 100 percent in the first century of the Industrial Revolution. But the deeper trouble is that the doubling is not enough, since in short order the result of modern economic growth was not a factor of 2 or even 3 but a factor of sixteen—not 100 percent but 1,500 percent—and greatly larger if the better quality of goods and

services like lighting and health care and education could be properly accounted for.

* * * *

The classical model from Smith to Mill was one of reaching existing standards of efficiency and equipment. The model looked plausible until the late nineteenth century. To attach it to a place: the model was one of reaching Holland's riches in 1700. And indeed as late as 1870 the Western European countries had merely done that, so far as average income per head was concerned. (They had prepared the technical and organization grounds for a growth gigantically beyond old Holland, but that is another and later matter). No wonder the classical economists imagined limits close to what they could see plainly in Holland, and had no idea that the \$5.40 a day (in 1990 prices) that the average Western European earned in 1870—about what the average Dutch person had earned 170 years earlier—was to increase to an astounding \$50 a day by the end of the twentieth century. According to Maddison's figures, per capita income in the Netherlands was \$2110 per capita in 1700 (expressed in 1990 dollars), about what in 1870 had been achieved in most western European countries—for example, France at \$1876 and a collection of the twelve richest European countries at \$2086.⁴³

Holland was to the eighteenth century and even the early nineteenth century what America was to the twentieth, a standard for the wealth of nations. "The province of Holland," wrote Adam Smith in 1776, speaking in precise terms about the west of the United Netherlands, "in proportion to the extent of its territory and the number of its people, is a richer country than England. The government there borrows at two percent., and private people of good credit at three. The wages of labor are said to be higher in Holland than in England, and the Dutch. . . trade upon lower profit than any people in Europe."⁴⁴ Smith's emphasis on profit at the margin is characteristic of the classical school. The classical economists thought of economic growth as a set of investments which would, of course, decline in profit as the limit was reached. (The anxieties of stagnationism in the 1940s among economists such as Keynes and Alvin Hansen, as I've noted, were similar. They reckoned that opportunities had been exhausted, and that after the War the Great Depression would return. On the political left, Baran and Sweezy [1966] kept up the stagnationist argument for some decades after its time.)

Smith spoke a few pages later of “a country which had acquired that full complement of riches which the nature of its soil and climate, and its situation with respect to other countries allowed it to acquire.”⁴⁵ He opined that China “neglects or despises foreign commerce” and “the owners of large capitals [there] enjoy a good deal of security, [but] the poor or the owners of small capitals . . . are liable, under the pretense of justice, to be pillaged and plundered at any time by the inferior mandarins.”⁴⁶ In consequence the rate of interest in China, he claimed, is 12 rather than 2 percent. Not all the undertakings profitable in a better ordered country are in fact undertaken, says Smith, which explains why China is poor. Smith and his followers sought to explain why China and Russia were poorer than Britain and Holland, not why Britain and Holland were to become in the century or two after Smith so very much more rich (Smith, incidentally, was off in his facts about China here, as most Europeans were: not all of China was in fact poor). The revolution of spinning machines and locomotive machines and sewing machines and reaping machines and insurance companies and commodity exchanges and universities that was about to overtake north west Europe was not what Smith had in mind. He had in mind that every country, backward China and Russia, say, and the Highlands of his native Scotland, might soon achieve what the thrifty and orderly Dutch had achieved. He did not have in mind the factor of sixteen that was about to occur even in the places in 1776 with a “full complement of riches.”

In the event a vastly fuller complement of riches came from innovation in machines, both physical and social. Smith, of course, did mention innovation, in his discussion of the division of labor: “Men are much more likely to discover easier and readier methods of attaining any object, when the whole attention of their minds is directed towards the single object.”⁴⁷ And he was eloquent on the need for sound institutions, such as public schools and sensible commercial policy. What is striking in his and subsequent discussions, however, is how much weight was placed on mere reallocations. But the reallocations, the reshufflings, the moving even of coal—mere efficiencies—we have found, were too small to explain what is to be explained.

Part VII. Foreign Trade Was Not an Engine of Growth

Abstract

Trade reshuffles. No wonder, then, that it doesn't work as an engine of growth — not for explaining the scale of growth that overcame the West and then the Rest 1800 to the present. Yet many historians, such as Walt Rostow or Robert Allen or Joseph Inikori, have put foreign trade at the center of their accounts. Yet the Rest had been vigorously trading in the Indian Ocean long before the Europeans got there — indeed, that's why the West wanted to get there. Trade certainly set the prices that British industrialists faced, such as the price of wheat or the interest rate. But new trade does not put people to work, unless they start unemployed. If they are, then any source of demand, such as the demand for domestic service, would be as important as the India trade. Foreign trade is not a net gain, but a way of producing importables at the sacrifice of exportables. The Harberger point implies that static gains from trade are small beside the 1500% of growth to be explained, or even the 100% in the first century in Britain. Trade is anyway too old and too widespread to explain a uniquely European — even British — event. One can appeal to “dynamic” effects, but these too can be shown to be small, even in the case of the gigantic British cotton textile industry. And if small causes lead to large consequences, the model is instable, and any old thing can cause it to tip. Ronald Findlay and Kevin O'Rourke favor foreign trade on the argument that power led to plenty. But domination is not the same thing as innovation. In short, the production possibility curve did not move out just a little, as could be explained by trade or investment or reshuffling. It exploded, and requires an economics of discovery, not an economics of routine exchanges of cotton textiles for tea.

Chapter 17: Foreign Trade was Not the Cause, Though World Prices were a Context

For example, trade, whether foreign or domestic, reshuffles. It doesn't discover, except in the wide (and wise) sense that assigning goods to their highest valued user does. After all, trade is merely the moving of stuff from one place to another. Trade is good to do, and even at moderate markups it is profitable, too. Therefore it happens. But shuffling stuff about for a modest productivity gain (even if a large gain in the margin of profit) is not the same thing as revolutionizing the means of production. Shuffling resources around is not the way to get the (cautiously estimated) factor of sixteen.

Anyway, as the historian John Chartres argues, Britain had "well before 1750 . . . an unusual flexibility in the employment of its factor endowments."¹ It had none of the internal tariffs that harried French businesspeople into the nineteenth century, and few of the obstacles to the employment of women in industry that stifled enterprise in China or the Arab world, and none of the class barriers to mobility among industries that shackled India (and especially did so after European theories of stages of development took hold under the British Raj). So in Britain there were few enough £100 notes lying on the ground ready to be picked up. Expanding the woolen industry and contracting the growing of wheat might achieve for the nation, if the reshufflers were lucky or skilled, a national gain of 10 percent. But not 1500 percent. To put the findings another way, we have learned since 1970 many notes: that industrialization in Britain was not been mainly a matter of foreign trade, not a matter of internal reallocation of the labor force, not of transport innovation, not investment in factories — all of which are matters of reshuffling the employment of factor endowments.

Consider, then, foreign trade. An old tradition beginning with Arnold Toynbee in 1884 and carried into the 1960s by the American historian Walt Whitman Rostow and by the British historians Phyllis Deane and W. A. Cole, and still popular among most general historians and some economic historians, puts emphasis on Britain's foreign and colonial trade as an "engine of growth."² What the research since 1970 has discovered, though, is that the existence of the rest of the world mattered for the British economy, but not in the way suggested by the metaphor of an engine of growth.³ True, there is a correlation, which was

what inspired the metaphor in the first place. The correlation was expressed most baldly in 2006 by Allen, who declared briskly that “econometric analysis shows that the greater volume of trade [per capita in the Netherlands and Britain] explains why their wages were maintained (or increased) even as their populations grew.”⁴ “Econometric analysis” sounds impressive. But let me tell you that it commonly depends, as here, on an thoughtless misuse of something called a *t* test. And anyway it means merely *post hoc ergo propter hoc* — trade was high, and wages were, too. *Post hoc* is a suggestive form of reasoning, but by itself is often misleading. *Ante hoc ergo non propter hoc*, “before this therefore *not* because of this,” works every time. But *post hoc*, which is the only insight the proud econometrician can offer, does not. The economist Allyn Young wrote in 1928 that “it is dangerous to assign to any single factor the leading role in that continuing economic revolution which has taken the modern world so far away from the world of a few hundred years ago. But is there any other factor which has a better claim to that role than the persisting search for markets? No other hypothesis so well unites economic history and economic theory. The Industrial Revolution of the eighteenth century has come to be generally regarded, not as a cataclysm brought about by certain inspired improvements in industrial technique, but as a series of changes related in an orderly way to prior changes in industrial organization and to the enlargement of markets.” The conclusion was premature.

The great historian of the slave trade Joseph Inikori believes that “technological change was trade driven,” but his arguments are correlations on the basis of an elderly model of import — substitution industrialization (the same, by the way, that inspired Latin America in the 1960s and 1970s to economically disastrous policies of protectionism).⁵ He claims that technological change happened chiefly in the “socially and agriculturally backward northern counties,” which would surprise James Watt of Birmingham, not to speak of the instrument makers of London. And if trade causes technological change, why not in the great trading empires of the past? Something was peculiar about northwestern Europe. It was not trade. Inikori believes that his study of 2002 “provides sufficient proof that the Industrial Revolution in England was a product of overseas trade — the first case of export-led industrialization in history.”⁶ But *why* the first? Exports grew, sometimes explosively, in many other times and places — the Silk Road, for example, when political unity was established in Central Asia.

Why not trade-powered industrialization, from Sumer on? Inikori and many others have emphasized the thrusting Atlantic trade of the eighteenth century. But they have not explained why other trades did not have similar effects, or why in the eighteenth century foreign trade would suddenly provoke innovation that it did not provoke in Europe in the sixteenth. Foreign trade is not the unique episode that could explain the Industrial Revolution.

Consider France. French foreign trade in the eighteenth century grew *faster* than British. If foreign trade were the engine, then one would expect the Industrial Revolution to have been mainly French. It was not. John Nye argues that the real constraint on French progress was not its foreign trade but its domestic trade. Britain in such a view was from early times a nation of free trade *internally*. Nye argues persuasively that Britain in fact was internationally less a free-trade country than France – but more free-trade internally. France, and Spain (and of course those geographical expressions “Italy” and “Germany”) had high internal tariffs until the nineteenth century. France was and is famously centralized, but for many centuries England had been effectively centralized in fiscal and contract law. France, in other words, was centralized in the wrong way, with *intendants* from Paris and officials in the provinces interfering with the dignity and liberty of innovators at every turn. The French state imposed quality standards on textiles, and gave subsidies to enterprises it approved of, licensed some companies and refused licenses to others.

Even so, France had a pretty big domestic market. Guillaume Daudin concluded that in the eighteenth century that “for all types of high value-to-weight goods, some French supply centers reached 25 million people or more. For all types of textile groups, some French supply centers reached 20 million people or more. Even taking into account differences in real, nominal and disposable income per capita, these supply centers had access to domestic markets that were at least as large as the whole of Britain. Differences in the size of foreign markets were too small to reverse that result.”^z That is, the size of the internal British market does not seem to explain Britain’s lead. In short, eighteenth-century foreign and domestic trade and their alleged economies of scale in Britain do not seem to be special.

* * * *

Many historians have noted that the very reason that Columbus sailed the ocean blue was to get access to what was already a great

playground of foreign trade by Arabs, Chinese, Japanese, Indians, Indonesians, Africans, namely, the Indian Ocean. The Zhizo people, on what is now the border of South Africa with Zimbabwe, along the Limpopo River 300 miles from the eastern coast of Africa, acquired in the tenth century C.E. *Indonesian* products, exchanging their gold for glass beads brought directly 5000 miles across the Indian Ocean on the equatorial trade winds. The successor culture there of "K2," with its capital in the thirteenth century at Mapungubwe, traded their gold for *Chinese* porcelain.⁸ By 1500, Goldstone notes in summarizing recent work (some of it the pioneering work by that same Atlantic-trade-favoring Robert Allen), "Asia generally had greater agricultural productivity and more refined craftsmanship than Europe [because even the clever Italians looked feeble beside the Indians and Chinese] and offered a wide variety of products, such as silk and cotton fabrics [because European linens and woolens were not for everyday in the Gangetic plain in summer; by contrast every well-to-do European lusted after the gauzy and colored fabrics of the East, and the Italian and then other European borrowers of Chinese technology could not make enough until well into the Industrial Revolution], porcelain, coffee, tea, and spices that Europeans desired."⁹ The navigational miss in 1492 by the Admiral of the Ocean Seas in his search for the East Indies nonetheless in time got the miserably poor Europeans something useful for getting into the Indian Ocean trade: Incan gold, and Mexican and Peruvian silver. As the Marxist historian Andre Gunter Frank put it, Europe "used its American money to buy itself a ticket on the Asian train."¹⁰ And in the meantime the Portuguese had rounded the Cape of Good Hope.

Yet attributing the Industrial Revolution to the European trade with the Indian Ocean is a dubious project. The question arises, for example, why the lag in causation was 250 years, from 1500 to 1750. And if trade is such a very enriching and then industrializing activity, why did not the Indian-Ocean traders and manufacturers themselves have their own industrial revolution, centuries before the backward Europeans – or at the worst with the same mysterious 250-year lag as required by the hypothesis that European trade with the East as an engine of growth? After all, the Orientals were closer to the action that the Europeans so craved to get into. It cannot be an advantage (the economist would observe) to be *further* from the storied East and its Industrial-Revolution-making trade, can it? Amsterdam and Glasgow and Boston were about

as far away as one could get. Europe's small share of the vast inside-Asia trade was strictly limited by how much gold and silver the Europeans could offer, because until well after the Industrial Revolution was under way the Asians had little use for the notably crude European manufactures.¹¹ Goldstone explains the ending in 1433 of very long, government-sponsored voyages of discovery by the Chinese not in terms of a "turn inward" (which is false: Chinese ships and merchants continued long *commercial* voyages) but "for the same reason the United States stopped sending men to the Moon — there was nothing there to justify the costs of voyages [in the Chinese case with hundreds of ships and tens of thousands of men]. The further China sailed, the poorer and more barren the lands that they found. Goods of value came mainly from India and the Middle East, and they had already been pouring into China by established land and sea routes for hundreds of years."¹² Why then did not the Asian vastness of trade act as an engine of growth, quite independent of the Europeans? And if marginality to the trade but a tenuous connection is somehow an advantage, why not industrialization at Mapungubwe or at Edo?

* * * *

What is true is that the British economy cannot be understood in isolation, certainly not in the eighteenth century, and in many ways not before. It has become increasingly clear from the work of Jeffrey Williamson and Larry Neal among others, for example, that Britain functioned in an international market for investment funds.¹³ More exactly the fact has been rediscovered — it was a commonplace of economic discussion by observers like the proto-economist David Ricardo in the 1810s, though it became obscured in economics by the barriers to trade erected during the Great European Civil War of the twentieth century, especially during the 1930s and 1940s. That is, the trade in bonds was of Europe, not of each country in Europe. By 1780 the capital market of Europe, centering in Amsterdam and London and Paris, was sophisticated and integrated. Savings flowed with ease from French pockets to Scottish projects.

True, the biggest sums were governmental debt to pay for Europe's incessant wars. The amounts raised for the projects of peace, such as canals in England in the 1780s, were often last in line, not least because governments enforced usury limits that cut funds off abruptly in an inflation, and the inflation's resulting rise in money interest rates. The old finding of Pollard and others survives: industrial growth was

financed locally, out of retained earnings, out of commercial credit for inventories, and out of investors marshaled by the local solicitor.¹⁴ The interest rate still mattered (even though the international capital market was not used to fund industrialization), as is plain for example in the sharp rises and falls of enclosure in the countryside with each fall and rise in the rate of interest, or the booms and busts in canal building, like housing construction nowadays. And the rate was relevant to local projects such as an enclosure or even a fully self-financed factory because people were sharply aware that the opportunity cost of investing in straightening and surfacing local roads or in a steam mill for forging nails was always a less troublesome investment in “the funds.” And the interest rate on consolidated British government stock, in turn, was determined by what was happening in wider capital markets than the local solicitor’s office, and as much by Amsterdammers as by Londoners.

The same had also long been true of the market in grain and many other goods. The financier and economist Ricardo assumed so in his models of trade around 1817, as though it were given, simple, obvious, trivial, not worthy of comment. The disruptions of war and blockade from time to time masked the convergence. Regulations, such as the Corn Laws, or imperial schemes to subsidize West Indian landowners with powerful friends in government, could sometimes stop it from working. But Europe by the eighteenth century had a unified market in, say, wheat. Fernand Braudel and Frank Spooner showed long ago in their astonishing charts of prices that the percentage by which the European minimum was exceeded by the maximum price fell from 570 percent in 1440 to a mere 88 percent in 1760.¹⁵ Centuries earlier the price of gold and silver had become international, though the continued hunger of the East for precious metals kept the divergence in value from disappearing completely.¹⁶ Kevin O’Rourke and Jeffrey Williamson have shown that in the fancier items of east-west trade the divergence was not pronounced enough to explain the rise in their trade.¹⁷ And by 1800 and certainly by 1850 the prices of wheat, iron, cloth, wood, coal, skins, and many other of the less fancy materials useful to life were beginning to cost roughly the same in St Petersburg as in London, and to a lesser extent in New York and even in Bombay, by an economically relevant standard of “roughly.” The only relevant standard for “one market” is similarity of prices. The standard of what is “similar” must be relevant and economic, not an arbitrary standard of a *t* test of “significance” in correlation.¹⁸ (Braudel and Spooner grasped this, as do O’Rourke and

Williamson.¹⁹ Unhappily a good deal of the recent historical work on price convergence has substituted arbitrary standards of “cointegration” for economic thought.²⁰) European and then world prices continued to converge in the nineteenth century, a benefit of the rapid growth of productivity in shipping and railways and in other costs of transaction, such as port costs and insurance and information.

The convergence is important because it says that an economic history imagining the British economy in isolation is the wrong way to look at it. If the economy of the whole of Europe from Poland to Venice is determining the price of food, for example, it is not a wise principle in writing the history to treat the British food market as though it could set its own prices by its own supplies and demands (except, of course, behind completely protective tariffs – which until the 1840s, admittedly, it imposed on quite a few goods; but a general equilibrium would tie British prices to the world’s prices indirectly even with a good deal of protection). The assumption of a closed economy, such as those around which the little controversy over agriculture’s role in industrialization raged in the 1960s, will stop making sense.²¹ The supply and demand for grain in Europe, or indeed with less force the supply and demand in the wider world, was setting the prices faced by British farmers in 1780. The supply and demand merely in the British portion of Europe could set merely the *amounts* of wheat and wool brought into Britain, net. The intrusion of the world’s market became so strong that the domestic, closed-economy story no longer makes any sense, though it has been told and retold by historians and economists fascinated by the availability in the eighteenth century of British trade figures. The domestic story is like blaming the current administration in Washington for the price of oil – which is determined by the world’s supply and demand, not by the White House.

In the seventeenth and eighteenth centuries one can tell a domestic story of agricultural improvement in England – the application, say, of Belgian and Dutch farming methods (though recent work has shown that they were not applied enough to constitute then an “Agricultural Revolution”).²² But you can’t reasonably tell a domestic story of the price of the wheat or cattle or much else except hay, because the markets of Europe set the prices of wheat and cattle. (Hay down to the present is a local product, because it is of course heavy relative to its per volume price, and therefore was cheaper in, say, 1914 in the United States than in England, with consequences for local transportation²³). Likewise one can

tell an English story in the eighteenth century of how much was saved. But you can't reasonably tell an English story of what interest rate it was saved at, nor how much was available for English investment, in view of foreign savers and investors expressing their opinions in the capital markets of Amsterdam and Paris.

Joseph Inikori has argued that high transport costs before the Railway Age made regions such as Britain's industrial North, or the less progressive South (which as he points out began in 1600 as much more "developed" than the North), into export enclaves. "Research by historical geographers," he claims, "shows . . . industrialization that was highly regional."²⁴ So much is true. By the early nineteenth century the southerners in England were casting envious eyes north at bustling Liverpool and Manchester and Halifax. But the historical geographers claim that inside the "regional economies . . . there was keen competition but between them there was very little . . . because of the structure of internal transportation costs. . . . Hence, over time regional concentration of the leading industries was determined by success or failure in the promotion of overseas sales." Inikori is again correct to stress that the foreign context for European economies was important — though the goods traded in the eighteenth century were minor elements of the economy, if not of little girls, such as sugar and spice. By the time that cotton goods and especially such heavy items as iron became important in foreign trade the Railway Age had arrived, and talk of enclaves stopped making sense. Considering the mobility of capital and labor it probably had stopped making sense by 1750 or 1800 anyway. Inikori believes that "inter-regional migration was a minor source" of new labor for the mills, which again is correct if he means that southern agricultural workers did not turn up for work in Wigan (but literally wrong: Irish-born were one out of every 4.5 people in Liverpool in 1851, and one out of every 6 in Manchester.)²⁵ But the weakness in Inikori's argument that is relevant here lies in the little phrase "very little" [competition between enclaves]. Inikori and the historical geographers offer no relevant comparative standard of "very little." They commit in a qualitative way the same error as do the more mathematically muscular *t*-testers. They have no standard to judge "little," and so miss the gigantic secular improvement in European (and regional) economic integration, 1500-1840.

Pollard, again, argued persuasively that for many questions what is needed is a European approach, or at least a north western European

regional approach.²⁶ For economic purposes the “region,” Pollard argued, should be *larger* than the nation, not smaller. He wrote in 1973 that “the study of industrialization in any given European country will remain incomplete unless it incorporates a European dimension: any model of a closed economy would lack some of its basic and essential characteristics.”²⁷ The political analogue is that it would be strange to write a history of political developments in Britain or Italy or Ireland 1789 to 1815 without mentioning the French Revolution. Politics became international – not merely because French armies conquered most of Europe but because French political ideas became part of political thinking, whether in sympathy or in reaction. Likewise in economic matters. The world economy from the eighteenth century (and to a large degree before) provided Britain with its framework of relative values, wheat against iron, interest rates against wages.

The point is crucial for understanding why the classical economists were so far off in their predictions. Landlords, they said, would engorge the national product, because land was the limiting factor of production. But the limits on land seen by the classical economists proved unimportant, because north west Europe gained in the nineteenth century an immense hinterland, from Chicago and Melbourne to Cape Town and Odessa.²⁸ The remarkable improvement of ocean shipping (iron and then steel hulls; steam and then superheated steamship engines, two thirds of them built on the Clyde; wide quays and then steam and then diesel gantries for offloading cargo) tied Britain to the world like Gulliver to the ground, by a hundred tiny threads. Grain production in Ukraine and in the American Midwest could by the 1850s begin to feed the cities of an industrial Britain. But the price of wheat in Britain was constrained even earlier. One cannot calculate elasticities of demand and supply on the assumption that the price was set at home.

Chapter 18: And the Logic of Trade-as-an-Engine is Dubious

Trade, then, was important as a context for British growth. But it was not an engine of growth. For the period in question Mokyr makes the clearest case.²⁹ The underlying argument is that domestic demand could have taken the place of foreign demand (Mokyr earlier [1977] had shown likewise that the shuffling of domestic demand was no more promising). To be sure, Britons could not have worn the amount of cotton textiles produced by Lancashire at its most productive: cotton dhotis designed for the working people of Calcutta would not have become fashionable at Marks and Sparks on the High Street of Salisbury or Aberdeen. But in that case the Lancastrians would have done something else with the labor and capital and resources and ingenuity employed in cotton textiles. As Hume put it in the 1740s, “if strangers will not take any particular commodity of ours, we must cease to labor in it.” Of course. But, he continued, in another of his astonishing anticipations of modern economics, “the same hands will turn themselves towards some refinement in other commodities, which may be wanted at home.”³⁰ Or rather, *will* be wanted at home, since that is how the alternative employment will be guided, as though by an invisible hand. The exporting of cotton cloth is not sheer gain. It comes at the cost of something else that its makers could have done, such as building more houses in Cheshire or making more wool cloth in Yorkshire.

That is, nothing like all the income received from exports is a net gain. Think of the opportunity costs of producing American medical equipment for exports. Pittsburg doesn't produce such things out of the air. To make the magnetic resonance machine sold to, say, Finland the Pittsburgians divert labor, capital, natural resources from other potential employments, local or elsewhere, such as making more education at the University of Pittsburg, or moving to Philadelphia and making more candy. Exports are not the same thing as new income. They are new markets — which is to say new ways of getting importable things — not new income. They are a way of acquiring Nokia cell phones by showering the Finns with American machinery, telecommunications equipment and parts, aircraft and aircraft parts, computers, peripherals and software, electronic components, chemicals, medical equipment,

agricultural products, bonds, and engraved pieces of paper (costing 4 cents to make) marked “dollars.”

The alternative of making the cell phones in America for Americans (“Buy American”) is a rather worse deal for Americans. But it is no catastrophe. American national income would not deflate to zero like a balloon if we did not trade for Nokia cell phones. (Motorola will be glad to explain that point to you.) Given innovation (a big, big given), the source of wealth is specialization and trade within a country, regardless of whether the country then sells snowmobiles to the Eskimo or TV sets to Nebraskans. Domestic efficiency is what gets us out to the production possibility curve, as economists put it (as innovation pushes it out). Your nation, or town, or even in the extreme your own household, does not *have* to trade with outsiders to live. Each can be an innovative and alert Crusoe on his island and survive without exporting or importing. The point is obvious for big, innovative countries like France or the United States, which can do much better than “survive” without foreign trade. They can achieve very high incomes by attending to innovation, trading merely with other Americans or Frenchmen within their borders, if persuaded by protectionists to do so (as both were to a greater or lesser degree in earlier eras).

In other words, the primitive conviction most non-economists have that foreign trade is the only source of wealth, that money must somehow come from outside to puff up the economy and make us rich, is wrong. You see it in the claim that subsidizing a new sports stadium will “bring dollars into the community.” The dollars are good only for a local owner of land. They have no effect on the rewards to mobile labor or capital. But public opinion gets fooled into voting for the stadium, because of “multiplier effects” (it sounds like technical economics, but only a bad economist thinks that multiplier effects work in anything but conditions of mass, nationwide unemployment). You can see the power of the conviction that a foreign, outside trade is the only source of wealth in the role of fish exports in the political economy of Iceland or of exports generally in that of Japan. The conviction is imprudent and unjust, good for a few exporters and bad for everyone else. “Export or die” is a foolish economic policy, which has undermined domestic policies for growth in poor countries. Imports and the exports to get them are a shift of attention, not consciousness itself. Trade as an essential engine: it seems not.

Yet the trade, of course, benefits the traders on both sides, some, or else it wouldn't have happened. But again — here's the nub of the issue — the benefit can be shown in static terms to be small. One of the chief findings of the “new” economic history, with its conspicuous use of economic rhetoric, is that static gains, as I have said, are very often small. Robert Fogel's startling calculation in 1964 of the social savings from American railways in 1890 is the leading case.³¹ Replicated by Hawke in 1970 for Britain with broadly similar results (though higher on account of denser passenger traffic), in countries unlike Britain or the United States without easily navigable rivers, such as Mexico (Coatsworth 1979) and Italy (Fenoaltea 1971-72), the impact of railways turned out to be greater. But it was never enough to account for any but a small portion of modern economic growth. Fogel's finding, with Harberger's, were part of the gradual realization by economists in the 1960s that their beloved supply-and-demand framework did not explain The Great Fact. However essential one may be inclined to think railways were, or how crucial foreign trade to British prosperity, or how necessary the cotton mill to industrial change, the calculations lead to small figures, far below the factor of sixteen, or even a doubling.

For trade, how so? Think of British foreign trade around 1841, like railroads or whatever, as an industry for making consumable imports of wheat and lumber by selling exports of iron and cotton textiles made with Britain's inputs of labor, land, and capital. From an economist's point of view that is all it is, a machine for making imported sausage for consumption out of domestic ingredients. In 1841 the mighty United Kingdom exported some 13 percent of its national product. The terms of trade is the “productivity” of the industry that “makes” wheat out of cotton textiles sacrificed (that is, exported for the use of foreigners). The terms of trade tells how many bushels of wheat the British got for each yard of textiles. From 1698 to 1803 the range up and down of the three year moving averages of the gross barter terms of trade was a ratio of 1.96, highest divided by lowest; Imlah's net barter terms range over a ratio of 2.32, highest divided by lowest.³² So the variation of the terms on which Britain traded was about 100 percent over century-long spans like these. Only 13 percent of any change in income, then, can be explained by foreign trade, statically speaking, under full employment: $100 \times 0.13 = 13$. Apparently we have another popular cause that doesn't work very well, quantitatively speaking.

One might be tempted to see growth of sheer output sent abroad as an engine of growth. As has long been realized, however, to do so assumes that massive portions of the economy were idle (in contrast to the full-employment assumption that I just made tacitly). And no historical evidence has been marshaled to make plausible an assumption of massive unemployment – no evidence, for example, that real wages were unresponsive to changes in the relative scarcity of labor. The economist Theodore Schultz decades ago confronted the assumption of idle hands in India (“underemployment, surplus labor”) by noting that in the 1919 influenza epidemic there, which killed an appalling 5 percent of the population, agricultural output did not stay constant – as it should have if the marginal productivity of additional labor in the countryside were in fact zero.³³ If surplus labor does not apply to India in 1919, then surely not in Britain in 1719.

The so-called “vent-for-surplus” model boldly supposes that any sales abroad puts formerly idle, zero-product people to work. (But why don’t sales at home have the same “job-creating” effect? In which case, why would *foreign* trade matter?) Exports to French colonies in the eighteenth century, for example, are said to have put to work previous idle French workers. (I repeat: why did not domestic demand for carriages and servants have the same effect?) But in the 1780s the share of colonial exports in French manufacturing was only 2.5 percent.³⁴ And as Prados de la Escosura argued for the parallel case of the Spanish Empire, the loss of even that enormous empire resulted in little if any loss to the metropolis.³⁵ Again: trade doesn’t seem to work.

Trade, then, cannot be an engine of growth – not in the simple way envisioned by non-economists, at any rate, and anyway not on the scale necessary to explain much of the 1500 percent growth per capita in Britain from 1700 to 2000. The deepest economic reasoning is that the borders of countries cannot be important, or at any rate not important enough to make flows of exchange over one of them into an engine producing results on the scale of modern economic growth. Trade, after all, is trade, and it shouldn’t much matter whether you trade with someone down the street or with someone on the other side of the world. There’s nothing magic about goods crossing borders, as the Swedish economist Bertil Ohlin noted long ago. (Swedish and Canadian economists, used to living beside the great bears of the German Empire and the United States, tend to get this economic point right.) Your trade with the rest of the world is much of your consumption, but that is so

merely because you are little relative to the wide world. Big countries like India or the United States tend to have lower shares of exports in national product than do little countries like Taiwan or the Netherlands. Thus among 20 major economies in 1992 a population 1 percent larger was associated with a ratio of exports to national product 1 percent lower.³⁶ Unsurprisingly.

If a border was closed and is now opened there is a gain, the modest Harbergerian one of increased specialization. The most extreme cases in modern times are the substantial gains of income arising from the opening of Japan in the 1860s or the opening of Eastern Europe in the 1990s.³⁷ But the sheer tearing down of borders does not have the power to enrich us gigantically, and for example did not do so even for Japan and Eastern Europe – as by contrast Mokyr’s “macro inventions” in the making of cloth and surgeries and computers certainly do. Even the violent separation of East and West Germany left “only” a factor of, say, two or three on unification. Not sixteen.

If borders were such an engine, the economist points out, then one could draw an international border in England from Dover to Wroxeter, calling “foreign” all trade across the Watling Street border thus created, into and out of the ancient Danelaw, and thereby make trade *within* England into an engine of growth. Or you could call left-handed English people “foreigners,” and achieve the same result. The accounting *reductio* shows that there cannot be something special about *foreign* trade. If a demand by consumers that relocates production from one side of the English Channel to the other, or from one side of Watling Street to the other, or from left-handed people to right-handed, is enriching on anything but a modest Harbergerian scale, then one has an economic perpetual motion machine, by the mere words of the accounting. Words aren’t *that* powerful.

And historically, yet again, the problem is that if such a machine worked for Britain in the eighteenth century, why didn’t it work elsewhere and in earlier times? That is the central *historical* reason that something peculiar to the eighteenth century must explain the peculiarity of the eighteenth century and its denouement. Trade is ancient, as old at least as language. When people start talking in the full way we now call language, around it seems 50,000 B.C.E., they start trading, and we find evidence of the trade in their graves and trash dumps. Even stone for tools, as I have noted, came to be traded over hundreds of miles. Much later in the Bronze Age great trading empires

with enriched metropolises were commonplace, and the tin to alloy with copper was shipped by Phoenicians to the Mediterranean from far-away Cornwall. "The light-hearted [Greek] master of the waves/ [sailed] to where the Atlantic raves/ outside the Western Straits/. . . . and on the beach undid his corded bales." Big cities and big trade have characterized many places from Mexico City to Hangchow. The Indian Ocean was a trading lake for a millennium before the Europeans got to it. The Northern Italian cities were traders, certainly, and they had even the European cultural traits that some historians believe made European success so inevitable from the Middle Ages on. But why didn't the Florentines create an industrial revolution? "They did," one might reply. No they didn't, not on the scale of *the* Industrial Revolution. The same objection can be raised to modern growth theory among economists, which in parlor-trick fashion inserts economies of scale into the story just when it is needed to reproduce in the mathematics the rumblings of productivity in the eighteenth century and the innovation gone mad of the late nineteenth.

Notes

29. Mokyr 1985b, pp. 22 23 and works cited there.
30. Hume, "Of Commerce," in *Essays*, p. 284. ***check volume.
31. Fogel 1964.
32. Deane and Cole 1962; Mitchell and Deane 1962, p. 330. Imlah 1958.
33. Schultz 1964, p. 70; though see Sen's (not wholly persuasive) strictures in Sen 1967, and Dandekar 1966.
34. O'Rourke, Prados de la Escosura, and Daudin 2008, p. 11.
35. Prados de la Escosura 1993.
36. Inferred from Foreman-Peck 2003, p. 375, who gives Maddison's figures. The scatter is a rectangular hyperbola, that is, a (negative) unit-elasticity curve.
37. On the opening of Japan see Bernhofen and Brown 2009 and works cited there.

Chapter 19: And Even the Dynamic Effects of Trade were Small

The theorist of foreign trade Ronald Findlay and the economic historian Kevin O'Rourke collaborated in 2007 in a magnificent history of world trade since 1000 C.E.³⁸ There is much to admire in the book, in particular its cosmopolitan sweep. Findlay and O'Rourke are nothing like Eurocentric, and think big.

When they come to the Industrial Revolution, however, their arguments don't work too well. For example, they criticize static models about the matter because static models "cannot, by definition, say anything about the impact of trade on growth."³⁹ That's a trifle overstated. Static models have been *shown* to be inadequate to explain the greater part of modern economic growth, so large is the thing-to-be-explained. The showing has not been achieved by "definition." It has been achieved by finding that static gains are not of the right order of magnitude to do the scientific job. It is an empirical, scientific finding of the past fifty years of work on the subject, not a mere definition. (Definitions, though, are not to be scorned as historical tools, of course — as for example in the definitions of national income or the share of foreign trade that permits the showing of the smallness of the static gain.) Findlay and O'Rourke themselves use static models of demand and supply a few pages earlier to make the correct point that Britain shared its gains from trade with its trading partners 1796 to 1860 by increasing supply of its exports much more rapidly than demand grew, turning the terms of trade against itself. It is an old and good point (I made it myself a long time ago), and it is definitely "static" and definitely says a great deal about the impact of trade on growth.⁴⁰

Considering that the static effects alleged so widely for trade as an engine of growth are small, the non economists, and some of the economists, are likely to claim that "dynamic" effects will rescue the engine. Possibly. The word "dynamic" has a magical quality — the economist Fritz Machlup once placed it on a list of "weaselwords."⁴¹ Waving "dynamic" about, though, does not in itself suffice to prove one's economic and historical wisdom. One has to show that the proffered "dynamic" effect is quantitatively strong. An existence theorem in a model without magnitudes — which is the usual and

unscientific routine in high-brow economics – will not do any scientific job.

For example, one might claim that the industries like cotton textiles encouraged by British trade were able to exploit economies of scale, in perhaps the making of textile machinery or the training of master designers. There: a dynamic effect that makes trade have a larger effect than the mere static gain of efficiency. But the assertion is without quantitative oomph. The rejection of trade as the engine of growth is reinstated. Or the profits from overseas trade were invested (I say again: were not the profits from house-building and retail trade reinvested, too?), and so capital accumulation was increased. But is the dynamic effect of reinvestment large? It seems not, as Guillaume Daudin has concluded for mercantilist France before the Revolution.⁴²

Or again a smaller cotton textile industry would have been less able to take advantage of such technological change nationally. After all, cotton was unusually progressive. One can answer the question posed by a thought experiment. The experiment requires that one know productivity change in various industries other than cotton textiles. Remember that the pattern of productivity in British industries can be calculated by looking at what G. T. Jones in 1933 called “real cost,” that is, the price of, say, iron bars relative to, say, coal and wages. The pattern was something like this, using Harley’s revision in 1993 of my table in 1981 (I am accepting for the sake of argument the view of the Two Nicks that total growth was small in the 1700s, and therefore their implication from my calculation of residuals that productivity change outside the named sectors was vanishingly small):

Crude Approximations of Productivity Change by Sector, U.K., 1780-1860

Sector	Yearly productivity growth % per year	Value of output divided by national income	Contribution to the national annual growth of productivity
Cotton	1.9	.07	0.133

Worsted	1.3	.035	0.0455
Woolens	0.6	.035	0.021
Iron	0.9	.02	0.018
Canals & railways	1.3	.07	0.091
Agriculture	0.7	.27	0.12
All others implied as residual	[0.02]	.85	0.02

Source: Harley 1993, Table 3.6, p. 200, based on McCloskey 1981, p. 114, where the details of the original calculation and accounting are given. A little oddly, Harley leaves my estimates of income shares unimproved. That the shares add up to more than 1.00, by the way, is not an error. It is implied by the taking of productivity measures from *gross* costs (as against merely value added, which would not give a correct measure of savings on material inputs from other sectors).

Suppose the cotton textile industry were cut in half by an exclusion from foreign markets. (It is a dubious counterfactual because in the eighteenth century Manchester was anyway the best place in Europe to produce cotton cloth. It earned, to put it the way economists do, “rent,” which is just another way of saying it was the low-cost location for the task. And so you have to assume that mercantilism would take the form not merely of taxing Manchester with French or Dutch tariffs but partially shutting down its activities, for no gain to anyone – though admittedly it would not be the first or last time that such an irrational policy had been implemented.) During 1780–1860 therefore the share of cotton in national income would have been 3.5 percent of national income instead of its actual 7 percent. The 3.5 percent of resources would have had to find other employment. Suppose that the released resources

now put to use in road-mending and silk manufacturing and so forth would have experienced productivity change of 0.5 percent per year (on the low end of the available possibilities) instead of the princely 1.9 percent they in fact experienced in cotton. The cotton industry in the *actual*, 1.9-percent world contributed a large amount-namely, $(0.07) \cdot (1.9 \text{ percent}) = 0.133$ percent per year-to the growth of national income. This one giant contributed some 24 percent of the conservatively measured total of about 0.55-percent-per-year growth of income per person nationally 1780 1860.

Now we calculate the counterfact. With the hypothetical cut off of trade you can make so to speak a mechanical “static-dynamic” argument as follow. The Harley revision of my table implies that non-cotton productivity change can be calculated from $(1.41 - .07) \cdot$ (the implied residual productivity change outside cotton) $= (0.55 - 0.13)$. That is, the implied residual of productivity change outside cotton is $0.42/1.34$, or 0.313 percent per year (I retain more than significant digits to avoid rounding errors). The resources in the hypothetical case would therefore contribute $(0.035) \cdot (1.9 \text{ percent}) + (0.035) \cdot (0.313 \text{ percent}) = 0.086$ percentage points a year. The fall in national productivity change can be inferred from the difference between the actual 0.133 percent per year attributable nationally to cotton and the hypothetical 0.086 percent per year attributable to a half sized cotton industry and the industries its resources would go to. The difference is about a .047 percentage point per year fall in the national rate of productivity change, that is, a fall from 0.55 percent a year to 0.503 percent a year. In the eighty years 1780 1860 such a lag would cumulate at monthly interest, however, to merely 4.5 percent of national productivity change. Remember that we are speaking here of doublings 1780 to 1860.

You could cut the productivity change in cotton to allow for alleged economies of scale in cotton and come to roughly the same result. No one has shown that such economies of scale were important in fact (as important as they are in the models of growth imagined by economists), or that economies or diseconomies of scale in other industries would not cancel the net gain. We are giving the “dynamic” argument all the advantages. Suppose the scale-effect productivity change were half of the princely 1.9 percent in cotton, or 0.945 percent per year. So now the calculations is $(0.035) \cdot (0.945 \text{ percent}) + (.035) \cdot (0.313 \text{ percent})$, or 0.0440 percentage points a year (as against 0.086 without the lost “economies of scale” inserted). National productivity change attributable

to cotton falls from 0.133 percent per year all the way down to 0.0440 per year, a drop of 0.089 each year. So national productivity declines on this account in the hypothetical world from 0.55 actual to 0.461 percent per year. The difference in final attainment in 1860 is again small, merely 8 percent of productivity change, and a smaller percentage of national income.

Note that the result is forced by widespread character of productivity change (even under the implausible Crafts-Harley calculation of zero productivity change outside the industries I chose in 1981 as leading). Resources driven out of cotton do not simply disappear, resulting in a fall of national income equal to what they earned in cotton, as implied by non-economists (and even by Findlay and O'Rourke in careless moments). The resources of labor and capital shift, going into industries with lower productivity change. But since cotton was *not* the only industry experiencing productivity change even in the classic period of the early Industrial Revolution – a point that the economic historians Peter Temin and John Clapham and I insist upon, and historians of technology such as Margaret Jacob and Joel Mokyr have affirmed in detail – the imagined shift is not deadly to progress.⁴³ The dynamic effect sounds promising. But in quantitative terms a cotton textiles industry counterfactually smaller if foreign trade was not vigorous does not kill off growth. It's another popular explanation that doesn't work very well.

A “dynamic” argument, further, has a serious problem as an all purpose intellectual strategy. If someone claims that foreign trade made possible, say, economies of scale in cotton textiles or shipping services, she owes it to her readers, as I have already noted, to say why the gains on the swings were not lost on the roundabouts. Why do not the industries made *smaller* by the large extension of British foreign trade end up on the damaging side of the account? The domestic roads in Shropshire not constructed and the brass foundries unbuilt in Greater London because of Britain's increasing specialization in Lancashire cotton textiles may themselves have had economies of scale, untapped. (The argument applies later in British history to the worries over “excessive” British specialization in foreign investment, insurance, and shipping).

Other industries than cotton, note, experienced productivity change, though usually at a smaller rate. Add that Britain was not a cotton mill and foreign trade was not all of national income and you

have the conclusion that foreign trade was not an engine of growth able to explain even a doubling of national income, much less a factor of five or fifteen. And European trade with the rest of the world, as Patrick O'Brien showed long ago, was less than 4 percent of domestic product – another reason for doubting its importance.⁴⁴ Surprisingly, and somewhat against their training as economists, Findlay and O'Rourke attack the relevance of the low share of things in national income. They quote with approval a remark by the non-economist Paul Mantoux (1877-1956), in his history of the Industrial Revolution – published in French in 1907.⁴⁵ Mantoux wrote thus: “if we may borrow an analogy from natural science, only a negligible quantity of ferment is need to affect a radical change in a considerable volume of matter. The action of foreign trade upon the mechanism of production may be difficult to show, but it is not impossible to trace.”⁴⁶ The notion that *natura facit salta*, nature makes jumps, has become popular after the realization that a butterfly in China can cause a hurricane in Cuba. It is sometimes true. But if it is true in explaining the Industrial Revolution, so could *any* little part of the British economy have been the engine of growth. Domestic service was larger than the importation of tea and raw cotton and the like combined, and so under such an instable model the hiring of more scullery maids could have set off the innovations. And if you really want “small,” pick say the Birmingham brass industry with its continuous product innovation (as Maxine Berg has pointed out), or for that matter the vigorous silk industry in London around 1700. If the slave trade or the cotton industry or even foreign trade as a whole gives a satisfactory explanation of doublings and trebling of income, then we can turn also to a brass-and-silk industry explanation of why we are rich. And yet again we are led to wonder why similarly small industries in earlier times and other places did not tip the world into modernity.

After a good deal of complaining about the historical economics that they themselves are busy practicing, Findlay and O'Rourke come to the nub of their argument. “International trade,” they claim, “was a key reason why the British Industrial Revolution was different,” in not petering out as had previous efflorescences (Goldstone’s very appropriate word for the numerous lurches forward in technology that the world had previously seen, without permanent effect on the welfare of humans).⁴⁷ “For a small European country like Britain” – note that “small” is a somewhat strange characterization of one of the largest countries in Europe – “overseas markets were vital if its Industrial

Revolution was to be sustained.”⁴⁸ And then Findlay and O’Rourke make a crucial connection to Britain’s military adventures: “in a mercantilist world in which nations systematically excluded their enemies from protected markets [a claim which makes it hard to understand the large volume of British-Continental trade, which took place in a mercantilist world] British military success over the French and other European rivals was an important ingredient in explaining her subsequent rise of economic prominence.”⁴⁹ Trade was important, they claim, and imperialism supported trade.

Thus the title of their book, *Power and Plenty*, and its theme: aggression is good for you. In correspondence with me O’Rourke has amiably disputed such a bald formulation of the theme. Yet in a more recent piece with Leandro Prados de la Escosura and Guillaume Daudin he writes: “trade profited merchants, but also yielded revenues to the state; while the state needed revenues to secure trading opportunities for its merchants, by force if necessary.”⁵⁰ “Force” means “aggression,” and in the piece it is cashed in this way repeatedly, which uses throughout a football-and-war vocabulary of “pre-eminence,” “dominant position,” “struggle for power and plenty.” In all of O’Rourke’s work the gains from trade are said to be dependent on violence against “competitors,” as in a zero-sum footrace. One would not learn from such passages in Findlay and O’Rourke that trade is mutually beneficial, a matter mainly of cooperation, not competition.

True, people *thought* that mercantilist aggression was good for them. “Trade and empire,” O’Rourke and his 2008 co-authors continue, “were thus inextricably linked in the minds of European statesmen [because it is true in the world? because they were misled?], . . . which explains the incessant mercantilist warfare of the time.”⁵¹ It is the rhetoric of business-school deans such as Lester Thurow and big-thinking journalists such as James Fallows. It is not sound, whatever people at the time believed.

* * * *

In establishing the growth-trade link, Findlay and O’Rourke use the static models to imagine a Britain without any trade at all (“if Britain had been closed to trade”; “absent trade”).⁵² An entire cut-off of trade, though, is not the relevant alternative. The question is whether the mercantilist policies that Britain employed, and above all its mercantile empire, helped or hindered industrialization, much. It’s a matter of more or less trade, not yes or no.

People innocent of economics, to repeat, believe that trade just *is* growth. Export or die. That's not right, as Findlay and O'Rourke note when dismissing Keynesian models of trade as an engine of growth. So they need a better model. The model they develop to answer the relevant question, based on Darity (1982), puts a surprising emphasis on the slave trade. Findlay and O'Rourke argue that the New World and its cotton exports would have been impossible without slavery (note the similarity to Inikori's arguments). But on the contrary *cotton* is easily grown without slaves, and has been early and late-early in India, late in post-bellum Alabama. (Sugar is quite another matter. Sugar brought slavery with it from India to Syria to North Africa, right down to the Jamaican and Mexican contract harvesters on H-2 visas working the cane sugar fields of north Florida. But Findlay and O'Rourke are making the argument that an international taste for cotton dresses and bed-sheets and underwear made the modern world, not that the international sweet tooth did.)

Cotton, they say, "depended" on slaves from Africa.⁵³ Likewise Marx: "With slavery, no cotton; without cotton, no modern industry. Slavery has given the value to the colonies, the colonies have created world trade; world trade is the necessary condition of large-scale machine industry."⁵⁴ It does not seem so. Cotton seems to have been no more a necessarily slave crop than coffee was. Freedmen in the United States after 1865 picked cotton, just as freedmen in Brazil after 1887 picked coffee beans. Findlay and O'Rourke ask with a certain vexation in their tone whether "free white labor in the Americas . . . [would] have been able to fill the gap" in producing cotton.⁵⁵ Yet it did precisely so in the formerly-slaveholding American South.

Their argument is that British imperialism helped British trade so much that the Industrial Revolution happened. The argument assumes that a counterfactually pacific and free trade Britain would not have benefited from *European* engagement with the rest of the world. It is an odd assumption, since European places like Denmark benefited, with trivial overseas colonies. Sweden and Germany and Austria benefited. Findlay and O'Rourke want to make a nationalist, militaristic, imperialist argument that British prosperity depended on British guns aimed abroad. It is an argument that David Landes has frequently made. The historian Paul Kennedy stated flatly in 1976 that "Britain's wealth would obviously have been lost had she herself surrendered command of the sea."⁵⁶ The assertion, though conventional in British strategic thinking for

centuries, runs against the logic of “this sceptred isle. . . this fortress. . . set in the silver sea/ Which serves it in the office . . . of a moat defensive to a house/ Against the envy of less happier lands.” A Britain with a little Tudor-style navy devoted to coastal defense would have remained independent. Wooden walls mattered up to the middle of the nineteenth century. Later it was British ingenuity in breaking the German naval code and inventing radar, not the Fleet sitting in miserable inaction at Scapa Flow, that chiefly prevented invasion. The surplus violence of ships of the line and then dreadnoughts and then aircraft carriers in aid of dominion over palm and pine and the Falkland Islands was always dubious as an economic proposition. Pride, certainly, and Margaret Thatcher’s re-election, was provided by command of the seas. The national income was not.

The economic models Findlay and O’Rourke use, whether formally or informally, are about *European* trade with itself and with the rest of the world. A Quaker Britain – unlikely counterfactual in 1800, with 20,000 Quakers in an aggressively nationalistic population of 15 ½ million – would have gotten the same prices and opportunities as the actual Britain, allowing for transshipment costs through Amsterdam or Le Havre. The scale of Manchester cotton manufacturing would have been little affected, at any rate if in God’s eyes Manchester had a comparative advantage in spinning cotton. Only the profits (those “rents” I mentioned) in their British addressees would have been lower, because French trans-shippers of cotton would take a cut. If Manchester was the right place to spin cotton before the invention of air-conditioning, then European events would have put it there, regardless of whether Britain won at Plassey or Quebec or Trafalgar or Waterloo. After all, France lost all those battles, and yet the making of cotton textiles flourished in Mulhouse and Lille.

Europe as a whole opened itself to the world after Henry the Navigator. Nutmeg became cheaper, even when it was a Dutch monopoly. The European gains from trade were felt indirectly by everyone who bought tropical products. As an economist would put it, that’s general equilibrium trade theory. Empires were not necessary. Thus Belgium, without an empire on its formation in 1830, industrialized smartly, as at the same time did the Rhineland, which was a part of a non-nautical and non-(overseas) imperial Prussia. Both of them saw the price of tobacco, spices, bananas, cotton, and other tropical and semi-tropical products fall greatly as imperialist and non-imperialist

Europeans traded with the world. Overseas trade was not about Britain but about Europe. Britain's overseas trade, in short, can't explain Britain's peculiarity. Lining up national conquest with national trade is an old claim, though Adam Smith and many economists since him have wisely contradicted it, without persuading many politicians. But national conquest doesn't explain British industrialization, and certainly not the continuation on the way to the factor of sixteen.

All such denying of trade as the crucial engine of growth, though, is not to say that the expansion foreign trade was literally a nullity. Some goods – the banana for the Englishman's breakfast table was the popular instance late in the nineteenth century, raw cotton the most important instance throughout – simply cannot be had in England's clime, short of hot houses. The regional economist Gerald Silverberg has made the case to me for cotton as special because the technological unemployment caused by its expansion was felt not by political connected guildsmen at home but by the bleached bones of Indians starving when their hand industry was replaced by Manchester.⁵⁷ The truth in Silverberg's argument is that trades like porcelain and cotton textiles in Britain could expand in country locations out of reach of the nay-sayers in established guild towns like Norwich or London. The trouble with the argument is that cotton did in fact have European substitutes, in wool and linen, as is shown by the fierce prohibitions on imported Indian calicoes into France and the rules in England that the dead must be buried in woolen shrouds. And the same trick could have been played in China or India, both having ample domestic sources of raw cotton, had the bourgeois rhetoric triumphed there – as it spectacularly did in the expansion of Japanese and especially Indian mechanized cotton textile manufacturing before and during World War I. In those days the detritus was the bleached bones, or at any rate the dole cheques, of Mancunians and Glaswegians in Britain.

More important, trade insures against famine, as the British Raj knew in building the railways of India – though Amartya Sen has pointed out that trade has this good effect only under a government sensitive to its subjects. The Bengal famine of 1943 was caused exactly by an colonial and arrogant insensitivity to non-voting subjects. The last widely and literally killing famine in England was in Shakespeare's hierarchical times.

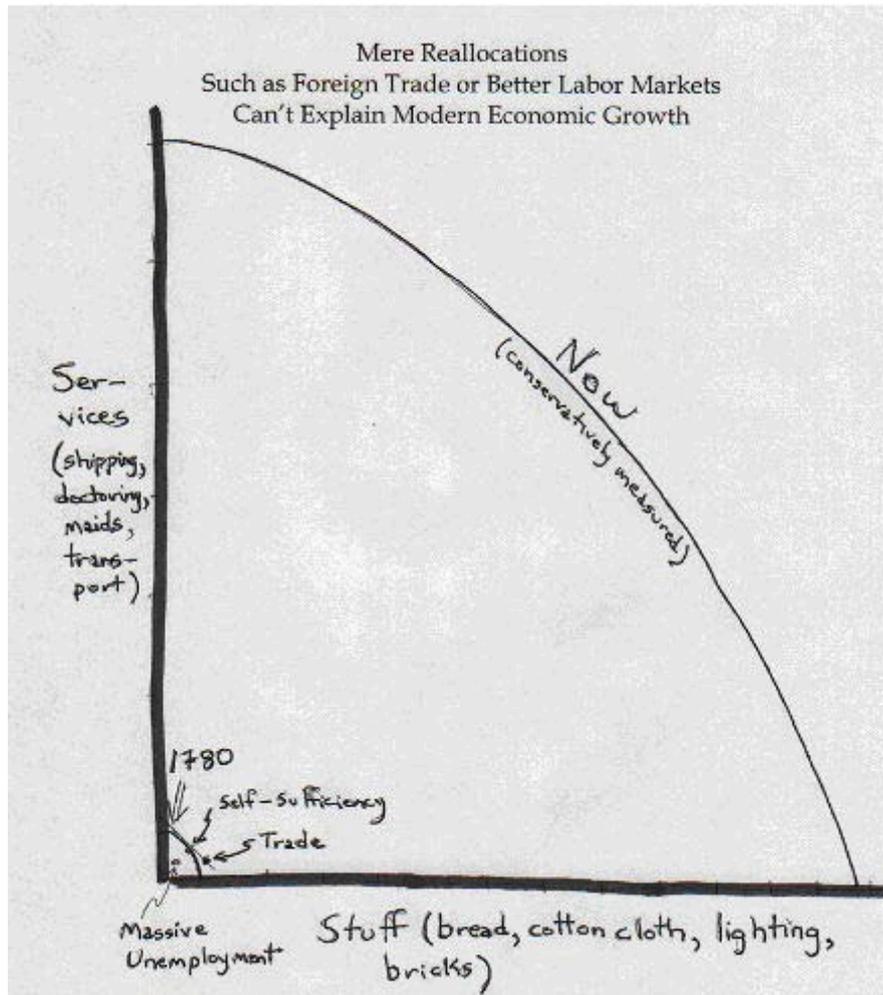
And trade is surely a conduit of ideas and competitive pressures. In India recently the License Raj has been broken down by ideological

change, and in particular the opening of the economy for trade. After 1994 you could for the first time buy Kellogg's corn flakes in New Delhi, praise be to Vishnu.⁵⁸ But such effects have nothing to do with imperial conquest — as is again best shown by the opening of Japan after 1868. Japan opened to trade, *then*, many decades later, under the influence of trade-follows-the-flag thinking at the height of Western imperialism, became itself a conqueror of Korea and then Germany's colonies in China and then Manchuria and then China itself and finally much of east and southeast Asia. With most unsatisfactory economic consequences.

But a literal closing of British trade, entirely foregoing bananas at breakfast, using vastly more cotton for underwear at home, not getting any wheat at all in a famine, is not what is contemplated. The question is: was trade a stimulus to growth in the simple, mercantilist way usually contemplated in the literature? Apparently not. Is it plausibly a secondary cause as a desirable context for invention? Perhaps, though India (for example) was the center of the largest trading network before the eighteenth century yet did not innovate. But a Scots verdict seems wiser: not proven.

* * * *

Here is the economist's way of stating the problem with trade, reallocations, enclosure, investment, fuller employment, and all manner of shufflings. Think of the output of Stuff (clothing, food, houses) and Services (financing, shipping, doctoring, teaching, soldiering) in 1780 in Britain as being measured along two axes (bring back that high-school algebra and geometry). The *possibilities* in 1780 are a curve along which the actual Britain of 1780 could have taken a non-trading point, which we'll call Self-Sufficiency:



Mere Reallocations Such as Foreign Trade or Better Labor Markets Can't Explain Modern Economic Growth

Inefficiency, misallocation, opportunities missed, distortions introduced of *the usual static sort* are about being inside or on that curve. Note the point Massive Unemployment. It would be a foolish place to be, since you could get out to the curve and have more of *both* Stuff and Services. And you can get a little *outside* the curve by trading with foreigners. But only a little outside, to a point like Trade.

Good. But why have I drawn the so-called “production possibility curve” for 1780 as a miserable little scrunched up little curve in the very corner of the axes? Answer: it has to be a miserable little scrunched up curve in order also to represent Now on the same diagram. The amounts of Stuff and Services now (averaged) have to be *sixteen times further out*. Of course: that’s what the factor of sixteen means. And remember that in truth it’s more like a factor of 100.

Look at the diagram. None of the static arguments, and few of the dynamic, have any chance of explaining what happened in modern

economic growth. *No merely static improvement of conventional economic factors in 1780 or 1700 can come remotely close to the curve of Now.* That's why this greatest of historical events cannot be explained by static reallocation. And if it is to be explained by "dynamic" accumulation one has to explain, too, why earlier accumulation did not get the same explosive result. A dynamic explanation – for example, a foreign traded able to induce innovation on the scale of 1780 to Now – is *so* dynamic that it makes no sense as history. To put it differently, such an explanation is no explanation: it requires an answer to the question why just then, why the dynamism overtook the British economy in the eighteenth and nineteenth centuries. And that requires attending to bourgeois dignity and liberty.

Notes

38. Findlay and O'Rourke 2007.
39. Findlay and O'Rourke 2007, p. 337; compare O'Rourke, Prados de la Escosura, and Daudin 2008, p. 11.
40. McCloskey 1980.
41. Machlup 1963 (1975).
42. Daudin 2004; compare my criticism ages ago of Jeffrey Williamson's calculation of the gain from re-investment of the gain from the railways in the United States, in McCloskey 1975b.
43. McCloskey 1981 on widespread innovation; also Temin 1997, p. 80; Berg and Hudson 1994.
44. O'Brien 1972.
45. Findlay and O'Rourke always cite this very elderly book by a friend of Lloyd George, and the English translator for Clemenceau in the Versailles Conference, as "1962," fully 55 years after its last (and French) version. The impression unintentionally conveyed is that Mantoux was up-to-date in the scholarship of 1962. It is an outcome of the author-date system and the scholarly habits of careless whole-book citation encouraged by it. You can catch me doing it, too.
46. Findlay and O'Rourke 2007, p. 336 (p. 103 in Mantoux).
47. Findlay and O'Rourke 2007, p. 339.
48. Findlay and O'Rourke 2007, p. 351.
49. Findlay and O'Rourke 2007, p. 345.

50. O'Rourke, Prados de la Escosura, and Daudin 2008, p. 2.
51. O'Rourke, Prados de la Escosura, and Daudin 2008, pp. 2-3.
52. Findlay and O'Rourke 2007, p. 344.
53. Findlay and O'Rourke 2007, p. 336.
54. Marx 1846,: Karl Marx (in French) to Pavel Yasilyevich Annenkov, December 28, 1846, quoted in Pomeranz and Topik 2006, p. 226, trans. Peter and Betty Ross, *Marx Engels Collected Works* Vol 38, p. 95, reproduced at http://www.marxists.org/archive/marx/works/1846/letters/46_12_28.htm
55. Findlay and O'Rourke 2007, p. 339.
56. Kennedy 1976 (2006), p. 87.
57. Personal conversation, Dahlem Seminar, Berlin, December 14, 2008.
58. Jordan 1998. Her lead is "The Indian cornflakes maker Mohan Meakin says it has something to thank Kellogg Co. for: a wake-up call that has helped it win more business."

Part VIII. Slavery and Imperialism Did Not Enrich Europe

Abstract

Since trade was not an engine, neither was a part of trade, such as the trade in slaves. And certainly the profits from the trade did not finance the Industrial Revolution. Imperialism, too, was a mere part of trade, and despite the well-deserved guilt that Europeans feel in having perpetrated it, it was not an engine of their growth. Stealing from poor people is not a good business plan. Certainly the possession of India did little for the great British public, except tax them for the Navy. That Europeans did not benefit from imperialism does not mean that imperialism was good for the imperialized. That a thief kills his victim does not add to the thief's monetary profit, and some imperialism was certainly killing. The cases of simple theft, such as the Belgian Congo, did nothing to enrich the average Belgian. Nor have internal imperialisms, such as apartheid, been profitable. The episode of economic success in Europe came from domestic sources of innovation, not from exploitation.

Chapter 20: The Effects on Europe of the Slave Trade and British Imperialism were Smaller Still

It follows from the unimportance of foreign trade that *parts* of foreign trade were unimportant, too – at any rate in explaining the doubling of per capita real income in the eighty years from 1780 to 1860 and especially in explaining the subsequent explosion on the way to the factor of sixteen. For example, the trade in slaves, quite a small part of Britain's or Europe's trade, could not have been the cause of British or European prosperity. As Stanley Engerman and Patrick O'Brien showed, contrary to Inikori, the so-called profits were too small.¹ To attribute great importance to a tiny trade would make every small trade important – we are back to the brass industry as a cause of the modern world.

As another leading historian of the trade, David Richardson, puts it, "comparisons between earnings from slaving voyages [which Richardson himself has researched on a large scale] with general estimates of eighteenth-century British investment generally suggest, almost without exception, that slave-trading profits could have contributed at best only small amounts to financing early British industrial expansion."² The economic reasoning backing up Richardson's laboriously acquired facts on particular slaving voyages is that entry to the trade was free, and therefore marginal entrants could expect no more than the normal rate of return. Any merchant ship could turn to slaving, as earlier any armed ship could turn to piracy, or indeed as any ship whatever could arbitrage between this market or that, in view of the freedom of the seas. By 1750 there would be few enough non-marginal positions in the slave trade to be seized. It is therefore no surprise to find that the total profits of the trade were by the late eighteenth century a minute portion even of total British investment generally, not to speak of total income. And in any case we have seen that "British investment generally" only accommodated innovation, and did not cause it. Capital fundamentalism works no better for eighteenth and nineteenth century Britain than it worked for late twentieth century Ghana. As David Eltis and Stanley Engerman concluded in 2000, in a thorough review of the possible influences, "if the value added and strategic linkages of the sugar industry are compared to those of other British industries, it is apparent that sugar cultivation and the slave trade were not particularly

large, nor did they have stronger growth-inducing ties with the rest of the British economy.”³

The emotional problem is that we properly regard the slave trade as terrible (though it should be noted that in 1700, before the bourgeois clergymen got to it, practically no one viewed it as anything but a God-given misfortune to the slave). We are rich. The populist, with his zero-sum and moralistic theory of the economy, and his wants to attribute our riches to the impoverishment or even enslavement of someone else, just as he attributes every down-turn in capitalism to the “greed” of rich people on Wall Street. The noblest expression of the sentiment is Lincoln’s Second Inaugural: “If God wills that [the War] continue until all the wealth piled by the bondsman’s two hundred and fifty years of unrequited toil shall be sunk, and until every drop of blood drawn with the lash shall be paid by another drawn with the sword, as was said three thousand years ago, so still it must be said ‘the judgments of the Lord are true and righteous altogether’.” In his economics, if not in his ethics, Lincoln was wrong. Even in 1865 the wealth of the nation, if not the South, had little to do with slavery.

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Imperialism, too, was another part of trade, and again an obviously evil one. But imperialism, it can be shown, did not much help the British, or the First World generally, to an Industrial Revolution and modern economic growth. True, the doctrine that imperialism made the West rich at the expense of the East and South is held passionately by the left in the West, and by nearly everybody elsewhere. But understand: the counterargument does not praise imperialism, or excuse it. The counterargument claims that it was economically stupid.

The simplest and historical argument is that the West did not really get going in its imperial adventure until it had innovated in steam, steel ships, cartridge rifles, and machine guns — that is, after the Industrial Revolution, not before. As Goldstone puts it, “It was not colonialism and conquest that made possible the rise of the West, but the reverse — it was the rise of the West (in terms of technology) and the decline of the rest that made possible the full extension of European power across the globe.”⁴ Lenin had it right: imperialism, the last stage of capitalism.

The modern corollary of the historical argument is that the prosperity of the West depends not at all, or at its worst very little, on exploiting the Third World. Imperialism was bad. But being bad is not

invariably profitable for the bad man. Crime does not always pay. Admittedly such a corollary runs against the grain of much anti-imperialist thinking. A local fount of unreflective anti-imperialism in France was said to be the philosopher Maurice Merleau-Ponty. Raymond Aron complained in his *Memoirs* that when Merleau-Ponty wrote in 1947 “as though it were an obvious truth, that ‘the moral and material civilization of England presupposes the exploitation of colonies,’ he flippantly resolves a still open question.”⁵ Thus in 1996 André Comte-Sponville, a teacher of philosophy at the Sorbonne, who doesn’t claim to know much about economics, felt nonetheless confident in declaring without argument that “Western prosperity depends, directly or indirectly, on Third World poverty, which the West in some cases merely takes advantage of and in others actually causes.”⁶ On the other side, David Landes, as though admitting the loot theory of Western prosperity, dismisses “those who feel the West has gained its edge by domination and exploitation” by accepting their proposition as true but urging the whiners to grow up and get used it: “to this age-old anti-imperialist lament I can only say that this is world history as it has been played out, without any moral assessment of ‘good’ or ‘bad,’ ‘just’ or ‘unjust’.”⁷

But we can do better than Merleau-Ponty, Comte-Sponville, or Landes. British imperialism was about protecting the sea routes to India. Yet India itself yielded no economic benefit to the average person in Britain. It had therefore no economic point. By the time Victoria became Empress of India the thieving nabobs – Clive of India (the victor of Plassey) and Warren Hastings and all that – were long gone. In 1877 there remained no additional straightforward opportunities for thievery by the British (Clive remarked that in the face of his opportunities for seizing loot “by God. . . I stand astonished at my own moderation”). William Cowper, a contemporary, could complain of the scandal of the nabobs that “thieves at home must hang; but he, that puts/ Into his over-gorged and bloated purse/ The wealth of Indian provinces, escapes.”⁸ But such thievery cannot account for British wealth. Rich as Clive had (briefly) been, the enrichment of him and his fellow nabobs was very small in national terms – Clive’s *stock* of capital of about a million pounds was under 1 percent of the annual £115 million *flow* of U.K. national income. And to translate the stock into the comparable flow, the *income* from a million pounds invested in the funds would be, say, 5% of the million, or £50,000 a year, which would be only 1/2300 of annual

national income.² Such a sum would be nice to have, an immense personal income in eighteenth-century society. But the loot was a trivial enrichment of the nation. In fact by 1877 the British East India Company had long gone, losing its police powers in 1857 after the First War of Indian Independence, and closing entirely in 1871. (The Dutch equivalent, the *Verenigde Oostindische Compagnie*, had gone bankrupt and become state property much earlier, in 1798.) A private company, most people believe, is a more focused institution for looting than a responsible government. The directors of John Company would dearly have liked to have known of opportunities for super-profits to be gotten from India by 1857 or 1871. They themselves had not been able to discover them in time.

Britain in 1871, and in 1771 or for that matter in 1971, traded with India. But trade is trade, not thievery – this contrary to Marxian notions of unequal trade. (Another Marx, Groucho, turned down with cruel wit a Marxist friend looking for work in the hungry 1930s: “George, I wouldn’t want to violate your Marxist principle and exploit you by . . . hiring you.”) Admittedly, when even an economist buys a house she is left with vague populist feelings that the seller robbed her. After all, he *could* have sold it to her, a very nice person, for thousands of dollars less. And certainly she feels instinctively that the realtor, a middleman, is a thief. The Soviet Union gave expression to the feeling (which can be found also in Adam Smith) by setting services at zero value in its accounting of national income. But the house-buying economist, being an adult bourgeoisie, corrects herself, and takes the wider, bourgeois view that made for modern economic growth, and nowadays is enriching India itself.

In 1871 Bombay sent jute to Dundee, and Manchester sent dhotis to Calcutta. Such trade could have been achieved on more or less the same terms if India had been independent. It would have likewise if India had become a French rather than a British colony – a more plausible counterfactual than entire independence considering the disorders of the late Mughal Empire and the briefly superior military technology of all the European powers in the eighteenth century and the absence of national feeling in an India broken into scores of principalities (nationalism came, as it commonly has, from the very imperialism it fought against). If a French colony, India would have traded through Marseille, and in consequence Dundee probably would not have become a great center for the making of burlap bags out of imperial jute. Some

Scottish millionaires in Dundee would have had to seek other opportunities, now taken up by French millionaires in, say, Dunkirk, and the ordinary Scottish worker would have gone to work elsewhere in the Scottish economy, or in England, or in Kentucky, at less loss to them in percentage terms than to the millionaires.

If imperialism was so very subordinating of Indian interests to British, furthermore, why were Indian cotton textile factories allowed to grow in the late nineteenth century? “Given the widespread impression that India’s industrial development was impossible because of implacable British hostility to Indian competition,” writes Om Prakash, “India’s cotton-mill history seems paradoxical: it flourished despite competing against the most important, the most internationally aggressive and politically most powerful industry in Britain. Its rapid expansion began only after 1870, but by 1910 the Indian industry had become one of the world’s largest,” presaging a deep depression for the British industry after the Great War.¹⁰ (A somewhat similar point could be made, about the Japanese cotton textile industry, which again belies the infant-industry notion, especially popular in Germany earlier, that late industrializers had no chance against Manchester’s might.)

And even if the trade with India contained some element of exploitation, which is unlikely, and certainly has never been proven, the trade was lower than Britain’s trade with rich countries like France or the German Empire or the United States. In 1899, Angus Maddison reckoned, the U.K. exported goods (that is, excluding services and bonds) to Imperial India of \$153 millions worth (9.5 percent of all British commodity exports). Exports to Europe and the U.S. at the time were \$728 millions, nearly five times the Indian total. Even confined to manufactures (and thus excluding steam coal from South Wales, for example) the India trade was well below half of British exports to countries who themselves were big exporters of manufactures (the same Europe and the U.S.), and was merely 14 percent of all British manufacturing exports.¹¹

The way the issue is usually discussed speaks of the “drain” from India, said to be the excess of Indian exports over Indian imports, the trade surplus. (Notice that in strict mercantilist theory, such as that practiced by the Japanese over the century past, a trade surplus is supposed to be good, not bad. The drain theory is a little more sensible, considering that Japanese consumers are indeed made worse off, not better, if Japan exports in value terms more in Toyotas than it imports in

soybeans. The Japanese nation is made worse off. (The mercantilism would be especially damaging to the Japanese if the assets the Japanese bought in the United States to square the balance of payment were paid back in depreciated dollars [about a half in the event] or if like the Japanese purchase of Rockefeller Center the assets did not pay back at all. After the American anti-oriental hysteria during the 1970s over the Japanese Invasion, all these misfortunes for Japanese consumers and investors in fact came to pass.) One might suppose in parallel, then, that the export of raw jute and cotton from India in, say, 1900, is to be taken as a national loss to the degree it is greater than the imports of railway engines and steel. According to Angus Maddison's careful calculations, it was on the order of 1 percent of Indian income, and likewise (at any rate before World War I) about 1 percent of British income (Britain was richer but smaller).¹²

But anyway there is something wacky about the concept of the drain. The Indians got gold and silver and British bank accounts in pounds sterling for having a trade surplus – unless the exports were simply stolen from them, which after the age of the nabobs is nowhere alleged, and is not beyond reasonable doubt even for the nabobs, as the trial of Warren Hastings showed. Unlike the mercantilist Japanese seeking to have higher exports before anything in the 1970s, the Indian creditors of British firms demanded payment. Now consider. The goods-and-services account, called also the trade balance, is exports minus imports – not merely goods but, say, Indian imports of British services, such as insurance. The *overall* balance of payments, which is the goods-and-services account together with the capital-and-monetary account, must always balance, to the last farthing. You pay for your groceries either by paying from income you have earned by selling your labor or by borrowing from your bank and then paying. In either case your overall balance of payments – dollars of expenditure minus income, which is dollars of earned income plus borrowing – is exactly zero, always. That is a matter of accounting, not economics. It is always true, by definition of the accounts. Unrequited payments – gifts or thefts – are accounted payments for “services” of benevolence or malevolence. An Indian firm exports tea to England, for which someone in India is paid in sterling. Its Indian owners, its suppliers, and its workers spend the money thus acquired in part to buy British goods, such as steel or boots. If such Indians (or other Indians having no connection with the tea exports) do not buy enough in Britain or elsewhere they keep the pound

notes or bank accounts or the IOUs or the gold that paid for the tea. The Indians are free to spend the money on British goods. They might choose not to. But their choice does not transform the money balances they retain into a measure of a hurtful “drain.”

Think again of your own balances of payments. You export more labor services to your employer than the labor services you *import* from him (none, probably). You have a balance of trade surplus in labor with your employer. Do you feel “drained”? Of course you would prefer to get food and shelter for no expenditure of your labor at all, in the manner of a Mughal prince, or the divided princelings whom the British kept in power. But, no, in a world of trade you are not drained. You take the money paid by your employer and spend it at the grocery store (and the store, too, has a “drain,” a surplus of exports over imports, relative to you: does that make you the exploiting Raj over the grocery store?) Or else, like the Indians, you keep your money in gold necklaces in Pushkar or bank balances in London. The world is composed of such “drains,” between your house and the neighbors, between Ealing and Hampstead. All exchange, 100 percent of it, becomes on balance a shameful exploitation. That’s what I mean by “wacky.”

In short, the average person in Britain got little or nothing out of the British Empire. Yet in 1876 Queen Victoria loved becoming an Empress and Disraeli loved making her one, and so imperial India was born (and in the same year five million Indians died of famine).

Acquiring Cape Town in 1814 was an important part of protecting the sea routes to India, of course, as was messing about in Egypt from 1869 on, and various other imperial projects from Gibraltar to Suva Bay. But such ventures were no more “profitable” than India itself. True, some British investors, such as Cecil Rhodes, made a lot of money out of southern Africa — and Rhodes was by no means the most financially successful of the lot. But that does not mean that the great British public made a lot of money, too. “It is at least certain,” wrote Rousseau in 1755, before Europe’s pro-imperialism had hardened into convention, “that no peoples are so oppressed and wretched as conquering nations, and that their successes only increase their misery.”¹³ The cost of protecting the Empire devolved almost entirely on the British people at home. (A century earlier the British people had likewise paid for the defense of the first empire. Notoriously, the colonials in North America refused to pay even a little for imperial defense against the French and Indians.) British taxpayers at home 1877-1948 paid for the half of naval expenditure that

was for imperial defense, a by-no-means negligible part of total British national income each year.¹⁴ *** Give the figure They paid for the First War against the Boer republics (1880-1881, lost but cheap) and the Second (1899-1902, won but expensive). They paid for the imperial portions of World Wars I and especially II. They paid for protection of Jamaican sugar during the eighteenth century and special deals for British engineering firms in India during the nineteenth. They paid in fatalities, 800,000 in the First World War and 380,000 in the Second, and lost all their foreign assets, too. For the great British Empire the great British public paid and paid and paid.

What were the vaunted benefits to the British people? Essentially nothing of material worth. They got bananas on their kitchen tables, as I said, that they would have got anyway by free trade – the Danes did, via London or Amsterdam – or at a slightly higher cost if trade had not been entirely free. They got employment for unemployable twits from minor public schools. Above all – to go beyond the material realm – they got the great joy of seeing a quarter of the land area on world maps and globes shaded in British imperial red.

Economically, materially, it did not matter. Standards of literacy exceeding those of Southern Europe mattered a great deal more to later British economic growth, as did a tradition of industrial and financial innovation exceeding those of Germany, and a free society in which to innovate exceeding that of Russia, and above all an early shift to a rhetoric of bourgeois virtues exceeding most of the world. Look at the accounting and the magnitudes. Most of British national income was and is domestic. This is true of all countries much larger than Luxembourg or Singapore. And what income there was from abroad was largely a matter of mutually advantageous trade having nothing to do with empire – Britain invested as much in places like the United States and Argentina as in comparable areas of the Empire, and there is no evidence in any case that returns to investment in the Empire were especially high.¹⁵

The British worried in 1776-1783 and in 1899-1902 and in 1947 about the loss of their various bits of empire. But is the average British person worse off now than when Britain ruled the waves? By no means. British income per head boomed after losing colonies in 1783 and 1947, and stagnated in 1902-1914 after expensively keeping the Boer Republics in the Empire. Nowadays, after the tragic loss of maps painted red, British real national income per capita is higher than ever, and is among the

very highest in the world – in 2007 a little bit above, adjusted to purchasing power parity, that of France, Germany, Italy; though a good deal below its former and terribly exploited colonies Hong Kong, Singapore, Ireland, and the United States. Did the acquisition of Empire, then, cause spurts in British growth? By no means. Indeed, as I said, at the climax of imperial pretension, in the 1890s and 1900s, holding sway to the east and west of Suez, the growth of British real income per head notably slowed.

Notes

1. Engerman 1972; O'Brien 1982.
2. Richardson 2003, p. 512.
3. Eltis and Engerman 2000, abstract.
4. Goldstone 2009, p. 69.
5. Aron 1983 (1990), p. 216.
6. Comte-Sponville 1996 (2001), p. 89.
7. Landes 2006, pp. xvii-xviii. Compare Landes 1998 (p. 19), where he characteristically tweaks the nose of "a new 'multicultural' world history [which] finds it hard to live with a Eurocentric story of achievement and transformation," and proudly calls his argument politically incorrect.
8. Cowper 1785, *The Task*, Book I, "The Sofa."
9. National income in the mid-eighteenth century is crudely estimated as the mid-point of Maddison's real-dollar figures of per capita income in 1700 and 1820 (Maddison 2006, p. 264) and the mid-point of his population estimates in the same years (p. 241), and then the ratio of this notional mid-century figure to the 1700 figure applied to Maddison's version of Gregory King's pound figure of £54 million in 1688 (p. 395) for England and Wales alone, providing something like a lower bound: £115 million. I openly confess that I rely on Wikipedia for Clive's fortune (capitalizing for example his £27,000 annual Indian quitrents at 5%, added to £300,000 plus £70,000 to be inferred from the article).
10. Prakash 2003, p. 32.
11. Maddison 1965, Tables A1 and A3 (exports f.o.b. from/to at current prices), pp. 426 and 430.
12. Maddison 2007, p. 122.
13. Rousseau 1755, p. 20.

14. The locus classicus for these calculations is Davis and Huttenback 1988.
15. ***Edelstein statistics from Floud and McC

Chapter 21: And Other Imperialisms, External or Internal, Were Equally Profitless

The same accounting and magnitudes apply to other imperialisms. King Leopold II of the Belgians (reigned 1865-1909) was a ruthless thief in the Congo. Through his concessionaires and their native soldiers he starved and slaughtered and enslaved hundreds of thousands to gather rubber from the trees at zero cost to himself and sell it high in Europe. But what benefit were his crimes to the ordinary Belgians? Did Belgian growth depend on Belgium's little and late-acquired empire – or to be exact, did it depend on the personal imperial income of the King, spent largely on castles in Belgium and southern France? Not at all. It depended on brain and brawn in coal mines and iron and steel mills at home from the early nineteenth century on, and the bourgeois polity dating back to the sixteenth century in the south Netherlands supporting them.

The Germans in East and Southwest Africa fought two little wars 1904-1906 against their new African subjects. In October, 1904, for example, General Lothar von Trotha issued a *Vernichtungsbefehl*, an extermination order, an early German experiment in racial cleansing preparing for the greater experiment of the early 1940s: "Within German boundaries, every Herero [northern Namibian people], whether found armed or unarmed, . . . will be shot."¹⁶ But there was no *economic* point to the Herero holocaust, three-quarters killed or starved in two years, because there was anyway no economic gain to Germany in the first place from having German Southwest Africa (modern Namibia), "whose assets comprised wealth of rock and sand, and whose liabilities [even before the war] cost the German taxpayers a subsidy of £425,000."¹⁷

So it proved for almost all the scrambles for Africa – or those for Asia or Polynesia or even the New World. At the last the Spanish and Portuguese empires left Spain and Portugal among the poorest countries in Europe. Even when the colonized people were reduced to a form of slavery, as in the concessionary system invented by King Leopold for his Congolese subjects and imitated by the French in their own Congo, only a few people gained from the severed hands and depopulated districts. When someone is murdered in the course of a convenience-store robbery, the gain to the robber of \$45.56 is not the *same thing* as the loss

of life of the clerk. His lost life is not a *gain* to the robber. So European imperialism.

Individual Dutch people got rich trading spices from the Dutch East Indies, as Multatuli explains in his strikingly early and influential anti-imperialist novel, *Max Havelaar* (1860) – compare *Uncle Tom's Cabin* (1852). From 1830 to 1870 the Dutch authorities compelled Javanese to produce coffee, sugar, and indigo at derisory prices for the benefit of the Dutch treasury, a third of which at times was supported in this way.¹⁸ But then down to 1913 the Dutch spent on navies and military conquest what they had gained by compulsion, and after the Great War, tortured now by guilt, “government expenditure on defense [well. . .], education, and public health” in the colonies was greatly increased.¹⁹ The Indonesians were damaged, of course, though in this as in other cases, short of Congo-ish horrors, it is not obvious that indigenous rulers, or an alternative European imperium, would have done much better for the common people. In the Dutch empire, writes Angus Maddison, “Control was exercised by the thick layer of European officials [and after 1870, entrepreneurs] who spent a good deal of time as watchdogs over a native administration whose ostensible dignity and regalia camouflaged their basic role as Dutch puppets.”²⁰ Late in the game, in 1931, the Netherlands had a quite large Indonesian presence, 0.4 percent of the population there. It sounds small, but was eight times larger at the time than the British soldiers and administrators relative to the South Asian population they governed, and the number of Dutch in Indonesia relative to their countrymen in Holland was much higher than the parallel figure for the British. After the fall of empire the ex-colonial administrators bulked larger in Dutch society and literature than the comparable class of old India hands did in Britain.

But most Dutch people back in the Netherlands were not benefited by empire, and certainly not in the nineteenth century, by which time the “rich trades” in spices had been routinized, or competed away by such unhappy events as the reproducing of clove cultivation in far away and non-Dutch Zanzibar. Colonial pain in 1660 or 1860 or 1931 did not make for general European prosperity – merely for a few shocking fortunes, such as the Dutch royal family. The ordinary Dutch seaman or farmer earned what such work earned in Europe in 1660, or 1860, or 1931. The European supply and demand for labor determined the real wage, not the profit on spices constituting for all their glamour a tiny part of European expenditure.

Or again, would anyone claim that owning Greenland and Iceland and a few scattered islands elsewhere made the Danish farmers the butter merchants of Europe? No: what explains it were Danish liberties from the late seventeenth century on (though under attack from the imperial and divine-right pretensions of the Danish royals), and a bourgeois attitude among farmers. Did the French as a whole get great benefits from lording it over poor Muslims in Africa and poor Buddhists in Vietnam? One doubts it. French economic success depended on French law, French style, French labor, French banking, French education, French originality, French openness to ideas.

The temptation to attribute the Industrial Revolution to the overseas adventures of the Europeans from the 1490s to the 1950s comes from the confusion I have noted before in Landes, Kennedy, Diamond, Findlay, O'Rourke, and many other between conquest and enrichment. And it comes from the crude correlation in time. Again it is a case of *post hoc* – or rather *dum hoc* – *ergo propter hoc*. It is true that the British for example prospered at the about same time that they acquired their empire – although, to repeat, the crucial industrializing decade of the 1780s, just to take one temporal problem with the argument, is precisely when Britain lost its first empire and had not established a firm grip over its second one. And Japan, one might argue to make the case for empire by contraries, turned away from foreign trade and foreign conquests as growth-making just when the Europeans were getting started in the business. Had Japan opened themselves to foreign ideas in 1603 as they did in 1868, and especially had they adopted earlier the idea of bourgeois dignity, their lack of colonies such as they later acquired (*afterindustrialization*) in Korea or Taiwan or Manchuria would not have mattered. One can point to specific factors in the non-European cases that made overseas imperialism less tempting to, say, Tokugawa Japan and Qing China – and therefore left them without the wonderful advantages of overseas empire for making the modern world. European colonization was easy in the Americas because the conquistadors and the Pilgrims brought measles and smallpox in their baggage. It was not so easy, at least on account of the disease gradient, in, say, India, or Indonesia. China therefore lacked, Kenneth Pomeranz argues, easily colonized foreign lands to provide raw materials like cotton. And indeed, Pomeranz observes, in 1750 China had internally probably the largest source of cotton in the world. Why bother conquering India?

The point is that China and Japan could have industrialized without colonies, or indeed without world-girdling trade. Yet they didn't. Pomeranz argues that there was in China no political alliance in favor of foreign trade. That's no exaggeration. But the drawing back after the adventures of the great fleets in the early fifteenth century was in part a consequence of a much deeper obstacle to rapid industrialization in China, the disdainful attitude towards all merchants. (Goldstone would perhaps disagree, observing as he does that venturing beyond the Indian Ocean lacked point for China. But the disdain for merchants was palpable.) Foreign merchants were confined for a while to the port of Ghangzhou (modern Canton) in the south and Kyakhta in the northern inland, on the border with Russia, some 2500 miles away. It would be as though the inlets to European trade were confined to Cadiz in the south St. Petersburg in the north. Again the political unity of China figures. The Spaniards certainly *wanted* to make Seville and then Cadiz the sole entrepôt for the trade from the New World. But the pesky French and English would have none of it. They made Le Havre and Bristol into New-World entrepôts, even going so far in their presumption as to seize Cadiz from time to time and burn the Spanish ships.

Sic transit all manner of claims that Western wealth is founded on the despoilment of the East or the South. Rich countries are rich mainly because of what they do and did at home, not because of past or present foreign trade, foreign investment, foreign empire, or foreign anything except foreign ideas such as the inventions adopted from China and the crops adopted from the New World. If the Third World was transported tomorrow by magic to another planet, like the two-planet system in Ursula Le Guin's novel *The Dispossessed: An Ambiguous Utopia* (1974), in the long run the economies of the First World would scarcely notice it. In the short run there would be of course great disruption. But the economies of the West would adjust, rather as they adjusted to \$150-a-barrel oil for a while in 2008, or to the abolition of slavery in British Empire in 1833-40, or to the papal decision in 1537 that native Americans were to be treated as though they had souls. The one exception to the post-War *loss* of a literal empire supported by guns and tanks, that of Russia, was a failure. Russian income per head grew more slowly enchaind to its Eastern European colonies than it would have if by some happy miracle it had adopted Western innovation in 1945. Look at East Germany vs. West, where the controlled experiment was in fact tried.

Labor productivity in Ossi factories ended in 1991 at one-third what it was in Wessi factories.²¹

That is, we cannot account for the riches of rich countries by reference to exploitation of poor people. This, to repeat, is not to say that there was no exploitation — that British or Belgian or French or Spanish or Portuguese imperialism was good news for the people imperialized. That is a separate question, and sometimes has a rather obvious answer. For example, yes, Belgian imperialism in the Congo was an appalling event for the Congolese. Roger Casement recorded in 1903 what the people said about Leopold's concessionaires: "From our country each village had to take 20 loads of rubber. . . . We get no pay. We get nothing. . . . It used to take 10 days [per month] to get the 20 baskets of rubber — we were always in the forest to find the rubber vines, to go without food. . . . then we starved. Wild beasts — the leopards — killed some of us while we were working away in the forest and others got lost and died from exposure or starvation and we begged the white men to leave us alone. . . . but the white men and their [black] soldiers said: Go. You are beasts yourselves."²²

But remember the convenience-store robbery. That a brutal imperialism or other forms of exploitation backed by the brief Western lead in the technology of guns and a peculiarly Western obsession with large-scale foreign adventuring was often bad for the non-European victims does not at all in logic — or as it happens in most facts 1492 from 1960 — imply that the average citizen of the European perpetrator countries was greatly enriched by it.

* * * *

Consider for example the sorry history of South African racism. Keeping the blacks uneducated and landless and the coloreds excluded from certain occupations in the twentieth century did *not* benefit white South Africans on the whole, no more than conservative Muslim men are made better off on the whole by keeping their women illiterate and refusing to allow them to drive. The novelist Alan Paton wrote in 1948 in the voice of progressive whites just as apartheid was about to come to a climax: "the earth has bounty enough for all, and . . . more for one does not mean less for another." The reply to such liberalism from the voice of conservatives is always about the political system as a whole, and the standing of the hegemonic group within it: "this is a danger, for better-paid labor will . . . read more, think more, ask more, and will not be

content to be forever voiceless and inferior.”²³ But we are discussing economics, not the pleasures or anxieties of a profitless hegemony.

From 1917, about when the trammeling of blacks and coloreds in South Africa got seriously theorized, to 1994, when democracy was established, the real incomes per head of South African *whites* grew at about 2 percent per year.²⁴ Two percent per year is a respectable but not an unusually high rate of growth. At such a rate one’s real income doubles every 35 years, a welcome event, and approximately what has been happening in the United States since the eighteenth century. But it is no Swedish or Japanese or Korean miracle. On its face it does not justify a notion that the whites were greatly enriched by extracting loot or labor from people with non-European ancestors.

Look at closely comparable cases. The white growth rate of real income in South Africa 1917-1994 was somewhat higher than in Australia. The Australians did lack a large internal oppressed class. The tiny number of Aborigines who survived Western diseases, it is said, were still being hunted for sport in the 1930s by drunken Western Australians of European descent. Yet no one would seriously claim that such activities were the basis for the Australian economy. Everyone in Australia worked, pretty hard. Click go the shears, boys, click, click, click. The European Australians were not up on horses ordering blacks about as *die base* (“the bosses,” which until well into the twentieth century was the crippling career presumption of quite ordinary Afrikaners). The South African white growth rate was also a little higher than in New Zealand, which did have a large class of Maori aboriginals for Europeans to lord it over, though not anything like so large as South Africa’s endowment on this score. Yet in Canada or Ireland white incomes grew at about the same rate as in South Africa, with no such class of exploitables. And other countries entirely lacking a separate racial group to exploit at artificially low wages in mining or housework, such as Italy, Greece, Finland, and South Korea, had a higher rate of growth than the privileged whites of South Africa achieved by their alleged profiting from privilege. Oppressing people is bad. But commonly if not always the oppression helps only a few rich and powerful people, while hurting or not benefiting the ordinary folk alleged in the racist rhetoric to do well.

Of course oppression sometimes makes *some* of the oppressors better off – the rich and powerful and rare, to repeat. That is the prudence-only explanation of why they engage in the oppression, and

often it explains something. But such beneficiaries are tiny minorities, such as the unusually well-connected or the unusually violent, a few Afrikaner trade unionists in South Africa and the House of Saud in Saudi Arabia. True, South African whites for a long time *believed* that their prosperity depended on oppressing non-Europeans. It is the rhetorical, non-prudent explanation for apartheid. But a belief in fairies does not strictly imply that fairies exist. (A report on an Irish woman, asked in the 1830s whether she believed in fairies: “She did not, she said, but they were there all the same.”)²⁵ That people believe they are made better off by being associated with an empire or apartheid or slavery or segregation or discrimination or patriarchy does not mean they actually are. Because of improved varieties of cotton, American slavery was profitable right to its end for the Southerners who owned slaves (a small group – unlike the Cape Colony during the eighteenth century, in which nearly every white family owned a slave).²⁶ Yet slavery did nothing good for the poor whites of the Confederacy except to make them feel superior to at least somebody. Alas, like working-class imperialists in Britain, they *thought* the exploitation of others by rich people was good for them as poor whites, and therefore they flocked to the colors in 1861 under the command of plantation owners. Likewise in 1914 the cockneys and agricultural workers flocked to the British Empire’s colors of the Pals Brigades or territorial regiments under the command of middle-class infantry officers (whose cousins were policemen in Burma).

In South Africa from 1936 to 1960 the policies devised mainly in the 1920s succeeded in raising Afrikaner unskilled workers and English trade unionists above migrant blacks and South African coloreds (that is, mixed race or people of Indian origin) and blacks. Incomes of lower class Afrikaners did rise smartly, as they took jobs on the railways, and as their sons went to engineering school. Yet from 1975 until 1994, at the very height of a system supposed to enrich them, Afrikaner or English whites saw negligible growth in their real incomes (one would need to correct the price deflators in such calculations for the improvement in the quality of goods). And indeed South Africans as a whole, black and white and colored, saw their real incomes stagnate or actually fall. More to the point the rates of growth were below those even in many other African countries.²⁷ And unsurprisingly in no period since its founding did the system succeed strikingly for blacks and whites considered together. No wonder, a materialist would exclaim, that after 1986, gradually, like communism after 1991, the pass laws and the rest were

given up. But then he would have to explain with the same materialist hypothesis why they were adopted in the first place.

What comes out of the economics, in other words, is that on the whole, and time and again, the attempt to live off poor people has not been very profitable. Even the rich in former times, who for millennia did in fact live off poor people, remained poor by the standard of ordinary people after modern economic growth. As Adam Smith memorably put it at the end of the first chapter of *The Wealth of Nations*, “the accommodation . . . of an industrious and frugal peasant . . . exceeds that of many an African king.”²⁸ Smith was following Locke: in America, for want of improvement of the land by labor, “a king of a large and fruitful territory there feeds, lodges, and is clad worse than a day laborer in England.”²⁹ For 1690 or 1776 this may in fact be doubted. The *obas* of Benin 1170-1897 did seem to have lived pretty high off the hog, well above the standard of an English day laborer or an industrious and frugal peasant in the Lowlands of Scotland.³⁰ But by now, imagining the riches in health and wealth of a working person in Italy or New Zealand, and comparing these to the riches extracted in olden times from the poor, or still extracted today by the last absolute monarch in Africa, King Mswati III of Swaziland, Smith’s proposition cannot be doubted. As soon as the hierarchy relented, and positive-sum invention became prestigious, the rich *and* the poor became astonishingly better off. Even poor people in a modern economy have access to vaccination, air-conditioning, automobiles, the internet, reliable birth control, and flush toilets. The very Sun King himself had access instead to smallpox, open windows, bumpy carriages, a small list of books, leaky condoms, and relieving himself in the staircases of the Palace of Versailles.

If contrary to fact the exploited poor people were rich, not poor, and if the gain was all a matter of pass laws and violence, not mutually advantageous exchange, then some big parts of some societies, I repeat, could possibly benefit from violent imperialism abroad or violent apartheid at home. But that’s not what the accounting and the magnitudes suggest about the British empire, or for that matter about apartheid within the Southern United States or South Africa. And even enslaving rich people is not such a wonderfully enriching idea, as Hermann Göring’s program of Continental enslavement showed. The formerly rich slaves didn’t produce V-2 rockets or Messerschmitt Me 262 jet planes fast enough to tip the balance. And stealing paintings from Paris and Amsterdam did not enrich ordinary Germans.

Voluntary trading with free, rich people, as against exploitation of poor people, turns out to be the better plan. In fact the more the rich countries trade with each other (as they mainly do) the richer they become – though remember that innovation, not such trade, is the engine of growth. As the financial historian Niall Ferguson has observed, Germany did better in “dominating” (which is mercantilist lingo for “trading with”) Eastern Europe after 1945 and especially after 1989 than any of its imperial ambitions of the 1910s or its *lebensraumische* plans of the 1930s could achieve. Ditto Japan. The Greater East Asia Co-Prosperity Sphere of Japanese militarism was economically speaking a dismal failure by comparison with Japan, Inc. We are made better off by having fellow citizens who are well-educated and well-trained and fully employed, even though we will then have to sacrifice having plentiful maids (the living rooms of middle-class people in Brazil and South Africa are strikingly clean, because they do have such maids). If exploiting *poor* people of color had been such a grand idea for rich white people, such as certain white Brazilians and white South Africans, then the white people in such countries would now be a lot better off than whites in Germany or Portugal or England or Holland, or the United States or Australia – places from which their ancestors came or to which their cousins went. They are not, and were not.

Notes

16. Pakenham 1991, p. 611.
17. Pakenham 1991, p. 602.
18. Emmer 2003, p. 391.
19. Emmer 2003, p. 392.
20. Maddison 2007, p. 137.
21. Ardagh 1991, p. 448.
22. Quoted in Pakenham 1991, pp. 598-599.
23. Paton 1948, p. 71.
24. Feinstein 2005, p. 11, Figure 1.3.
25. Eagleton 1996, p. 273n1.
26. Olmstead and Rhode 2008.
27. Feinstein 2005, p. 145, Table 7.2, itself from Maddison 2001.

28. Smith 1776, I, i, 11, p. 24.
29. Locke 1690, Bk. II, para. 41, p. 136.
30. Exhibit, Chicago Art Institute 2008.

Part IX. Commerce in Braudel and the Marxists

Abstract

“Commercialization” and “monetization” dance with stage theories from Smith to modern growth theory. The sheer growth of traded or the sheer growth of money, though, do not an Industrial Revolution make. The ill-named “Price Revolution,” for example, came from American gold, not from population increases, and did not inspire innovation. Commercialization comes from falling transaction costs, which should be directly studied. Fernand Braudel, however, argued for commercialization as a force transforming “capitalism.” He distinguished “capitalism” from local trade, which no economist would, and assigned blame to the capitalists. Though hardly a Marxist, he—like a brilliant group of leftish economists such as Marglin and Lazonick—puts emphasis on the struggle over the spoils. But it was not such struggles that made the modern world. It was the positive sum arising from innovation.

Chapter 22: It was Not the Sheer Quickening of Commerce

A perennial candidate for The Cause is “commercialization” and its *doppelgänger* “monetization.” The words dance with stage theories, such as Smith’s or Marx’s, or with modernization theory’s like Weber’s or Simmel’s, or now with the neo-stage theories of the economists’ growth theory. Like the rising middle class, the scope of commerce and money is always supposed to be rising, almost regardless of the period of prosperity considered. An economic historian, though, can tell you that the European economy, like the Greek or the Chinese or the Egyptian, has always been “monetized.” The calculative bent that is supposed to have arisen recently was in fact characteristic of all the mercantile or bureaucratic civilizations, that is, all cultures engaging in trade or taxation, at any rate among the traders, tax collectors, and temple priests themselves (admittedly, the extension of a quantitative rhetoric to ordinary people, not already merchants, was a characteristic part of the Bourgeois Revaluation). You can see thoroughly monetized thinking in Walter of Henley’s treatise on estate management in the late thirteenth century as much as in courses on financial accounting at the Henley Business School in the early twenty-first century. The accounting is less sophisticated earlier, but among economic sophisticates early and late the counting in money ruled. In the European Middle Ages one could buy almost anything for cash – a husband, a marketplace, a kingdom, pardon for crimes, fewer years in purgatory. “But with these relics,” says Chaucer of the Pardoner selling papal indulgences, “when he found/ A poor person dwelling on the land/ Within a day he got out of him more money/ Than the person got himself in two months.”¹ In West African kingdoms in the seventeenth century, as in seventeenth-century Virginia, people were for sale. Buyers and sellers in all ages thought in terms of money, and there have always been buyers and sellers.

Somewhat surprisingly viewed from outside economics, an economist will tell you, therefore, that the history of money is not the same thing as the history of prosperity, and has nothing to do with industrialization. Non-economist historians suppose for example that a new industrial economy must have arisen from Spanish silver flowing into Europe and China in the so-called Price Revolution (whose rate of inflation, by the way, was a mere 2 percent a year: some “revolution” – during the 1970s and 1980s worldwide inflation was 8 percent per year,

which meant that a doubling of the price level happened in one fourth of the time it took in the sixteenth century). After all, a commercial economy is about money, isn't it? And surely the Price Revolution caused falling real wages, and therefore higher profits for proto-capitalists, because "wages always lag behind prices." And indeed the Price Revolution itself must have been caused by rising population, which drove up food prices?

The economist replies gently to all these indignant questions: no, dear. In her view — admitting its strangeness, though affirming its truth — the form and volume of money is largely irrelevant to deeper economic currents. Money, the economist says, is a veil. What matters for real enrichment, she continues, are real, not monetary, magnitudes: real output, real wages, relative prices, real innovations in the way things are made. We eat pounds of meat, not dollars worths. If the price of meat increases by a factor of four, as it did in the truly great inflation of the 1970s and 1980s (the fastest worldwide in history, putting ancient and early modern inflations in the shade) we are startled if we keep remembering prices back in the good old days. We are sticker shocked. But if meanwhile our money incomes have increased also by a factor of four, then in truth we are no worse off. We get the same poundage of meat for the same sacrifice of hours of work or checks from our pensions.

It is often alleged that the Price Revolution was caused by increasing population. "No," says the economist, now vexed, "for Lord's sake, no!" To be sure, population growth in Europe during the fifteenth and sixteenth centuries made labor less valuable relative to land, which is why real wages fell. You can visualize it as more agricultural workers showing up at the farmer's gate in the morning looking for work. He says, "All right. I'll take more of you, but will set you to work doing less urgent tasks at lower wages relative to the price of the barley that I sell. Ned, we'll do some additional harrowing on the Church Field. John, go chase the crows away from the Nether Field." The technique of making things did not improve. On account of the falling price of labor relative to land the economy used a different recipe. Labor substituted for land. More labor on the acreage was the right recipe for a newly labor-rich economy. But was not itself an innovation in the book of recipes — not clover in the fields (Holland and East Anglia in 1300), not mechanical harvesting (Illinois in the 1830s), not hybrid corn (Iowa in the 1950s).

Yet the amount of silver and gold money had nothing to do with the falling ratios of money wages to money prices, which is the falling

real wage. There were shillings on both sides, which cancel out. Rising population did cause the real price of grain to rise, but a rising relative price of grain, one commodity among many, and a land-intensive one, would not be the cause of the Price Revolution.² When the otherwise very insightful Joyce Oldham Appleby casually mentions the sixteenth century's "inflation caused by high food prices" the economist grits her teeth.³ Relative prices, the economist argues, have nothing to do with absolute, money prices. One could equally well argue that if population had instead declined, and the price of labor-intensive goods like cloth had therefore risen relative to grain, then *that* would have caused an "inflation." So, in such a fractured logic, *everything* causes inflation. Every change in relative prices, wheat against cloth, up or down, makes prices in general relative to silver higher. Evidently something is wrong. The *reductio* shows that using relative prices to talk about general inflation is not possible. (Admittedly, the talk is common in fact: even some economists think that a rise in, say, oil prices relative to bricks is especially inflationary. Talk of a "core" rate of inflation is of this character, embodied in official if illogical declarations monthly from the Bureau of Labor Statistics.)⁴

In fact rising population in the sixteenth century, supposing for a moment that it was all that happened (there was after all that notable rise in the amount of silver and gold from the New World, and silver from Central European mines, and debasements of coinage by needy governments at the same time), would have forced an existing stock of silver and gold to do more work in transactions. The only way that could be accomplished is by *reducing* the amount of money needed to buy bread — a great deflation, not an inflation.⁵ If population is supposed to be the driving force it would have driven prices not up, but down.

* * * *

And for some of the same reasons the economist is suspicious of the story of "monetization." As in the stories of foreign trade or stories of environmental disaster or stories of institutions of property rights, the story gets part of its plausibility from imagining a world bereft. Suppose we had *no* trade? Suppose we had *no* trees? Suppose we had *no* means of effecting a deal? Suppose we had *no* private property? But in all cases the relevant historical question is what would happen with a little more or less foreign trade, or trees, or means of payment, or property rights. The answer in the case of "monetization" is that it seems implausible on its face that *highly* advantageous trades were made impossible by an

absence merely of a convenient and modern-looking means of payment, such as stably supported pounds sterling, or Spanish coins. The economic logic is that when an advantageous deal is to be made between a peasant offering wheat or rice and a town-dweller offering pottery or cloth, both sides have a large incentive to make it happen, somehow. In historical fact they figure out some way to make the payment – in iron bars, say, or cowry shells, or cloth itself, or rice itself. The abundance and therefore the convenience of a means of payment is a secondary matter. It matters, but not much. If copper or cowry shells are rare, their relative price goes up, which is to say that deflation occurs. So what? The deals still get made. To put the point in economic jargon, the means of payment is endogenous, generated by economic forces internal to the deals made. “Monetization” is not some manna dropping from the skies to nourish baby capitalists.

True, commerce expanded. The quarrel is with the common view that “commercialization” is some force outside the deal-making of individuals. The historian of China Peter Perdue, for example, speaks of “monetization” and “commercialization” of the Ming and then the Xing economy.⁶ What such an expansion means, however, is that more deals were made. The desire to make deals did not change, as Perdue on reflection would certainly affirm. What changed was the ease of making them – and as I said that is normally a secondary consideration. As Weber put it, recall, “the impulse to acquisition, pursuit of gain, of money, of the greatest possible amount of money, . . . has been common to all sorts and conditions of men at all times and in all countries of the earth, wherever the objective possibility of it is or has been given.” What changed were “transaction costs,” in the phrase of the great economist Ronald Coase (1910-), that is, the costs of getting together to make a deal – transportation costs, the costs of robbers on the highway or in the market, the costs of trust, the costs of insurance, the costs of using credit, the costs of getting coins and bills, the costs of negotiation, the costs of taboo, the costs of sneering at the bourgeoisie. All these make deals more expensive, and many of them are directly measurable. When such costs fall, “commercialization” takes place. What the economist and historian Douglass North got right (amongst a good deal that he got wrong) is that we should focus on the history of the transactions costs – about which there is ample documentation – and cease believing that there is something separately measurable “spreading” to make people and their taxing governments rich, called “commercialization” or “monetization”

(neither of which, by the way, are technical terms in economics, though they sound like they are). That's what wrong with the way most historians think about the matter.

What's wrong with the way most economists think about the same matter comes from a different intellectual taste. Economists want the modern world to come out of the expansion of what they understand, commerce. Modern growth theorists in particular are entranced by endogenous theories in which growth leads to growth. Voila! No need for culture or history. A recent example among scores of such hopeful arguments is provided by Klaus Desmet and Stephen Parente, "The Evolution of Markets and the Revolution of Industry: A Quantitative Model of England's Development, 1300-2000." They write:

This paper argues that an economy's transition from Malthusian stagnation to modern growth requires markets to reach a critical size, and competition to reach a critical level of intensity. By allowing an economy to produce a greater variety of goods, a larger market makes goods more substitutable, raising the price elasticity of demand, and lowering mark-ups. Firms must then become larger to break even, which facilitates amortizing the fixed costs of innovation. We demonstrate our theory in a dynamic general equilibrium model calibrated to England's long-run development and explore how various factors affect the timing of takeoff.^z

If you like this sort of thing, I can supply you with the names of dozens of economics journals devoted to it. The trouble is that the largest markets in the world 1300-1700 – which is the relevant era for the beginning of all this – with the largest critical size and the greatest variety of goods and lowest markups and the highest amortization of the costs of innovation – were in China and India and points a little east and west of the Indian Ocean. The smallest markets in the Eurasia were European. And the expanding markets 1700-2000 were world-wide, not English. And yet England alone started it.

* * * *

Fernand Braudel's astonishing product of his old age, "Civilization and Capitalism, 15th-18th Century," and especially volume 2, *The Wheels of Commerce*, is the most full exposition of the idea by a historian that the modern world came naturally out the sheer expansion of commerce. Throughout *Wheels* Braudel admires markets, yet disdains people he calls "capitalists." It gradually becomes clear that what he means by a "market" is the routine provisioning of a society. One goes to the Lindengracht market on Saturday in Amsterdam expecting to buy cheese or broccoli for a little less than what is charged by the two Albert Heijn

supermarkets nearby. One does not expect enormous savings, and neither do the stall owners expect enormous profits. The provisioning is routine, and the profits as Alfred Marshall put it in *Principles of Economics* (1890) are “normal.”

Braudel argues that peddlers 1100-1789 slowly become shopkeepers and that the merchant fairs such as Champagne’s slowly became warehousing entrepôts like Genoa or Amsterdam. (A long time ago an American professor of history somewhat uncharitably compiled the undergraduates’ exam-time versions of these events: “After a revival of infantile commerce slowly creeping into Europe, merchants appeared. Some were sitters and some were drifters. They roamed from town to town exposing themselves and organized big fairs in the countryside.”⁸) Such developments, Braudel says, were routine matters of population density and the cost of transport. Before Germany’s population boomed in the sixteenth century, the economical way to sell ribbons to Germans was by peddling, drifting from village to village or farm to farm in the style of *Oklahoma* or Chaucer’s wandering merchant. Denser population of course makes it worthwhile for a peddler to settle in town, and become a sitter rather than roaming around exposing himself. The fairs of medieval times developed into the warehouses in Amsterdam of early modern times – which were able, Braudel reports, to hold nine years worth of Dutch grain consumption, had that been their main use (it was not: it was to hold the consumption of grain, lumber, cloth, spices for the next few months of all of the lands near the Rhine and the Meuse). In 1650 an English writer exclaimed about the mystery of Dutch success: “The abundance of corn grows in the East Kingdoms [Poland], but the great storehouses for grain to serve Christendom and the heathen countries (in time of dearth) is in the Low Countries. The mighty vineyards, and store of salt, is in France and Spain, but the great vintage [of casked or bottled wine] and [the] staple [marketplace] of salt is in the Low Countries.”⁹ The warehousemen – the great merchants of Holland – were able to settle down on the Herengracht, and not dust their feet in twenty fairs a year, because the Dutch *fluyt*, broad of beam and light of crew, cut costs of shipping between the Baltic and the North Sea. Such changes were reversible. The Thirty Years’ War cut the population of Germany by a third and the peddlers once more hit the road. Over the longer run the little retail peddlers and the big wholesale merchants settled down, and no “capitalist” profit ensued.

By contrast to the honest cheese vendor by the Noorderkerk, or by contrast for that matter to the honest if more fancy and more convenient and more expensive Albert Hijn on Haarlemmerdijk, a “capitalist” in Braudel’s scheme makes big profits. The profits are abnormal, “quasi-rents” as Marshall called them, the short-run profits before entry brings normality back. Braudel’s capitalist makes his quasi-rents by Mafia techniques. He corrupts governments. He organizes monopolies. To defend his trading post in West Africa, his abnormally profitable turf, he is willing to engage in shocking violence, shocking at any rate to those who faced European imperial commerce 1500-1960. He eagerly leaps into any new opportunity to buy *very* low in, say, Batavia in Indonesia or Kinshasa in Congo to sell *very* high, ten times higher, in Amsterdam or Antwerp. He sneers at the suckers who work 9:00 to 5:00 for merely normal profits. He’s a crook, a player, a wise guy. No wonder Braudel doesn’t love such a “capitalist.” Who except Carmela could love Tony Soprano, really?

Braudel was very far from being a Marxist, at any rate by the standard of, say, his contemporary Sartre or of the next generation, such as Louis Althusser. But like us all he imbibed in his youth Marxist ideas about how the economy functioned, ideas echoing through followers of Marx like Karl Polanyi or even revisionists of Marx such as Max Weber. You can’t avoid Marxist ideas any more than you can avoid Darwinian or Freudian ideas. I can’t, either. They’re part of the rhetoric of the age, its commonplaces. (Awareness of rhetorical techniques, I think, makes it possible to spot one’s own commonplaces, at least sometimes, and to worry about their aptness. By contrast, if you think of language as being merely a system of signs for pre-existing things you overlook its persuasive slant.)

Braudel distinguished three levels of economic life, the material at home, the small market in the village, and the big market of capitalism worldwide. The line between the small market and the capitalists, he argues, is written in ethics. The “capitalists” cheat, and because they are big-time cheaters they get ennobled rather than hung. “Mr. Moneybags,” I’ve noted, was Marx’s indignant characterization of such a character. “The triptych I have described,” Braudel wrote in 1977, “— material life, the market economy, and the capitalist economy — is still an amazingly valid explanation, even though capitalism today has expanded in scope.”¹⁰ In quoting this claim the economist Alan Heston remarks that “it is a structure of thinking that is rather alien to trends in economic

research that seek to explain the behavior of households, markets and business firms using similar economic models.”¹¹

What Braudel gets wrong because of his *marxisant*, rise-of-classes rhetoric is his claim that there is a line between normal markets and super-normal innovation. A bourgeois economist does not think so. She does not mean simply that there's no *bright* line. She means that there's no line at all. Market participants *are* capitalists. You are, for example. True, you don't have Scrooge-McDuck amounts of moneybags to back your investment ideas – at any rate until you can with sweet words persuade Scrooge to invest. But when you bought your home, or “invested” in a fur coat against the Chicago winter, you were engaging in the same activities as the masters of high finance. Buying low and selling high, expecting the capital gain on your condo to finance your retirement in south Texas, expecting the fur coat to yield “profits” in warmth over many winters to come, runs every market, *haut* or *petit*.

Braudel's vision is of a routine world of normal profits for little people. Economists call it the “steady state.” It is not just normal and steady. It is stagnant. Innovation – the modern innovation that has made us all rich – does not as Braudel claims depend on bribery, violence, and cheating. It depends on Kirzner's “alertness.” That is, it depends on noticing opportunities for super-normal profit (and using them by the exercise of internal and external persuasion, a necessary linguistic supplement to Kirzner's story). One can notice that the booming South Loop of Chicago could really use a high-end grocery store, such as Fox and Obel. The opportunity will make Fox and Obel great profits in future years, worth as a capital sum now, say, \$1,000,000 (I offer the advice to Messrs. Fox and Obel gratis; the advice is probably worth about what I am charging). A million dollars is pocket change by the standard of a really big capitalist like Donald Trump. But it is nonetheless innovation, and results, as The Donald's first big real-estate project in Manhattan did, in supernormal profit. At least it will do so until the competition wakes up, too, and two or three more high-end grocery stores open in the booming South Loop.

The analogy extends even to the misbehavior that Braudel assigns to the capitalist sphere. The *marxisant* < .i>vision attributes super-normal profit to large capital accumulation and to outrageous behavior. Neither is correct. On the whole you make a little or big fortune by alertness, not by theft, at any rate in a well-ordered community of laws (on which North and I and all economists agree: without laws nothing can happen). True,

the oil executives granted numerous opportunities to chat up Vice-President Dick Cheney when he ran the U.S. government are going to do better, probably, than a local store owner complaining to her alderman that the opening of a WalMart will ruin her. But there's no difference in principle — or, adjusting for scale, in practice — between the two cases of lobbying. Alertness, not investment or corruption or monopoly (though unhappily these, too, figure), drives a successful economy. Something happened in the rhetorical world of Europe — in Holland during the seventeenth century and later in England; in the late eighteenth century Scotland, and the English colonies in North America; in the very early nineteenth century in Belgium and France, and so forth — that made alertness explode.

On the other hand, Braudel had one important economic argument quite right, which some others — Weber, for example — did not. Namely: routine behavior yields routine profits. Braudel quotes Weber on sobriety and the like, what Weber called Protestant behavior — though even Weber admitted that such behavior was praised in numerous handbooks of proper business behavior by undoubted Catholics in northern Italy two centuries before the Calvinists after Calvin got hold of the idea. But Braudel knows that sobriety and savings and the like does not yield supernormal profits.

* * * *

Yet in one respect Braudel is an orthodox marxoid — a rhetoric, admittedly, that he shares with most economists and historians. He believes that the key to innovation is the accumulation of profits. What Herbert Feis, speaking of Britain in the late nineteenth century, called a “free financial force” stood ready around 1800, says Braudel, to shift its Mafia-style attentions to manufacturing when that rather than long-distance trade in spices and china was the place to make supernormal profits.

We've seen that the “original accumulation” part of this way of narrating the birth of the modern is unhelpful. But the other half is unhelpful, too. It is not — *pace* Marx — the surplus value stored up by Mr. Moneybags (*Herr Geldsack*) that propels modern innovation. Such profit is merely a hope tempting to the imagination. Profit comes mostly from productivity, not as the pessimists of the left and right insist mostly from monopoly. Paul Sweezy, Paul Baran, Stephen Marglin, William Lazonick, Bernard Elbaum, Edward Lorenz, Jon Cohen, Robert Allen, and other economic scholars on the left — an astonishing group, by the

way, presenting a scientific challenge largely ignored by the Samuelsonian/ Friedmanian orthodoxy in modern economics – have been claiming for a long time that innovation was determined by the struggle over the spoils (in a phrase, by monopoly capitalism), for good [Galbraith, Lazonick] or evil [Baran and Sweezy]). It didn't, though as usual the economics and the politics shaped the details—but did not determine the tide. The left-institutionalist argument originates with Marx in 1846: “Since 1825, the invention and use of machinery resulted solely from the war between masters and workmen.”¹² The left can claim that this or that change of technique – factories (Marglin) or mule spinning (Lazonick) or enclosure (Allen) was partly motivated by the share of the spoils, not efficiency.¹³ Lazonick summarized the program in his graceful presidential address to the Business History Conference in 1991: “For better or for worse, it has been the strategies of people entering into social relationship in attempts to control their lives that has shaped the markets for labor, capital, and products that have come to characterize the modern industrial world.”¹⁴ The idea is that organizations – unions, corporations, conspiracies, politics – run the show.

The left-wing and the Schumpeterian and the institutionalist critics of Samuelsonian economics often make their case well. In the one example in which I too am a little knowledgeable, the English enclosures, the leftish Robert Allen agreed with me that the share of spoils mattered a good deal, and that the rise in productivity was anyway small (I did the scientific work in the 1970s when I was still an orthodox Samuelsonian/Friedmanite economist).¹⁵ But dividing up the spoils from efficiency gains – one version of the organizational struggle that economists on the left from Marx to Galbraith have emphasized – was not mainly what made the modern world. Nor was the modern world made by the “organizational capabilities” that Lazonick and Robert Reich and Lester Thurow and others emphasize. The capability of the Americans to organize mass production or the capabilities of the Japanese to organize worker-management cooperation are in the long run imitable, and imitated. And in the medium run they can become dis-capabilities, handicaps, when the economic environment that made them profitable changes. Thus Henry Ford's capability in mass production of tin lizzies became a handicap when faced by General Motors' capability in annual model changes and in servicing a middle-class market. The storied excellence of the Japanese of the 1970s dissolved into the Lost

Decade of the 1990s. The Soviet capability in exploiting economies of industrial scale under central planning in the 1930s became the handicap of the 1980s. The capability of British engineering in bespoke tailoring of railway locomotives in the 1890s became the handicap of the 1960s. The shunning of defectors that enforced contracts among, for example, Jewish traders of North Africa in the Middle Ages became the handicap in early modern times of not sufficiently attending to courts.¹⁶

What made the modern world was the gigantic size of the entirely unprecedented spoils of innovation in product and process and organization, together with an egalitarian distribution of the spoils in the long run driven by entry and competition. The inventor Richard Roberts, true, was directly employed by English cotton-textile manufacturers to produce a device to break the labor power of the mule spinners. But most inventions achieved their profitability – as indeed the self-actor also did – by making costs lower for a given output, not by exploiting the workers (whether or not along the way the workers *did* get exploited). Exploiting the workers, to repeat, does not yield enough loot to explain rises of 100 percent, not to speak of 1500 percent, in the productivity of all – including paradoxically the exploited workers themselves.

Normal profits are earned not by exploitation but by alertness to the right way of doing business – running a store better than other people know how, say – and *super*-normal profits are earned by superior alertness, such as Sam Walton of WalMart exhibited. The piled-up alertnesses have made us rich. The Astors and the Carnegies and Sam Waltons make the money in the first generation by alertness in the fur business or steel manufacturing or retail trade. (And with an occasional but well-placed bribe, it must be admitted – but this is true of little capitalists, too, and is rampant in socialism; and in fact Carnegie and Rockefeller [and for all I know Sam Walton: I am sure about Carnegie and Rockefeller] were by the standards of the time notably ethical in their dealings.) Yet when everyone figures out how to get beaver hats or steel or close monitoring of retail inventories, the profit goes back to normal, and we, poor exploited things, are left with cheaper beaver hats and cheaper steel and retail goods 30 percent cheaper than charged by our good neighbors the local hardware and clothing monopolists on Main Street.

Notes

1. Chaucer, "General Prologue" to *The Canterbury Tales*, ll. 701-704.
2. I have not been able to persuade over a few decades of trying the otherwise very canny Jack Goldstone, as in Goldstone 2002a: "The combination of sustained population growth since the fading of the plague circa 1450, plus a vast infusion of silver, have combined to raise prices in a dizzying spiral; taxes have not kept pace, weakening these regimes." The population growth would have lowered prices, not increased them. And the "dizzying spiral," I have noted, was a mere 2 percent per year, hardly fast enough to make it even mildly difficult for taxes or rents to "keep pace." Something growing at 2 percent takes fully 36 years to double.
3. Appleby 1978, p. 27.
4. For the argument against "core" inflation see Ritholtz 2007, and for a defense of it DeLong 2007. DeLong argues that food and fuel prices typically have fluctuations that are "self-correcting," and therefore should not be the object of monetary policy. One wonders why other *relative* prices are not also self-correcting.
5. McCloskey 1972b.
6. Perdue 2005, p. 560.
7. Desmet and Parente 2009, abstract.
8. Henriksson 1983.
9. John Keymer, quoted in Appleby 1978, pp. 75-76.
10. *Afterthoughts on Material Civilization and Capitalism*, p. 112, quoted in Heston 2000.
11. Heston 2000.
12. Marx 1846. He continues, though, "but this is true only of England. As for the [Continental] European nations, they were compelled to use machinery by the competition they were encountering from the English," which implies that the machinery was more efficient-which is the bourgeois point. On the other hand, Lazonick argues in
13. Marglin 1974; Lazonick 1979, 1981; Elbaum and Lazonick; Elbaum and Lazonick, eds. 1986; Lorenz 1991; Allen 1992.
14. Lazonick 1991, p. 2.
15. McCloskey 1975a; Allen 1992.
16. Thus Greif ***

Part X. The Inheritance of Gregory Clark

Abstract

An extreme materialist hypothesis explaining the Industrial Revolution would be simply genetic. Gregory Clark asserts such a theory of sociobiological inheritance in his *Farewell to Alms* (2007). Rich people proliferated in England, Clark argues, and by a social Darwinian struggle the poor and incompetent died out, leaving a master race of Englishmen with the bourgeois values to conquer the world. Clark will have no truck with ideas as causes, adopting a materialist (and as he believes is implied by materialism a quantitative) theory of truth. His method, that is, follows Marx in historical materialism, as many scholars did 1890 to 1980. But he does not follow through on his promise to show his argument quantitatively. The argument fails, on many grounds. For one thing, non-English people succeeded, as for instance the Chinese now are succeeding. And such people have always done fine in a bourgeois country. For another, Clark does not show that his inheritance mechanism has the quantitative oomph to change people generally into bourgeois, nor does he show that bourgeois habits of working hard mattered, or that bourgeois values caused innovation. What made for success in 1500 is not obviously the same as what made for innovation in 1800. And in the modern world of literacy such values are not transmitted down families, but across families. Literal inheritance anyway dissipates in reversion to the mean. What mattered in modern economic growth was not a doubtfully measured change in the inherited abilities of English people. What mattered was a radical change 1600-1776, "measurable" in every play and pamphlet, in what English people wanted, paid for, revalued.

Chapter 23: Eugenic Materialism Doesn't Work

An extreme materialist hypothesis explaining the Industrial Revolution would be simply genetic. Its crudest form, as I have noted, would be sheer British racism. Few historical scientists nowadays believe such a notion straightforwardly (though it is worth noting that in 1910 a great many scientists, and some of the best, most assuredly did). But a pretty close approximation of crude British racism has been asserted recently by the economic historian Gregory Clark, an old friend of mine, in his modestly sub-entitled "Brief Economic History of the World," *A Farewell to Alms* (2007). The argument goes like this:

For England . . . 1250-1800 . . . the richest men had twice as many surviving children as the poorest. . . . The superabundant children of the rich had to . . . move down. . . . Craftsmen's sons became laborers, merchant's sons petty traders, large landholder's sons smallholders. . . . Patience, hard work, innovation, innovativeness, education . . . were thus spread biologically throughout the population. . . . The embedding of bourgeois values into the culture . . . [in] China and Japan did not move as rapidly because . . . their upper social strata were only modestly more fecund. . . . Thus there was not the same cascade of children from the educated classes down the social scale. . . . England's advantage lay in the rapid cultural, and potentially also genetic, diffusion of the values of the economically successful through society.¹

The means of (re)production determine the superstructure. Social existence determines consciousness. Rich people proliferated, and by a social Darwinian struggle the poor and incompetent died out, leaving a master race of Englishmen with the consciousness to conquer the world.

Certainly it is a bold hypothesis, and was bold when first articulated by social Darwinists such as Charles Davenport and Francis Galton in the century before last. Clark defends it energetically, if narrowly. In fact, if the hypothesis were true it would fit smoothly with my own argument that a rhetorical change made the modern world. Clark says that "there must have been informal, self-reinforcing social norms in all preindustrial societies that discouraged innovation." Precisely: the norms of anti-bourgeois aristocrats and clerics did discourage innovation, until the Venetians temporarily and on a local scale, the Dutch temporarily and on a wider scale, and at last the English and Scots permanently and on a world scale repealed the norms.

In one-and-a-half pages towards the middle of the book Clark deals briskly with the numerous alternatives to his own materialist hypothesis: “Social historians may invoke the Protestant Reformation, . . . intellectual historians the Scientific Revolution. . . or the Enlightenment. . . . But a problem with these invocations of movers from outside the economic realm is that they merely push the problem back one step.”² That’s a good point, always a good point. But it is symmetrical – a material and economic immediate cause (a high birth rate among the rich, for example; or the invention of a steam engine with separate condenser) can have an ideal and rhetorical ultimate cause (an ideology of glorifying the family line, for example; or imagined experiments with heating and cooling the cylinder). Clark’s own, and sole, case that he offers of pushing an ideal explanation back to the material is to ask why “after more than a thousand years of entrenched Catholic dogma” – set aside that such a view of Christian medieval theology might be a trifle lacking in nuance, and derivative in fact from crude anti-Catholic propaganda since Hume and Voltaire or indeed since Luther himself – “an obscure German preacher [was] able to effect such a profound change in the way ordinary people conceived religious beliefs?”

But Clark, like doubting Pilate, does not stay for an answer. He readily admits in the same passage that “ideologies may transform the economic attitudes of societies.” Yet he has no scientific interest in the causes of ideologies, unless they fit his notion of the material (that is, familial) inheritance of acquired characteristics (“and perhaps even the genes,” says Clark). He has not reflected on the history of the Reformation, or on the Scientific Revolution, or on the Enlightenment, or on the Bourgeois Revaluation. So to get rid of pesky rhetorical factors he reaches at once in the passage for a Materialist Lemma: “But ideologies are themselves the expression of fundamental attitudes in part derived from the economic sphere.”

Only the phrase “in part,” a fleeting tribute to intellectual balance, keeps his sentence from being orthodox historical materialism. As a pair of historical materialists put it in 1848: “Man’s ideas, views and conceptions, in one word, man’s consciousness, changes with every change in the conditions of his material existence, in his social relations and in his social life. What else does the history of ideas prove, than that intellectual production changes its character in proportion as material production is changed?”³ Or as Marx by himself wrote eleven years later, “It is not the consciousness of men that determines their existence, but,

on the contrary, their social existence determines their consciousness.”⁴ Or as Engels wrote another eighteen years later, “the final causes of all social changes and political revolutions are to be sought, not in men’s brains, not in man’s better insight into eternal truth and justice, but in changes in the modes of production and exchange. They are to be sought, not in the *philosophy*, but in the *economics* of each particular epoch.”⁵

In this respect, Clark implies, we social scientists are all Marxists. Ideas are merely “the expression of fundamental attitudes in part derived from the economic sphere.” He’s right in his implied history of the social sciences: most social scientists 1890-1980 were indeed instinctive historical materialists. But the intellectually temperate phrase “in part” in Clark’s sentence is not cashed. Rather, the check is written out and then absentmindedly torn up before our eyes. “There is, however,” Clark declares in the next sentence, “no need to invoke such a *deus ex machine*” as a change in rhetoric. His own Chapter 6 fully explains on materialist grounds, with its own unexplained *deus* (high breeding rates among the rich, even in circumstances of periodic plague), “the forces leading to a more patient, less violent, harder-working, more literate, and more thoughtful society,” namely, the bourgeois society that he and I join in admiring. In Clark’s book, that’s the end of ideology. An historian of the Dutch Republic, Anne McCants, similarly claims on slender evidence that a compassionate motivation for transfers from the Dutch wealthy to the poor is “unlikely” and “can be neither modeled nor rationally explained.” Long before her Hugh Trevor Roper had advanced a similar axiom, that “in politics [prudence-only political ambition] is naturally by far the most potent” cause, as indeed Engel still earlier had claimed that “interests, requirements, and demands of the various classes were concealed behind a religious screen.”⁶

Such evidence-poor side-remarks evince the historical rhetoric prevalent 1890-1980 — what Michael Novak calls “the materialist assumptions and prejudices of the twentieth century” — that a human’s consciousness changes with every change in the conditions of her material existence, *and only with such changes*.⁷ Thus Durkheim in *The Elementary Forms of Religious Life* in 1912 argued that ritual, not doctrine, was the heart of religion, because ritual performed the latent function of unifying a society. After all, what else does the history of ideas prove? It proves that ideas don’t matter, and that unifying a society must be the point of religion — not all that nonsense about, say, a god who died.

Look at the history of stoicism or Protestantism or the abolition of slavery, or the history of Christianity or mathematics or the liberations of the 1960s. All of them, you see, were motivated largely, probably exclusively, by material causes. Material interest. Money. Profit. The birthrate. Surely.

John Milton wrote truly to the contrary that books “are as lively, and as vigorously productive, as those fabulous dragon’s teeth; and being sown up and down, may chance to spring up armed men.”⁸ The Levellers of the 1640s, writes their historian David Wootton, “did not envisage a commercial society of the sort that was actually dominant in early Stuart England, a society of chartered companies and great capitalists; they hoped rather to establish a nation of shopkeepers.” All their other proposals took centuries to establish, in what Wootton calls an “extraordinary paradigm shift, which marks the birth of modern political theory” – manhood suffrage, a written constitution, non self-incrimination (freedom from waterboarding, one might say), right to counsel, liberty of religion, liberty of speech.⁹ But remarkably in England a definite if small move towards liberty of internal trade, for poor people as well as rich, a nation of shopkeepers, actually came to pass as early as in the old age of the last surviving Leveller of the 1640s.

Clark, who admits that such rhetoric may transform economic attitudes, would nonetheless wisely urge us to push the problem back one more step: why the rhetorical change? A very good point, I repeat, always a good point. It would imply, *if we were committed to historical materialism*, that some cause for the rhetoric must be sought in the means of production or reproduction. Under the Materialist Postulate a rhetoric *neverchanges* independent of economics or demography – certainly not by causes within rhetoric itself such as the invention of the novel or the logic of Pascal-Nicole-Bayle in theology; not even by such causes as the political settlement in England of 1689 or the obsession with Protestant egalitarianism of all believers in Holland and Scotland from the mid-sixteenth century or the ordinary man’s involvement in politics in Holland, England, and Scotland 1585 to 1660 or the chances of war, some of them mere effective words (“I had rather have a plain russet-coated captain that knows what he fights for, and loves what he knows,” wrote Cromwell in 1643, “than that which you call a gentleman and is nothing else”), that left the New Model Army in possession of the English king and his country in 1645. Any non-economic and merely rhetorical change, the materialists believe without thinking about it very much, is

always to be derived from the economic/demographic sphere, where we have hard if dubious numbers and marxoid theories. Intellectual production changes its character in proportion as material production is changed.

It is been a long time since even the Marxists depended on such a Materialist Postulate. The Italian Communist theorist Antonio Gramsci, for example – whom Michael Walzer describes as “a rare bird in the twentieth century, an *innocentcommunist*” – spoke of such “economism” as an error.¹⁰ While in prison in Fascist Italy during the 1930s he wrote that “the claim (presented as an essential postulate of historical materialism) that every fluctuation of politics and ideology can be presented and expounded as an immediate expression of the structure, must be contested in theory as primitive infantilism.” Marxism, he contended, “is itself a superstructure, . . . the terrain on which determinate social groups [for example, the proletariat] become conscious of their own social being.” The base and superstructure form a “historical bloc,” quite different from the imaginings of bourgeois theorists of economism, in that the bloc is not *mere* theorizing but fulfills the dialectic of history. He claimed plausibly that in detailed political writings, such as *The Eighteenth Brumaire of Louis Bonaparte*, Marx himself was cautious in using the Materialist Postulate, and gave room for accident and “internal necessities of an organizational character” and the difficulty of identifying just what is at a particular moment the base or the structure that is supposed to be limiting thought.¹¹ Gramsci himself is chiefly important in the history of European socialism for denying that materialism does all the work. The bourgeoisie survived, he said, because its intellectuals had done their job, and made capitalism seem ordinary. Gramsci’s very career, and especially the career of his writings after his death – the forebears of the anti-Stalinist Euro-Communism, as Walzer notes – illustrates the importance of ideas.¹²

And certainly Lenin, who established in 1902 the Bolshevik line against an “economism” such as that of Karl Kautsky, believed that ideas inflamed the working class to action. He asked, *What is to Be Done*, and answered: do *not* wait for the material conditions of the workers to cause the workers to attain spontaneously the idea of revolution. On the contrary, “Class political consciousness can be brought to the workers *only from without*, that is only from outside the economic struggle. . . . the social democrats [by which he meant at the time the revolutionary socialists like himself] must go *among all classes of the*

population; they must dispatch units of their army [of ideas, observe,] *in all directions.*"¹³ "A social-democrat must concern himself . . . with an organization of revolutionaries capable of guiding the *entire* proletarian struggle for emancipation."¹⁴ Guide, not follow. Likewise Gramsci (says Walzer) was "a Leninist of the cultural struggle," urging the clerisy to teach the proletariat.¹⁵

* * * *

Clark is a fine economic and historical scientist, and in his book produces much numerical evidence about various assertions with which other economic and historical scientists agree. But it is crucial to distinguish the good arguments from the bad, in case some outsider to historical science should think that the good economic/quantitative arguments in the book do anything much to support the bad vulgar-Marxist/eugenic arguments. They don't. The linguist Geoffrey Sampson makes a point similar to mine about Clark's book in his devastating rebuttal of Stephen Pinker's theories of linguistic "nativism": "I should say to start with that I am far from wanting to contradict every point that Pinker [or in our case Clark] makes in his book. Quite a lot . . . has little or nothing to do with the nativism issue [or the eugenic theory of bourgeois virtues] and is not at all controversial, at least not among people versed in the findings. . . . It is possible to read *The Language Instinct* [or *A Farewell to Alms*] as a general survey."¹⁶ Just so in Clark's case — a survey, at any rate, of what the numbers, if not the social and literary texts, might be viewed as saying. It is a narrow but exceptionally well done survey.

Much of the Clark's book, in other words, is uncontroversially excellent, a review for outsiders of the quantitative side of what economic historians have learned since, say, Karl Polanyi in 1944. We all, we economic historians nowadays, agree that down to the seventeenth or eighteenth century England was trapped in a Malthusian logic, as the world has been since the caves. There was no rapid innovation, though China for example had slowly acquired quite an impressive panoply. Lacking an ongoing explosion of innovations, if you got more mouths to feed, then sooner rather than later you would get less bread per mouth. In consequence the life of man was nasty, poor, brutish, and short.¹⁷ We all, we economic historians whom Clark is summarizing and illustrating with handsome numbers, agree that the escape from the Malthusian trap is the most important event in world history. And we agree on the magnitude of the escape: in the teeth of gigantic increases in population

“the richest modern economies are now [very conservatively measured, not taking account of better quality] ten to twenty times wealthier than the 1800 average.”¹⁸ We agree that innovation, not capital accumulation, was the cause of The Great Fact – and have to keep reminding our colleagues in economics of this. We agree that the Fact happened first in Holland and then in England and Scotland. We agree that in China and especially in Japan there were some signs around 1600 that it might happen there, and some of us think that Qing and Tokugawa tyranny and inegalitarianism and scorning of merchants stopped it. We agree that since 1848 the rewards to labor have increased, and the rewards to capital and land have fallen, contrary to the predictions of the classical economists, whether bourgeois or Marxist. We agree that so sudden was the innovation that it permitted high income that led to a *fall* in birth rates, as for example in a once-impoverished and once-over-populated Italy. We agree that the poor of the world have been the largest beneficiaries of the escape from the Malthusian trap. We agree that trade unions and protectionism had nothing to do with the escape. We agree, in other words, on a great many historical findings from 1944 to the present that will strike the average enthusiast for Karl Polanyi or Louis Althusser or Naomi Klein, not to speak of Malthus and Marx, as bizarre and counterintuitive.

What other historical scientists do *not* agree with, however, is Clark’s only distinctive argument, picked up by him recently from the writings of certain economic theorists, reviving in the style of Stephen Pinker a eugenic hypothesis – that English people became by virtue of the rate of breeding of their rich folk a race of *Übermengen* living in an *Übergemeinschaft*. (Clark attempts to distance himself from the cruder and still-popular sorts of twentieth-century eugenics, but the attempt fails: it’s eugenics all right, the sort that has haunted right-wing politics from Francis Galton in the late nineteenth century to the search for the Gay Gene in the early twenty-first.) One of the few historical scientists with whom Clark agrees on the matter is David Landes, whom he commends briefly for being “correct in observing that the Europeans had a culture more conducive to economic growth” – though Landes thinks the superior culture had more ancient genetic sources than the breeding rates of late medieval families.¹⁹ But they are both cultural chauvinists, Clark of England and Landes of Western and especially Northern Europe.

There are a lot of criticisms to be made of this distinctive part of Clark's book. The century-old eugenic hypothesis of Karl Pearson and Charles Davenport is that civic virtue is inherited, which is Clark's theme. The hypothesis has so many points against it – some made long ago about Pearson's and Davenport's work, some particular to Clark – that it is going have to be abandoned.²⁰

For one thing, non-European places have grown and exhibited civic virtue, after the example of Holland and England and Scotland. As the Nobel economist Robert Solow wrote in one of the flood of scathing reviews of Clark's book by economists and economic historians:

Clark's pessimism about closing the gap between the successful and less successful economies may derive from the belief that nothing much can change unless and until the mercantile and industrial virtues seep down into a large part of the population, as he thinks they did in preindustrial England. That could be a long wait. If that is his basic belief, it would seem to be roundly contradicted by the extraordinary sustained growth of China and, a bit more recently, India. Embarrassingly for Clark, both of those success stories seem to have been set off by institutional changes, in particular moves away from centralized control and toward an open-market economy.²¹

Not the commercial virtues *inherited* by people but the virtues *praised* by people is what's required. China repealed its laws against making money and India started admiring entrepreneurs, and both were off to the races.²² And of course similar races started off in the rest of Europe very quickly after England led the way. How did economic growth come so rapidly to the Rhineland and Wallonia, a few decades after England? The west of Germany and the south of the Lowlands were nothing like the tranquil lands that Clark thinks make for a bourgeois *Volk*. On the contrary, the strip from Flanders south to Lombardy was the cockpit of Europe for a millennium, the Western Front in the Great War, the "Habsburg Road," the tiny and continually warring states and sub-states of the "Lotharian axis" (as the military historian Geoffrey Parker calls it, after Charlemagne's grandson, who briefly governed it). Yet within a century of England's stirring, and despite the disturbances of the Napoleonic Wars, whose climactic battle was again fought in Wallonia, the Lotharian axis from Mons to Milan was an industrial hive.

For another, the *non-Europeans*, those non-English *Untermenschen* such as Bengalis or Jamaicans, became well-to-do when they decamped to places in which bourgeois values were accorded dignity and liberty. Their success seems to have had little to do with inherited values, rather in the way that the younger sons of English gentry in the eighteenth

century prospered when apprenticed as merchants in Bristol and London. Clark shows no interest in American economic history, which is the main instance of success of people with peasant genes in a bourgeois-honoring land. Italian Americans whose ancestors with fifth-grade educations following the plow in Calabria become in a generation among the best-educated national sub-groups of their new country. Nor to look at it from the other side is he interested in the numerous diasporas of Chinese or Armenians or whomever who enriched themselves away from the imperial oppression or aristocratic chaos of their homelands. Cypriots move to London and in a generation become successful businesspeople. Parsis move from Pakistan and in a generation become doctors and professors. And Clark shows no interest in his native Scotland (though he is in fact of Irish descent), which did have a very early Industrial Revolution, yet as recently as the century before it had nothing like England's "extraordinary stability" from which bourgeois values are supposed to flow. (Partly of course the instability of Scotland resulted from centuries of invasions and other fishing in troubled waters by the stability-enjoying English.) And like the overseas Chinese or the immigrants to America, the Scots after 1707 journeyed south to become the economists and engineers and farm managers for England and its Empire. Nor does Clark show interest in my own cousins in Ireland, who when they crossed the Irish Sea to staff the cotton and wool mills he has investigated in past decades with such empirical imagination became rapidly the good workers who couldn't of course ever arise from such a turbulent and non-bourgeois and demographically unsound place as John Bull's troublesome Other Island, which in most parts did *not* have an Industrial Revolution.

Notes

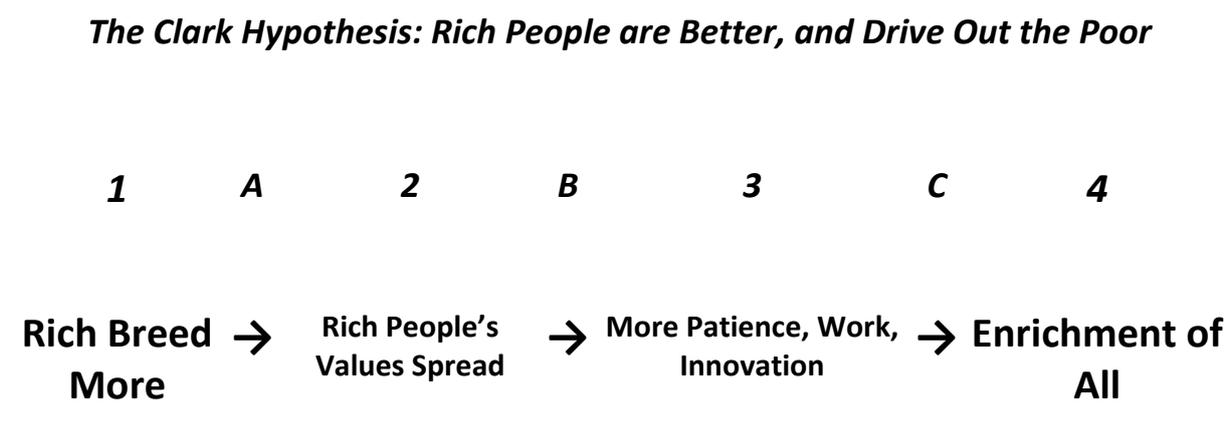
1. Clark 2007, p. 165.
2. Clark 2007, p. 183-184, from which subsequent quotations come.
3. Marx and Engels 1848 (1988), p. 73.
4. Marx 1859, p. 43.
5. Engels 1877-1878, Part III, Chp. 2, "Socialism: Theoretical."
6. Quoted in Stark 2003, p. 61.
7. Novak 2007, p. 232.

8. Milton 1644 (1985), p. *** in Patrides collect upstairs
9. Wootton 1992, p. 183. ***This has to be wrong, unless it's in his Penguin anthology: "83" correct? It's available on Questia.
10. Walzer 1988, p. 81. I would add Eric Hobsbawm, which then makes two.
11. Forgacs, ed. 2000, pp. 196-198 (Selections from the Prison Notebooks, 407-409; Selections from Cultural Writings, Q10, II para. 41.xii).
12. Walzer 1988, p. 81.
13. Lenin 1902 (1988), pp. 143-144, his italics.
14. Lenin 1902 (1988), p. 179.
15. Walzer 1988, p. 83.
16. Sampson 2005, p.110.
17. The agricultural historian George Grantham, however, has some telling criticisms of Clark's simple Malthusian model on which Clark bets so much- see the discussion in Grantham 2007 for example of the problem with using wages in threshing, whose apparently straightforwardness conceals variation in other conditions of work.
18. Clark 2007, p. 2.
19. Clark 2007, p. 11.
20. On Davenport, the American leader of the eugenics movement, see for example Witkowski and Inglis, eds. 2008.
21. Solow 2007
22. See Adhia 2009.

Chapter 24: Neo-Darwinism Doesn't Compute

But the main failure of Clark's eugenic hypothesis in Clark's hands, by Clark's own intellectual ideology, is its non-quantitative character. A book filled with ingenious calculations (hundreds upon hundreds of them exhibiting Clark's historical imagination – the scientific virtue of asking questions and seeing your way to answering them) does not calculate enough. It doesn't ask or answer the crucial *quantitative* historical questions, even though Clark insists dogmatically that the only valid evidence for a hypothesis is quantitative.

The argument of the book can be diagrammed like this, as four states 1, 2, 3, 4 linked by three causal and transforming causal arrows A, B, C. Notice the bold, large-type entries:



The two large and bolded states at the ends, 1 and especially 4, are the ones that get satisfying amounts of empirical attention. Still, even the arguments about state 1, Rich Breed More, have quite a few problems. For example, the bourgeois breeding rich whom Clark is talking about lived of course in cities, which were death traps until the late nineteenth century, and especially for the poor, casting doubt on his supposition that the heirs of rich burghers would survive to cascade down the social hierarchy. The heirs were mostly dead, and their places were made up with symbolic heirs adopted from whatever likely nephew or journeyman from the countryside presented himself. Such is the plot of a hundred European plays and novels and operas, as for example those about Dick Whittington (c. 1355-1423) of Gloucester, thrice Lord Mayor of London. As Goldstone noted in his comments in a session about

Clark's book at the November, 2007 meetings of the Social Science History Association, "if the brightest merchants are drawn to London. . . . [it is] fine [if] they have more kids. But if their kids drift down the social ladder, they die. So [Clark's genetic embourgeoisification effect has] to peter out after a generation. There's no way it can accumulate once you take the urban death rate into account."²³ The economic historian Timothy Guinnane has declared a propos of Clark's comparisons that anyway the demographic rates in the European *countryside* in early times, to be compared with those of burghers, are never going to be accurately calculable.²⁴ But in the early eighteenth century life expectancy at birth in England and Wales as a whole was 38.5 years. In London, grotesquely large as a share of British population even by the standard of Paris as a share of French population, it was 18.5 years. The gap disfavoring urban life increased steadily as one moved from the Wiltshire countryside to Bristol to the Great Wen of London.²⁵

On state 4, the Enrichment of All, his quantitative evidence is better, if entirely conventional. The numbers concerning state 4, about which, to repeat, we post-Polanyi economic historians all agree and on which all of us have worked and of which it is most important that we persuade non-economic intellectuals, is nailed. Good for Clark.

Yet Clark insists throughout on hammering on exclusively quantitative nails. So he skimps state 3, More Patience, Work, Innovation and especially state 2, Rich People's Values Spread. Clark, who believes that if you cannot measure, then your knowledge is meager and unsatisfactory, is not comfortable with literary and other "ego-document" sources, as German historians call them nowadays. And so he does not realize that written sources can themselves be counted – and in any case that part of the empirical evidence is what people say. That Jesus is said to have said "render unto Caesar" is part of the empirical evidence about early Christianity's relationship to the state. That Luther said "one prince, one faith" is similar evidence in the Reformation. The consequence of Clark's aversion to words is that he does not have much to say about how one would know that "informal, self-reinforcing social norms" of rich people had spread. Therefore about State 2 his work is notably thin.

State 3 gets more attention, sometimes of a quantitative sort. Clark follows Mokyr and others, as I do, in emphasizing the applied innovation in cotton and iron and so forth, and uses the template of a table I devised a long time ago to show that the applied innovation in

England 1780-1860 was in fact apparent beyond such heroic industries.²⁶ That's good.

The rest is not so good. What is notably missing in Clark's argument are calculations justifying the causal links *A*, *B*, *C* between the states 1, 2, 3, 4. It's a big, big problem. Consider link *C*, that between the state of having More Patience, Work, Innovation and the state of the Enrichment of All. Clark notes that in countries with ill-disciplined labor forces, such as India, the employer doesn't get as much output as in England, because the non-bourgeois values of the Indian workers and the employers do not inspire enough work. (One wonders, though, if Clark has seen Peter Seller's portrayal of an English shop-steward in *I'm All Right, Jack* [1959]: "We do not and cannot accept the principle that incompetence justifies dismissal," declares Sellars. "That is victimization."). But the "as much" and "not . . . enough" are nothing like the 20 to 30 times gap of real income per head between poor India and rich England nowadays that he claims to be explaining. True, Rodolfo Manuelli and Ananth Seshadri have argued somewhat plausibly, in line with dogma from the (usually empirically vacuous) claims of growth theory, that quite large gaps can be explained by a small difference in efficiency (strictly speaking, what economists call "total factor productivity"). The small difference is supposed to make for greater returns to education and training, and still greater accumulations of human capital in rich countries.²⁷ Maybe. The trouble is that their model implies that a small change in the ethical evaluation of education at *any time* would have had the same strong effects, which it did not for instance in early Modern Europe. Shakespeare's and Molière's contemporaries benefited from a much improved system of education in England and France, as the historian George Huppert has shown, and the merchant academies in both countries were vigorous among the Protestants. Yet an industrial revolution didn't occur – or occurred with a mysterious 200-year lag. Be that as it may, the point here is that Clark doesn't make such an argument – he doesn't attend to the links. Mind the gap. Clark has not. Clark has failed to show *how much* Enrichment depends on Work, state 4 on state 3. "Magnitudes matter here," as Clark declared in a review of Avner Greif's book in the year his own book came out, "and the proofs wielded by [Clark] are not geared to magnitudes."²⁸ He hasn't done a calculation on the size of link *C*. He hasn't asked about the oomph of the link. And so he has no answer.

Clark has long noted the fact of South Asian employees working less.²⁹ His argument is similar to that of the historian of Holland, Jan de Vries, who has beautifully documented an “industrious revolution” of more application to work in first the Dutch and then the English lands during the seventeenth and eighteenth centuries (confirmed in the imaginative work of Hans-Joachim Voth). Clark now claims that the greater industriousness in England came from distressed bourgeois pushed down into the working class, an implausible story on its face, for which indeed he offers little evidence. De Vries’ more plausible story is that, as David Hume put it, “Everything in the world is purchased with labor; and our passions are the only cause of labor” – that is, greater variety of goods, for which de Vries offers a book full of evidence, tempted early modern Dutch and English people to work 303 days per year in the eighteenth century as against only 255 days in the sixteenth century.³⁰ As Anne Goldgar notes in her book deflating the myths about the tulip mania in the 1630s, the Dutch at the time viewed “the flower trade. . . as a trade in a new product, one of many new products that had been flooding the country for the previous forty and more years.”³¹ The pretty well-off early-modern person said to himself: “I must have some of those tulips, that sugar, that tobacco, that porcelain,” in the same way that nowadays you must have the latest cell phone or blue jeans or high speed internet hookup. De Vries cites a finding from colonial Massachusetts that inventories at death in the 1640s had *no* chairs (merely stools and benches) but in the 1790s had on average *sixteen* chairs, and these often elegant items purchased from England or from skilled colonial craftsmen imitating English designs, such that of the Windsor chair.³² Wages were not leaping up in the seventeenth and eighteenth centuries as they did in the late nineteenth. Instead the people were laboring more at the same wages to satisfy their passion for flowers and tobacco, oil paintings and brass castings, for Delft china and for delicate and doubtfully – inheritable Windsor chairs. But de Vries does not claim that a 19 percent increase of industriousness, 255 days of work each year rising to 303 days, can explain a 2100 percent difference between Indian and English incomes nowadays, or a 600 percent difference in 1800, or a 100 percent rise from 1700 to 1860 in British income per person, or a rise since the year 1800 of 1500 percent. Clark does make such a claim.

Working harder is a fine thing, in other words, and is an important characteristic of the modern world. In 1998 Hans-Joachim Voth

brilliantly used records of mentions of witnesses to alleged crimes to show that early in the eighteenth century on “Saint-Monday” people were standing around watching the human comedy rather than working.³³ But he concludes nonetheless that the work week was similar to that in poor countries now, and “[E. P.] Thompson’s image of a ‘merry old England’ where hours were short and work highly irregular is probably incorrect.”³⁴ Harried young lawyers in Manhattan working 70 hours a week can reflect ruefully that their factory-hand great-great grandparent got along on 60 hours a week, their peasant forebears on 40, and their hunter-gatherer deep ancestors on a mere 19 hours.³⁵ If British workers had carried on with their pre-industrial Saint-Mondays and drunk-at-work habits their bourgeois employers would have had to hire more of them to do the same work, paying each one less. British and Dutch incomes per head 1700-1800 would probably have fallen some as population increased, rather than as they did staying level (against what were soon to be called Malthusian expectations). The bourgeois men would have faced a servant problem of the sort that dominated the domestic duties of their wives, always in the business of hiring new workers to replace the ones recently dismissed for insolence or immorality or drunkenness.³⁶ But the bourgeois passion for innovation would not have been affected. Inventing a dying process that in the 1790s substituted chlorine for sunshine, sharply decreasing the real cost of pure white linens, once a product exclusively for the rich, would still have been a fine and profitable thing, even if it took 19 percent more badly disciplined workers to make it.

Nor does Clark do a calculation on link *B*, to show that state 3 depended mightily on state 2, that, say, that applied innovation depended on the spread of bourgeois values. It’s deucedly hard to do. I agree with Clark that the link was important, yet I can’t think of ways to quantify it with the usual economic and demographic statistics. I have had to rely instead on the metaphysically unsatisfactory but enormously rich and ubiquitous *qualitative* evidence which the other students of applied innovation such as Mokyr and Jacobs and Goldstone have exploited and which Clark spurns. Given his methodological rule of number, Clark is not to blame that even his admirable if strictly quantitative historical imagination is stymied by the question of *how much* bourgeois values acted to increase applied innovation. Still, his methodological stridency about number – having myself been strident about such matters in my youth, I am familiar with the temptation –

does make it a trifle embarrassing that he doesn't mention that for link *B* he has failed to provide any numbers at all. We old fools like Jack Goldstone or Deirdre McCloskey or George Grantham or Richard Easterlin or Claudia Goldin – who listen to what people at the time were saying about *B* or similar links between the quantitative and the qualitative – get a certain grumpy satisfaction that Clark is thus hoist by his own methodological petard.³⁷

In light of Clark's methodological convictions, though, the most embarrassing broken link is *A*, between "Rich Breed More" and "Rich People's Values Spread." As the economic historian Robert Margo wrote in another of the numerous vexed reviews by other historical scientists that the book has evoked, "even if I believe the data to be trustworthy, how do I know I am observing a causal link between 'good' behaviors (for example, patience) that, in the best of circumstances (and these are far from the best) are barely, if at all, observable to the econometrician? What, precisely, are the mechanisms that allow good behaviors to be transmitted across generations? Don't institutions of one type or other play a role?"³⁸ Nowhere in a book that trumpets calculation as the Only Real Science does Clark *calculate* what higher breeding rates could have accomplished by way of rhetorical change, or talk about the new institutions, such as grammar schools. It could easily be done, at any rate under Clark's mechanical assumption about how the social construction of values works, and is not even a matter as Margo assumes of econometric fit. It is a matter of simulation.

Clark assumes that the children of rich people are by their richness the carriers of the sort of bourgeois values that made for an Industrial Revolution. I would say on the contrary that a rapid change around 1700 in attitudes *towards* the bourgeoisie mattered much more. But in any case Clark's argument depends on a strange characterization of the medieval or early modern relatively rich. A rich bourgeois of London in 1400 or 1600 depended on special protection for his wool-trading monopoly. Dick Whittington was *appointed* to his first of three terms as Mayor of London by Richard II, because the King was in Whittington's debt. One is not surprised to find the secretary of the Society of Merchant Adventurers, John Wheeler, writing in 1601 against "dispersed, straggling, and promiscuous trades," that is, interlopers who threatened the state-sponsored monopoly of the Merchant Adventurers.³⁹ The younger sons of such a merchant might well take away the lesson, repeated by protectionists left and right down to the present, that it is a

good idea for the state to control everything it can, and quite a bad thing to let people make the deals they wish to make without a state supervisor appointed by the country club or by populist politicians. And likewise a Brave Sir Botany who had *stolen* his riches, say, or was a successful state bureaucrat who had received his riches from Henry VIII dissolving the monasteries, say, would not automatically, one would think, transmit sober, hard-working, market-respecting bourgeois values to younger sons.

Around 1700, Peter Earle has found, about a quarter of the London middling sort he sampled at their deaths were sons of literal gentlemen, as one can judge from their adolescent contracts of indentures to drapers and merchants and bankers.⁴⁰ Bourgeois values were not going to be spread down the social order mechanically when the boys in fact started out from the idle class of landowners and knights of the shire – yet such boys became many of the merchants of London in the eighteenth century. If the boys prospered in the upper reaches of bourgeois London it was because they had learned their trades (getting into the trades with expensive apprenticeships), and were encouraged to practice the trades of overseas merchants or domestic bankers in a society according dignity and liberty to middleclass folk, not because they had inherited bourgeois values by being bourgeois sons.

Of course, the gentry and even the aristocracy of England, it is often claimed, tended to bourgeois values and behaviors that would have disqualified a Frenchman from the nobility. The same John Wheeler in 1601 praises merchandising as “an honorable estate” (a claim that would, however, have raised a laugh in many circles of Elizabethan England) “which may be practiced by both commoners and nobles . . . without any derogation to their nobilities.”⁴¹ Not in France or Spain. But an embourgeoisifying change in values among the gentry, making the social origin of merchants or workers irrelevant, would be the opposite of Clark’s materialist argument. In the other direction a society that greatly admired aristocratic or Christian virtues could corrupt even a Medici banker into thinking of himself as quite the lord and yet also a godly son of the Church. Likewise nowadays an extravagant admiration for the neo-aristocratic values of the clerisy – she learned them at the University of Iowa – corrupts a bourgeois daughter into scorning her father’s selling of insurance or running of a furniture factory.

Notes

23. Goldstone 2007b.
24. Guinnane 2009.
25. Ó Gráda 2007, p. 350.
26. The table is Clark p.233; and mine is in McCloskey 1981 and Harley 1983.
27. Manuelli and Seshadri 2005.
28. Clark 2007c, p. 731.
29. Clark 1987.
30. De Vries 2008a, p. 14; and de Vries 2008b for the full story. Compare Voth 1998, 2001, 2003. The Hume quotation, which de Vries gives, is from Hume's essay "On Commerce," first published in 1741.
31. Goldgar 2007, p. 224.
32. De Vries 2008a, note 35.
33. Voth 1998.
34. Voth 2003, p. 256.
35. Hill and Hurtado 2003, p. 11.
36. Vickery 1998, pp. 135-146, as for example p. 135, "hardly a week went by when a mistress might not be reeling from a servant's flight," as one can also see in realist novels that mention such matters, such as Fielding's Tom Jones.
37. Compare Easterlin 2004, pp. 21-31.
38. Margo 2008.
39. Wheeler A Treatise on Commerce (1601), p. 73, quoted in Barbalet 2008, p. 79.
40. Earle 1989, pp. 86-87. Earle handily defeats Lawrence Stone's counterclaim that the "gentlemen" fathers were themselves urban "men of limited means," as Stone wrote, who "did not dream of swaggering about with a sword at their sides."
41. Quoted in Barbalet 2008, p. 79.

Chapter 25: And Inheritance Fades

Clark is deeply charmed by neo-Darwinian theories applied to society. He believes that the bourgeois-behaving unit of meaning, a “meme” as some of the theorists call it, spreads strictly from parents to children, like eye color. But the biological metaphor here is inapt. From the sixteenth-century on it gets inapter and inapter. As the economist Benjamin Friedman remarked in still another hostile review of Clark’s book, “If the traits to which Clark assigns primary importance in bringing about the Industrial Revolution are acquired traits, rather than inherited ones, there are many non-Darwinian mechanisms by which a society can impart them, ranging from schools and churches to legal institutions and informal social practices.”⁴² European publishing, for example, became cheap and less censored, especially in Holland. The historian Lawrence Stone spoke of an “educational revolution” 1540 to 1640, during which for example in 1612-1614 nearly half of 204 men committing capital crimes in Middlesex escaped the hangman by showing their literacy, the “benefit of clergy,” as the medieval custom was called.⁴³ In citing Stone the historical sociologist Jack Barbalet observes “the most literate of social groups were merchants and businessmen.”⁴⁴ It had always been so: after all, writing itself springs from accounting. A businessman was known proverbially for ink-stained fingers, and was portrayed in the new oil paintings of Holland and England as writing, writing, writing – with the counting of money left to his wife. The middle-class women whom Jan Vermeer painted in his small output are commonly reading. The grammar schools spread (thus William Shakespeare in the sixteenth century, son of a glover). So did the universities (thus Immanuel Kant in the eighteenth century, son of a saddler). High schools for young merchants proliferated. If solidly bourgeois behavior makes people rich you would think it would spread thus by imitation, *across* families, as from Defoe’s *Essay Upon Projects* (1697), which Benjamin Franklin cited as an influence, or from the hundreds of handbooks for youths in business from the sixteenth century on.

The research biologist and professor of theology Alistair McGrath notes that recent work on genome sequencing has shown that the very simplest forms of life do trade genes contemporaneously, and do not merely transmit them from mother cell to daughter cell. And so of course

at the other end of complexity do human beings in their cultures, such as those inhabiting seventeenth century Europe. “If Darwinism is about copying the instructions,” writes McGrath, “Lamarckism is about copying the product. . . . It would seem that Lamarck, rather than Darwin, offers the better account of *cultural* evolution.”⁴⁵ Or as Nicolas Wade puts it, “organisms may acquire genes through borrowing as well as inheritance; bacteria, for instance.”⁴⁶ Or as Joel Mokyr noted in a comment on Clark’s book, “we don’t just learn from our parents [but] horizontally from other people, from peers, from masters in apprentice or servant relationships.”⁴⁷

To put it another way, the metaphor of the *tree* of life that Clark unreflectively applies to human culture is not apt. It should give way in such cases to a *network* of life. Languages are like that, sometimes. Among Australian Aborigines the mixing of peoples was such that “the family tree model of genetic relationship seems to be totally inappropriate. . . . There was much more diffusion from language to language . . . than is usually the case.”⁴⁸ Good products like wealth-producing behavior would spread in a greatly widened network of culture after the invention of printing, the Protestant Reformation, the fall of tyrants with 800-year old names. As some biologist recently put it in a survey of the experimental transfer of 246,045 genes to *E. coli*, “the phylogeny of [a primitive but extremely widespread form of] life seems better represented by a network than a tree.”⁴⁹ If this is true of prokaryotes and eukaryotes, all the more is it true of Parisians and Bostonians. People themselves could move, steadily easier in the eighteenth and nineteenth centuries. And more importantly, they could read, steadily better (silent reading is often said to be a modern accomplishment; though it has recently been argued that it was in fact commonplace in ancient times among the few literates⁵⁰). Newspapers were invented in Europe and its offshoots in the late seventeenth century. Ben Franklin’s older brother James started printing the cheeky New England *Courant* in Boston in 1721, which became at once an irritant to the British administration and the Puritan ayatollahs, and a model for more than his immediate family of printers. And so the ideas of bourgeois dignity and liberty could move. The memes moved more and more freely across families — and more and more and more — right down to our own worldwide echo-chamber of ideas.

But leave aside the actual, empirical stories of how values are made. Clark’s lack of curiosity about the exact content of bourgeois values

(value which he and I join in admiring) leaves him with a mechanical version of neo-Darwinism in explaining how values get transmitted. Suppose his model is correct. Then a scientist of Clark's quantitative imagination would have found it trivial to calculate, mechanically, what the higher rates of breeding would yield in bourgeois-minded but lower class people in the next generation. He didn't.

The underlying problem is that Clark wants to tell a very long-run story, because in the style of growth theory in recent economics he has ambitions for its endogeneity, which is to say its historical materialism. He wants bourgeois values and the modern world to arise with slow-chopped pow'r out of a thousand years of English history. No *dei ex machinis*, thank you very much – by which he means short-run and therefore contemptible events in the realm of mere ideas such as the birth of English political liberty or the Protestant Reformation or the Scientific Revolution or the Bourgeois Revaluation.

The problem is that his long-run ambition does not fit his eugenic machinery. His mechanical model of the transmission of values works too quickly, on a scale not of ten centuries or so but of a century or so. Then it dissipates. Regression to the mean alone would limit the effect of bourgeois values pushed down the social scale in a family to a few generations. After all, we say “clogs to clogs” in merely three. As Francis Galton put it in making a similar calculation – Galton in 1901 got a good deal further in the calculation than Clark did in 2007 – high inherited height or intelligence or bourgeois virtue dissipates strongly in children and more in grandchildren, “owing to the combination of ancestral influences – which are generally mediocre – with the purely parental ones.”⁵¹ The fact accounts for the curious vocabulary in statistics of “regression” for the fitting of a curve to a scatter of points. Galton himself was part of Darwin's family, first notable in Erasmus Darwin, who was Charles Darwin's and Francis Galton's joint grandfather. The family has continued to prosper down to the present, by careful selection of marriage partners. But how many such amazing families are there – one thinks of the Bachs and the Polanyis – as against hundreds of families that yield one genius and then regress to the mean? The evolutionary logic puts paid to Clark's long-run story. As the economist Samuel Bowles put it in a hostile review of the book in *Science*:

if $h^2 = 0.26$ the correlation across 4 generations (great grandfather-great grandson) is 0.032. If we estimate h^2 from the observed intergenerational correlation of traits (r) as above, then the correlation of a genetically transmitted trait across n

generations is just $r/2^{n-2}$. Thus the statistical association across generations becomes vanishingly small over the course of a single century, whether the trait is culturally or genetically transmitted.⁵²

Clark describes his central Chapter 6 as identifying “strong selective processes.”⁵³ That’s the problem: they are *too* strong for a slow story, as Bowles points out. So Clark’s own argument, were it true, would turn out to be one of the despised *dei ex machinis* that work on a scale of decades or a few generations or a century at most. If he had followed his rule of number and had tried to calculate the oomph of link A, Rich Breed More causing Rich People’s Values Spread, he would have caught the scientific oversight before announcing his finding to the world.

Consider for example one of the bourgeois values we can measure, and Clark does, again with his usual quantitative insight, literacy. Male literacy in England, Clark argues, was roughly in the Middle Ages the share of monks in the male population – thus the legal rule in pleading against a felony. Illiterate monks were not unknown, but rare (though among the secular clergy illiteracy was perhaps more common). Male literacy in England rose to perhaps 30 percent in 1580 and to 60 percent by the time national statistics start to be possible in the 1750s, comparable to Japan.

But think about it. If you are the parent of four children, and can read, what is the transition probability that all four of your children will read? It is extremely high, especially if you are the mother of the brood, at any rate in a society that for some reason values literacy. It is the value placed on literacy by the society, not sheer inheritance, that determines its transmittal. Thus in families today “going to college” is extremely inheritable, but in one generation. When it happens, it happen quickly, and permanently – and in Clark’s argument it must begin at once the regression to the mean of values that would apply if genetics, not surrounding social values, were explaining it. My father was the first in his family to go to university. All his three children did, both of my two did, and doubtless my two grandchildren will, too. Every one of the five children of my father’s brother did, and their children so far mostly have. Similarly looking back: unlike my Irish ancestors, my Norwegian ancestors on the Hardanger Fjord, according to records collected by the literate Norwegians (I can show them to you), were reading by the late sixteenth century, and never stopped. Why? Because of inheritance? No: clearly, they started and continued to read because of the surrounding social values attributable to the Protestant Reformation, a literal Deus, to

which Clark in his book explaining modern Europe allots eight words. No religion, please: we're demographic historical materialists. The impoverished Norwegians of rural Dimelsvik (no bourgeois virtues inherited there) learned to read, quickly. The habit in the first place spread across families. And once in a family it stayed there, not reverting to the mean, unlike biological inheritance. The inheritance within families is too quick and the "inheritance" across families too strong and the lack of regression to the mean too obvious for Clark's intended story of a stately development over centuries of an English genetic *Überlegenheit*.

Clark becomes very cross when challenged on his materialism. Compare Marx in 1846 on Proudhon, whose writings he describes as "Hegelian trash. . . it is not history, it is not profane history – history of mankind, but sacred history – history of ideas."⁵⁴ Clark replied to my claim that he exhibits, as he put it, an "aversion to literary sources":

absolutely, because they are highly unreliable. What people say, what their explicit ideology is, often differs dramatically from how they behave. Doing economic history through analysis of written materials such as laws, political tracts, etc. is an invitation to error. Deirdre's invitation to us to come wallow in the cultural mud is the guarantee that we will continue to go round in circles in economic history forever. Better to say something and be wrong than to say things that are just not subject to empirical test.⁵⁵

Clark has said something subject to empirical test, and it is wrong. So much is clear.

But he is also wrong to dismiss "wallowing in the cultural mud," the lived life, the analyzed text, the salient image. Such a naïvely behaviorist and positivist ideology throws away half the evidence, much of it more decisive than a questionable "sample" of birth rates from East Anglia. (Jan de Vries noted of Clark's book, "had this book been written by an historian its subtitle might have been: *Some Findings from Suffolk Testators, 1620-1638*."⁵⁶) An historian cannot do his science well on numbers alone. Indeed, as econometricians like Charles Manski point out, and as Stephen Ziliak and I have emphasized, the identification of what is salient in the numbers never inheres in the numbers themselves. "Identification problems cannot be solved," Manski writes, "by gathering more of the same kind of data." They "can be alleviated only by invoking stronger assumption [based, say, on the lived life] or by initiating new sampling processes that yield different kinds of data [in, say, the analyzed text and the salient image]."⁵⁷ Or the economic

historian Thomas Ashton said long ago, surely we will make more progress if we walk on both legs, numerical and verbal.⁵⁸ Clark is so hostile to the literary and philosophical side of his culture that he insists on hopping along, underidentified, on one leg.

So Clark's socio-neo-Darwinianism which he picked up recently from articles on growth theory by some economic theorists has little to recommend it as history applicable to the past millennium.⁵⁹ The problem typifies modern growth theory in economics. It is mostly theory, and scant history; mostly mathematics, and scant measurement.⁶⁰ In a word, it is unscientific. The theorists who inspired Clark, though, were more reasonable than he is in using their argument. The argument, they wrote, "suggests that the time period between the Neolithic Revolution and the Industrial Revolution [some 10,000 years] is sufficient for significant [biological] evolutionary changes."⁶¹ That seems possible – lactose and alcohol tolerance, for example, do seem to have been evolved in such a range of years. After all, people whose ancestors did not milk animals now get sick from milk. But Clark proposes to apply the argument instead to the few centuries of what he characterizes as English peace (a "peace" covering the War of the Roses, the turbulent Tudors, the revolution-provoking Stuarts, the long century of struggle with France after 1692) – and strangely not to the 265 years of domestic and foreign peace in Tokugawa Japan (interrupted by scattered peasant revolts, easily put down⁶²). Consider the numerous very long episodes of peace in China away from the frontiers, which according to Clark's model should have resulted in a massive embourgeoisification of the place. The average length of the thirteen "principal unified states" in the table of Chinese dynasties from the First Emperor in 221 B.C.E. until the Last in 1911 is 168 years. The three longest of the thirteen were all in the last (potentially innovative) millennium: the Song at 319 years, the Ming at 276, and the (final and in fact reactionary) Qing at 266.⁶³ The long dynasties were not without Revolts of the Three Feudatories or extremely bloody Taiping Rebellions. But on the whole they make the allegedly long "peace" of England look disturbed, and they make the condition of Europe generally (a geographical area and population comparable at the time to China's) look positively chaotic.

The theorists, in the very footnote that inspired Clark ("the original hypothesis that sparked this study" as Clark writes in a paper with Hamilton), claim that "The theory is perfectly applicable for either social or genetic transmission of traits. [A] cultural transmission is likely to be

more rapid.”⁶⁴ More rapid indeed. The theory of inheritance collapses, as I said, if “inheritance” happens across families, rapidly, as it did in a literate age, and as indeed it often did even along illiterate folk knapping arrow heads from a flint core. Humans talk to each other, and they imitate even if they don’t talk. Neither Clark nor his theorists recognize that the sixteenth through nineteenth centuries in Europe saw changes in attitudes towards innovation that had little to do with returns to human capital – chiefly because most innovations were copied by precisely that cross-family inheritance, encouraged by the printing press and the new egalitarianism, and yielded little benefit to their inventors. Access to knowledge is crucial, the historian Philip Hoffman points out. *****Where is this citation? In Mokyr?** The change was not genetic (as Clark argues) or psychological (as Weber argued) but sociological and political. Literacy, printing, a free press, and free conversation make technology available. It became, as we now say, open source. Long ago the economic historian Robert Allen made the point.⁶⁵ More recently the economic historian Paul David has theorized the development by the early eighteenth century of open source science.⁶⁶ But science was merely one of numerous cases: printed music was another, journalism after the 1690s still another (one of its origins being the open printing of daily prices on exchanges, information formerly traded by letter among merchants as secret and proprietary). Open source software is not inherited biologically from ones parents but socially from ones geeky and voluble friends.

An early version of Clark’s hypothesis may be examined in Galton’s Huxley Lecture to the Anthropological Institute in 1901, “The Possible Improvement of the Human Breed Under Existing Conditions of Law and Sentiment”:

The number and variety aptitudes, especially in dogs, is truly remarkable. . . . So it is with the various natural qualities that go towards the making of civic worth in man (p. 3). . . . The brains of the nation lie in the higher of our classes (p. 11). . . . Dr. Farr, the eminent statistician, endeavored to estimate the money worth of an average baby born to the wife of an Essex laborer. . . . Dr. Farr, with accomplished actuarial skill, capitalized the value at the child’s birth . . . [It] was found to be £5. On a similar principle the worth of an X-class baby would be reckoned in thousands of pounds. . . . They found great industries, establish vast undertakings, and amass large fortunes for themselves. Others, whether they be rich or poor, are the guides and light of the nation (pp. 11-12). . . . Many who are familiar with the habits of [the lowest class] do not hesitate to say that it would be an economy and a great benefit if all habitual criminals were . . . peremptorily denied opportunities for producing

offspring (p. 20). . . . The possibility of improving the race of a national depends on the power of increasing its best stock (p. 24).⁶⁷

In 1901 eugenic reasoning such as Galton's was fresh and new and plausible. It was still influential after the Great War. It yielded then in places like Norway, Sweden, and the United States programs of compulsory sterilization which survived even their methodical application in Germany, 1933-1945, coming to an end only during the 1970s — by then three generations of imbecilic if scientific social policy were enough.

But recently the eugenic idea has revived, as in the works of Steven Pinker and now Gregory Clark, greeted with enthusiasm by science journalists with a short historical memory and a weak grasp of social ethics. It introduces into the modern debate between status and contract a third possibility, genes. The eugenic reasoning declares that people are not what the society says they are (their status) or what they are able to arrange by persuading each other (their contract). People are what they were born to be, biologically speaking, like cocker spaniels. And then we can move to prenatal screening, for a gay gene, say. Uncritical worshippers of a politically partisan and just-so-story-admiring Science dote on such an argument. It is neat. It is formalizable. It is calculable (though, to repeat, Clark has not done the calculations that Galton pioneered). But it is scientifically wrong.

And for the historical question at hand it anyway doesn't make a lot of sense. Beyond the difficulties already mentioned, Clark's distinctive argument depends on measures of aptitudes that are, like height, influenced by more than inheritance and, unlike height, have no natural units invariant to social values. What made for riches in 1600 had little to do with what made for riches in 2000. A graceful way with sonnets and a good leg for bowing low to Gloriana are not similar to a Harvard MBA and a knack for computers. What mattered in modern economic growth was not a doubtfully measured change in the inherited abilities of English people. What mattered was a radical change 1600-1776, "measurable" in every play and pamphlet, in what English people wanted, paid for, revalued.

Notes

42. Friedman 2007.
43. Stone 1964, pp. 42-43.
44. Barbalet, p. 86.
45. McGrath 2007, p. 127, his italics deleted and mine supplied; p.41 on genome sequencing; compare Collins 2007, pp. 89-90
46. Wade 2006, p. 215.
47. Mokyr 2007b.
48. Lyovin 1997, p. 257.
49. McInerney and Pisani 2007, p. 1391; and Sorek et al. 2007 on which their article is based. Compare Wade 2006, p. 215: "organisms may acquire genes through borrowing as well as inheritance; bacteria, for instance." Or the economist Herbert Gintis (2008, p. 5): "Similarly, alternative splicing, nuclear and messenger RNA editing, cellular protein modification and genomic imprinting, which are quite common quite undermine the standard view of the insular gene producing a single protein, and support the notion of genes having variable boundaries and having strongly context-dependent effects." Dagan et al. in Proceedings of the National Academy of Sciences 105 (2008) found that fully 80 percent of 181 prokaryotes had had some borrowing. The reporter for Science remarked that "well-defined phylogenetic trees . . . become rather less clearly delineated when looked at over very long time periods" (Science 321 [8 Aug. 2008], p. 747). And in humans in the modern world the "long" period would be a couple of generations.
50. Johnson 2000.
51. Galton 1901, p. 15.
52. Bowles 2007.
53. Clark 2007, p. 183.
54. Marx 1846.
55. Clark 2007b, p.
56. De Vries 2008, p. 1181.
57. Manski 2008, p. 4. Ziliak and McCloskey 2008.
58. Cite Ashton *** get in Nedge collection upstairs
59. Galor and Moav 2002.
60. Guinnane 2009 is devastating on these points.
61. Galor and Moav 2002, p. 1181.
62. Vlastos 1986.
63. Winchester 2008, pp. 279-280.

64. Clark and Hamilton 2006, p. 707; Galor and Moav 2002, p. 1180n4.
65. Allen 2006, p. 3, referring to Allen 1983.
66. David 2008.
67. Galton 1901

Part XI. The Institution of Douglass North

Abstract

North, with many other Samuelsonian economists, thinks of “institutions” as budget constraints in a maximization problem. But as Clifford Geertz put it, an institution such as a toll for safe passage is “rather more than a mere payment,” that is, a mere monetary constraint. “It was part of a whole complex of moral rituals, customs with the force of law and the weight of sanctity.” The Geertzian metaphor of negotiation and ritual makes more sense than the metaphor of a mere budget constraint. Meaning matters. North in particular thinks that the budget line of anti-property violence was shifted in the late 17th century. It was not: on the contrary, England was a land of property rights from the beginning. So “institutional change” does not explain the Industrial Revolution. The timing is wrong. Incentive (Prudence Only) is not the main story, and cannot be the main story without contradiction: if it was Prudence Only the Industrial Revolution would have happened earlier, or elsewhere. Other virtues and vices mattered – not only prudence, beloved of the Samuelsonians; but temperance, courage, justice, faith, hope, and love, which changed radically in their disposition in the seventeenth and eighteenth centuries. Sheer commercial expansion is routine and predictable and ill-suited therefore to explaining the greatest surprise in economic history. The Glorious Revolution of 1689, which North and Weingast have cast in a central role, merely made the British state effective. It did not change property rights, as economists such as Darin Acemoglu have supposed, on the basis of North’s tale. North praises patents and incorporation laws, neither of which had much impact in the Industrial Revolution. The 18th century, in other words, was not a century of “institutional change.” Nor is the entire absence of property relevant to the place or period. Richard Pipes argued it was relevant, on the basis of the Russian case. Yet only in society’s dominated by Steppe nomads was property weak—in Europe in the 16th and 17th centuries, as in China then, it had been strong for centuries past. The Stuarts were not princes of Muscovy. And indeed private property characterizes all settled human societies.

Chapter 26: Institutions Cannot be Viewed Merely as Incentive-Providing Constraints

Douglass North (b. 1920) is an astonishing economist who has repeatedly reinvented himself. The heir to an insurance fortune, merchant seaman during the War, apprentice photographer to Dorothea Lange, fishing buddy of Perry Como, in his youth he was a Marxist – as were many of us of a certain age – but became from the study of economics an advocate of markets and their innovation. As a young professor at the University of Washington in the 1950s he was one of the chief entrepreneurs of the so-called “new” economic history, that is, the application of economic theory and statistics to historical questions, such as how regional growth happened in the United States before the Civil War. For this he was in 1993 awarded with Robert Fogel the Nobel Memorial Prize in Economic Science.

North’s pioneering study of ocean freight rates from the seventeenth to the eighteenth century (North 1968) led him in the 1970s to ponder the evolution of what had in an economics influenced by Ronald Coase come to be called “transaction costs,” that is, the costs of doing business. Moving cotton from Savannah to Liverpool entails transportation costs, obviously. Less obviously – the point was made by Coase in all his work from the 1930s on – moving a piece of property from Mr. Jones to Ms. Brown entails *transaction costs*, such as the cost of arriving at a satisfactory contract to do so and the cost of insuring against its failure. By North’s own account, in 1966 he had decided to switch from American to European economic history. With collaborators at Washington like Robert Paul Thomas, S. N. S. Cheung, Yoram Barzel, Barry Weingast, and John Wallis, North developed a story of the “rise of West” focusing on the gradual fall in such transaction costs. Since the 1980s, now at Washington University of St. Louis (he favors places named after the first president of the United States), North has argued that Western Europe in the eighteenth and nineteenth centuries benefited uniquely from good institutions that held transaction costs in check, such as Britain’s unwritten constitution of 1689 and the United States’ written one of 1789.

North defines institutions as “the humanly devised constraints that structure political, economic and social interaction.”¹ The economist

Depak Lal says in similar terms that the “institutional infrastructure . . . consists of informal constraints like cultural norms . . . and the more formal ones.”² The word “constraints” here matters a lot, because North and Lal mean what all Samuelsonian economists mean by it. (North and Lal are Samuelsonian economists right down to their wing-tipped shoes.) Consumers and producers, economists say, maximize utility “subject to constraints,” such as the laws against murder and theft, or the regulations of the Internal Revenue Service, or the customs of Bedouin hospitality, or the Ford Way of doing business. In other words, the main character in North’s story is always Max U, that unlovely maximizer of Utility, *Homo prudens* – never *Homo ludens* or *Homo faber* or *Homo hierarchus* or, as I and most non-economist social scientists would claim, *Homo loquens*, the speaking humanoid.

“Max U,” you see, is a man with the last name “U” who has peopled the arguments of economists since Paul Samuelson in the late 1930s elevated him to a leading role. The joke is that the only way that an economist knows how to think about life after Samuelson is to watch Mr. Max U *Max*-imizing a Utility function, $U(X, Y)$. Ha, ha. Max U cares only for the virtue of prudence, and even “prudence” defined in an especially narrow way, that is, “knowing what your appetites are and knowing how to satisfy them.” Never mind what the novelist Samuel Butler truly wrote around 1880: “There is no greater sign of a fool than the thinking that he can tell at once and easily what it is that pleases him.”³ In Yiddish such a fool would be a *goyisher kop*, a gentile jerk, by which is meant a man without learning or reflection or prayer. He just “chooses” to eat or drink or fight or whatever, intemperately, without consulting the impartial spectator of his conscience or of his education or of the Torah or the Mishnah or the Talmud. He has “tastes,” as the economists put it in their Samuelsonian way, about which one should not dispute. (Note by the way the contradiction in “caring for,” that is, loving prudence, that is, loving the hypothesis of non-love. But rhetorical consistency is not a strong point of Samuelsonian economics.)

The “institutions” stop a person, or at any rate a *goyisher kop*, from doing certain things, such as shoplifting from the local grocery store or turning away hungry travelers. “As soon as we talk about constraining human behavior,” Lal notes, “we are implicitly acknowledging that there is some basic ‘human nature’ to be constrained. . . . As a first cut we can accept the economists’ model of ‘Homo economicus’ which assumes that people are self-interested and rational.”⁴ And as a second cut, and a

third, and an Nth. The constraints are like money budgets. Then we can get on with prudent exchange. They are fences, good or bad, “limiting self-seeking behavior,” as Lal puts it. From the individual’s point of view the fences fall from the sky.

North and Lal and other economists do not usually notice that other observers of society do not agree with their metaphor of “constraint.” The non-economists on the contrary think of culture, like language, as simultaneously constraint and creation, as a negotiation and an art, as a community and a conversation. Institutions do not merely constrain human behavior. They express it, giving it meaning. Thus for example the “distinction” that Pierre Bourdieu examined in his dissection of the bourgeois and working classes in France is not merely an external constraint.⁵ You don’t merely get to a higher level of utility if you can identify the composer of “the Well-Tempered Clavier.” You actively distinguish yourself from people with fewer academic qualifications, in a qualification-obsessed France. You are playing a social game in which each move has meaning.

The historian Margaret Jacob has characterized the “instrumental” view, by contrast, as imagining “de-cultured free and free-willed agents [who] naturally pursue their self-interest.” The recent economist’s “institution” understood in the language of the asylum as “constraints” is what the sociologist Erving Goffman studied – “the social situation of mental patients and other inmates, “under an order “imposed from above by a system of explicit formal rulings and a body of officials.”⁶ Institutional budget lines, like rules of the asylum in the movie “One Flew Over the Cuckoo’s Nest,” are not negotiable, not at least according to Nurse Ratched. North’s asylum talk, and the talk of the Samuelsonian economists about “institutions,” puts one in mind of the American comedienne Mae West: “I admire the institution of marriage. But I’m not ready for an institution.”

North adopts unawares a liberal, as against what the intellectual historian Quentin Skinner calls a neo-Roman, theory of constraints, namely, the liberal notion of unfreedom as being only the actually exercised external impediments to action, such as a prohibition on slave marriage or the demand by a landlord to vote for him for Parliament.⁷ By contrast the neo-Roman English theorists of government just before Locke such as John Milton, James Harrington, and Algernon Sidney, with echoes and restorations later (Thomas Jefferson, the driver of slaves, for example), noted that mere dependency itself was a scandal – even

though a potential rather than an exercised impediment. An actual impediment is a constraint; a potential impediment is a symbol and a shame, not captured by the notion of a constraint. It would often show itself through internalized self-contempt. It would show itself as self-censorship in a court, or in the dependency of a democratic mob on employers or advertisers. "Nothing denotes a slave," wrote Sidney in reply to advocacy of absolute monarchy, "but a dependency on the will of another." Dependency such as employment in a corporation, then, or an assistant professorship without tenure, would be slavery of a sort. What matters to a free person in the neo-Roman theory is the *potential* for damage (not the actual damages emphasized in liberal utilitarianism). It is a matter of meaning, not budget constraints. Robert Burns sang, "The coward slave we pass him by:/ We dare be poor for a' that." So likewise Sidney dared to refuse to plead when faced with charges of treason before Charles II's pet judges, and died for it.

North much admires the anthropologist the late Clifford Geertz. It is hard not to. But North reads Geertz and his co-authors as supporting the economic notion that in caravan trade, such as in Morocco around 1900, in North's formulation, "informal constraints [on, say, robbing the next caravan to pass by]. . . made trade possible in a world where protection was essential and no organized state existed." He misses the non-instrumental, shame-and-honor, non-Max-U language in which Geertz in fact specialized, and misses therefore the dance between internal motives and external impediments to action, between the dignity of a self-shaping Roman citizen and the merely utilitarian "constraints." The toll for safe passage in the deserts of Morocco, Geertz and his co-authors actually wrote, in explicit rejection of Max U, was "rather more than a mere payment," that is, a mere monetary constraint, a budget line, a fence, an "institution" in North's reduced definition. "It was part of a whole complex," they wrote, "of *moral rituals*, customs with the force of law and the weight of *sanctity*."⁸

"Sanctity" doesn't mean anything to North the economist, who for example in a 2005 book treats religion with a contempt worthy of Richard Dawkins or Christopher Hitchens ("Ditchens").² Religion to North means just another "institution" in his utilitarian, subject-to-constraints sense, that is, rules for an asylum. Religion to him is not about sanctity or the transcendent, not about faithful identity, not about giving lives a meaning through moral rituals. It is certainly not an on-going conversation about God's love, not to speak of an on-going

conversation *with* God. Religion is just another set of constraints on doing business, whether the business is in the market or in the temple or in the desert. In this he agrees with the economist Gary Becker's followers when they come to study religion – religion to them is a mere social club, with costs and benefits, not an identity or a conversation. (Anyone who has actually belonged to a social club, by the way, knows that it soon develops into “moral rituals, customs with the force of law and the weight of sanctity.”) North asserts, for example, that in a pre-legal stage “religious precepts . . . imposed standards of conduct on the [business] players.”¹⁰ The world-view that goes with faith is not his concern. (His own religion of Science, of course, is in fact nothing like a mere constraint. It is North's identity, his moral ritual, his sanctity – in short, the meaning of his life, negotiated continuously over its extraordinary course. But ethical consistency is not a strong point of Samuelsonian economics.)

Avner Greif, North's ally in the New Institutionalism, calls culture “informal institutions,” and North tries to talk this way as well. But the “informality” would make such “institutions” very different from asylum-type “rules of the game.” Informality is continuously negotiated. Just how far can a man go in teasing his mates? Just how intimate can a woman be with her girlfriends? The rules are constructed and reconstructed on the spot, which makes the Samuelsonian metaphor of constraints inapt. The Geertzian metaphor of negotiation and ritual makes more sense. “O body swayed to music, o brightening glance,/ How can we know the dancer from the dance?”

Some economists grasp that institutions have to do with human meaning, not merely Northian “constraints.” The Austrians or the old institutionalists have managed to escape, Houdini-like, from the straight-jacket in which Douglass North, Depak Lal, Avner Greif, Max U, and their friends happily gurgle. The Austrian economist Ludwig Lachmann (1906-1990), for example, spoke of “certain super-individual schemes of thought, namely, *institutions*, to which schemes of thought of the first order [notice that to the Austrians the economy *is* thought, all the way down], the plans, must be oriented, and which serve therefore, to some extent, the coordination of individual plans.”¹¹ Thus a language is a scheme of thought, backed by social approval and conversational implicatures. Thus too is a courtroom of the common law a scheme of thought, backed by bailiffs and law books.

North, like the numerous economists who have settled into the straight-jacket, talks a good deal about meaning-free “incentives” because that is what Samuelsonian economics can deal with. The constraints. The budget lines. But one can agree that when the price of crime goes up (that is, the incentives change) less of it will be supplied, yet nonetheless affirm that crime is more than a passionless business proposition. (If you don’t believe so, tune into one of the numerous prison reality shows, and watch the inmates struggling utterly irrationally with the guards.) The Broken Windows Effect is that major crime goes up if you ignore minor crimes like breaking windows or painting graffiti. The Effect has little to do with price and a lot to do with shame and social imitation.¹² If crime is more than utterly passionless calculations by Max U, then changing ethics can affect it – ethics that do change, sometimes quickly (crime rates fall dramatically during a big war, for example, at any rate on the home front). The metaphors of crime as being “like” employment as a taxi driver, or of a marriage as being “like” a trade between husband and wife, or of children being “like” refrigerators have been useful. But they don’t do the whole job.

Prudence is a virtue, and is one characteristic of a human seeking profit – and of a rat seeking cheese and of a blade of grass seeking light. But so are temperance and love and courage and justice and hope and faith, and these other virtues are defining of humans. Unlike prudence they are characteristic of humans uniquely, and of human languages and meanings. In no sense is a blade of grass “courageous,” or a rat “faithful” (outside of the movie *Ratatouille*, whose humor turns on the paradox of the rats being more faithful than many of the humans). North will have none of human languages and meanings. His positivistic talk about “constraints” and “rules of the game” misses what he could have learned from Geertz, Weber, Smith, Aquinas, Cicero, Confucius, or Moses, or his mother (Moses’ or North’s) – that social rules expressed in human languages have human meanings. They are instruments as well as constraints, as Lachmann says, playthings as well as fences, communities as much as ward rules.¹³

Take for example so obvious an institution for providing incentives as a traffic light. When it turns red it surely does create incentives to stop. For one thing, the rule is self-enforcing, because the cross traffic has the green. (In the old joke a New York City taxi driver drives at high speed through every red light but screeches to a halt at every green. His

terrified passenger asks why. “Today my brother is driving, too, and he always

goes through red lights!”) For another, the police may be watching, or the automatic camera may capture one’s license plate. The red light is a fence, a constraint, a rule of the game, or of the asylum. So far goes North, and with him most economists.

But among other things the red light also signals — that is, has meaning to humans, who are more than rats in a prudence-only experiment facing food incentives — the meaning of state dominance over drivers. It signals the presence of civilization, and the legitimacy granted to the state that a civilization entails. It signals, too, the rise of mechanical means of regulation, in contrast to a human traffic officer on a raised stand with white gloves. The red light is in Lachmann’s terms a system of thought. It is a system that some drivers find comforting and others find irritating, depending on their attitudes towards the state, towards mechanical inventions, towards traffic officers. For a responsible citizen, or an Iowan, or indeed for a fascist conformist, the red light means the keeping of rules. She will wait for the green even at 3 a.m. at an intersection obviously clear in all directions, an intersection lacking a license-plate camera or police person in attendance, or a reliably irresponsible brother on the road, even when she’s in a bit of a hurry. Incentives be damned. But for a principled social rebel, or a Bostonian, or indeed for a sociopath, the red light is a challenge to his autonomy, a state-sponsored insult. Again, incentives be damned. If the Broken-Window policy is applied *too* vigorously it could well evoke an angry reaction from potential criminals, and could result in more, not less, crime, or at any rate widespread resentment of the police.

Meaning matters. A cyclist in Chicago writing to the newspaper in 2008 about a fellow cyclist killed when he ran a red light declared that “when the traffic light changes color, the streets of our cities become an every-man-for-himself, anything-goes killing zone, where anyone who dares enter will be caught in a stream of intentionally more-deadly, high-mass projectiles, controlled by operators who are given a license to kill when the light turns green.”¹⁴ The motorist who unintentionally hit the cyclist probably gave a different meaning to the event. A good deal of life and politics and exchange takes place in the damning of incentives and the assertion of meaning — the mother’s love or the politician’s integrity or the teacher’s enthusiasm, what Keynes called “animal

spirits” and what Sen calls “commitment” and what I call “virtues and corresponding vices other than Prudence Only.”

Or take a more elevated issue, that of liberty. The neo-Roman theory that Skinner identifies can be thought of as turning on status, not contract. The neo-Roman theory is old fashioned in one sense, dating in Continental legal theory back to Justinian. But in another sense, as the liberal theorists Montesquieu and Tocqueville insisted, gazing with envy at the common law of England, the neo-Roman theory was a novelty implied by the reception on the Continent from the twelfth century on of Roman law (and not in England). Macfarlane notes that on the Continent down to the French Revolution “civilization moved away from a ‘feudal’ one based on the flexibility of ‘contract,’ to an *ancien régime* one based on ‘status’.”¹⁵ “The Roman law,” wrote Tocqueville bitterly, “was a slave law.”¹⁶ That a person was a slave in Roman law was itself an insult, no matter how cleverly he could manipulate his master, in the style of Roman comedies down to *The Comedy of Errors*, *The Marriage of Figaro*, and *Guess What Happened on the Way to the Forum*. Liberty in a sense that, say, John Milton would have understood is not about how much stuff you get, or where you are on your budget line, or how far out the “constraints” are. It is about whether you are under the orders of some other mortal, for example a husband or wife in a marriage. By contrast, the economist Gary Becker’s theory of marriage takes the benevolent husband as absorbing the welfare of his wife, and thinks it no slavery. After all, she gets all the diamonds she wants. A feminist would object, as did Milton in his first treatise on divorce.

* * * *

In any event, with the Max U Only character in mind North believes he has equipped himself to explain the modern world. The axiom is that “economic actors have an incentive to invest their time, resources [in the economist’s broad sense as means for achieving ends], and [personal] energy in knowledge and skills that will improve their material status.”¹⁷ The question, North observes, is whether Max U’s “investment” will be in swords with which to steal money, or in machines with which to spin cotton. Both investments improve Max U’s material status.

Which path for our *goyisher kop* Max U? North puts his finger on a major problem facing political economy from the caves to the highest of civilizations, namely, the solidity of property rights. But he commits a logical error, known as begging the question. “Economic history,” he declares, “is overwhelmingly a story of economies that failed to produce

a set of economic rules of the game (with enforcement) that induce sustained economic growth.”¹⁸ The phrase “that induce sustained economic growth” transforms the argument into a circle (which is what “begging the question” means, not as most people seem to think nowadays “suggests the further question”). An institution is not the institution he has in mind until it does cause the Industrial Revolution. He has assumed his conclusion, namely, that a change in property rights – his “institutions” – made the Industrial Revolution. The argument is immune to refutation, because he is only concerned with changes in property rights that (he assumes without evidence) caused the Industrial Revolution.¹⁹ North is assuming changes in rules induced sustained economic growth, rather than investment or foreign trade or, more plausibly, ideological development. Making his statement into a meaningful hypothesis requires splitting it in two. Make part one into an empirical statement that “many economies failed to make rules.” Then one could ask whether “the change in rules in, say, seventeenth-century England was large enough to actually induce sustained economic growth.”

But of course numerous societies have produced rules of property. English kings, for example, asserted in the Middle Ages the primacy of royal courts over local and sometimes arbitrary authority. Indeed, no society does well if it does not have such rules. As the prophet Micah (7.2,3) said in the late eighth century B.C.E, “The good man is perished out of the earth: and there is none upright among men: they all lie in wait for blood; they hunt every man his brother with a net. That they may do evil with both hands earnestly, the prince asketh and the judge asketh for a reward.” One is reminded of the anarchic and pre-Christian Norsemen, who when they approached a coast had to decide whether to kill the natives or to trade with them. They were, a Samuelsonian economist might suppose, Max U characters, largely indifferent between the options – whatever maximized material utility. Thus A. A. Milne’s “Bad Sir Brian Botany” who “went among the villagers and blipped them on the head,” but received his comeuppance, and became “quite a different person now he hasn’t got his spurs on,/ And he goes about the village as B. Botany, Esquire,” *not* blipping on the head. The move from bad to good Sir Botany is what North has in mind as the alleged cause of the Industrial Revolution.

But the trouble is that it had already happened – that shift to Good Sir Botany. Likewise the wild Norsemen of Bergen became Hansa

merchants, or at any rate welcomed German and Frisian merchants into the wooden warehouses of the Hansa, many hundreds of years before the final end of blipping on the head and violent rent-seeking in North's unhistorical account is supposed to have happened in, of all places, England. As late as the seventeenth century in England, North is claiming, Max U saw his best chance in violence or influence, not in voluntary exchange. The claim is factually mistaken. Violence had been blocked by law and politics in England for centuries. Even the barons had at length been denied their independent armies, by the early Tudor kings. Ordinary violence and theft was pursued by the hue and cry. England was drenched in laws, of property and tort and merchants and what you will, in manorial courts and the King's courts. And of course every ordered community since Moses or Solon or Sargon the Great or the First Emperor of China has enforced property rights and prevented people from hunting their brothers with nets. A lack of defined property perhaps characterizes some parts of Europe during the ninth century – though consider Charlemagne or Alfred the Great – but certainly not England in the seventeenth century, as North to the contrary suggests. England was a nation of ordinary property laws even when the Stuart kings were undermining the independence of the judiciary in order to extract the odd pound with which to have a foreign policy.

And influence in Parliament replaced influence at Court. After North's favored date of 1688 there is a case to be made that the opportunities for rent-seeking increased rather than decreased, if not by violence (though tell that one to the citizens of York in 1745, or for that matter to the citizens of New York in 1776). In the early eighteenth century the cash value of influence at a Court now able to borrow from Dutchmen, or the gains from a transcendently powerful Parliament from stealing the goose from an enriching population, were greater than they had been under Charles I. The pioneers of analytic studies of such matters, Robert Ekelund and Robert Tollison, have persuasively argued that when the power to protect domestic interests shifted from the King – and grants of monopoly – to Parliament – and protective tariffs – mercantilism became more expensive.²⁰ Yet the King still had extensive powers of appointment (Adam Smith himself was in his maturity appointed inspector of the very customs duties that he excoriated in *The Wealth of Nations*). The relative price of protection against foreign competition may have risen, but the total to be gained by corrupting King or Parliament together does not appear to have markedly fallen.

Private bills, increasingly common in the eighteenth century, were ideally suited for extracting rents from ones fellow citizens directly – never mind the new abilities of Parliament to “protect” from foreigners like the French, in order to enrich West Indian landlords with a higher price for Jamaican sugar. In acts for agricultural enclosure the Parliamentary officials to be bribed with large sums were named in the very acts. Politics in eighteenth-century Britain was not called by William Cobbett “the old corruption” for nothing. Rent-seeking continued after industrialization, right down to Boeing’s bid in 2008 to build tanker aircraft for the U.S. government, and the exemption of chicken and hog farms from responsibility for their animals’ waste. Yet economic growth took place.

The long perspective is why North’s is an exceptionally poor argument for explaining the Industrial Revolution or the modern world. The choice to escape from growth-killing investing in swords or in influence at Court rather than investing in good textile machinery to make good woolen cloth, and in good organizations to administer the good machinery, has happened repeatedly in history – in China for whole centuries at a time, in Rome in the second century C.E., in much of Europe after the eleventh century. Something was radically different about the case of eighteenth-century Britain. But the difference was not the rearrangement of incentives beloved of economists, those rules of the game. The incentives had already been rearranged, long before, and in many places.

Notes

1. North 1991, p. 97 and everywhere in his writings since the 1980s.
2. Lal 2006, p. 151.
3. Butler 1912, p. 263.
4. Lal 2006, p. 151.
5. Bourdieu 1979.
6. Goffman 1961, subtitle and p. 7.
7. Skinner 1998, p. 98, from where my learning below comes.
8. Geertz, Geertz, and Rosen 1979, p. 137, quoted in North 1991, p. 104, italics supplied.

9. North 2005, for example pp. *** Get North 2005 book upstairs and do to prove. Stanley Fish calls Dawkins and Hitchens "Ditchens" (in a New York Times column in May, 2009).
10. North 1991, p. 99.
11. Lachmann 1977, p. 62, quoted in Boettke and Storr 2002, p. 171.
12. Kelling and Wilson 1982; Keizer et al. 2008.
13. Lachmann 1971, p. 141, quoted in Boettke and Storr 2002, p. 171.
14. A letter by a Mr. Keuhn, 2008, in the Chicago Tribune, p. 20-but I have lost the date.
15. Macfarlane 2000, p. 278.
16. Tocqueville 1856 (1955), p. 223.
17. North 1991, p. 101.
18. North 1991, p. 98.
19. Gregory Clark makes a similar point in Clark 2007 (p. 7) about an argument in North and Thomas (1973) that "new institutional arrangements will not be set up unless the private benefits of their creation promise to exceed the costs" (North and Thomas 1973, p. 6). On which Clark comments: "This has an air of certainty that perhaps only truism can deliver."
20. Ekelund and Tollison 1981, p. 223.

Chapter 27: Nor Did The Glorious Revolution Initiate Private Property

I want to initiate a discussion, to put the point another way, with my numerous friends in economics who have come to believe that all effects of ideas on the economy work mainly or exclusively or necessarily through incentive-summarizing “institutions.” They want this to be true because institutions-as-constraints fits easily with their training in Samuelsonian economics. Incentives are in the Samuelsonian view merely the prices – literally the slopes – built into budget lines. Identity, integrity, justice, temperance, professionalism, ideology, ideas, rhetoric have nothing to do with it, my friends in economics declare. I believe on the contrary, with Alexis de Tocqueville, that “institutions” as laws are not fundamental: “I accord institutions,” wrote Tocqueville in 1853, “only a secondary influence on the destiny of men. . . . Political societies are not what the laws make them, but what sentiments, beliefs, ideas, habits of the heart [in his famous phrase from *Democracy in America*], and the spirit of the men who form them prepare them in advance to be. . . . The sentiments, the ideas, the mores [*moeurs*] . . . alone can lead to public prosperity and liberty.”²¹ Tocqueville’s and my belief finds support in the magnificent tables of the *World Value Survey*, in which researchers such as Matteo Migheli have found evidence for example of great differences in attitudes towards state intervention in Western vs. formerly Communist Europe.²²

In 1973 North and Robert Paul Thomas boldly stated the hypothesis that has so charmed other economists: “Efficient economic organization is the key to growth; the development of an efficient economic organization in Western Europe accounts for the rise of the West. Efficient organization entails the establishment of institutional arrangements and property rights that create an incentive to channel individual economic effort into activities that bring the private rate of return close to the social rate of return If a society does not grow it is because no incentives are provided for economic initiative.”²³ About that same time, inspired I think by such words, and certainly by Steve Cheung, my office mate at the University of Chicago, and Ronald Coase across the way at the Law School, I studied the English legal history of the eighteenth century with exactly the Samuelsonian prejudice about “constraints” North began then to exhibit. But I soon realized that the timing of institutional change in England fits poorly with its economic

change. As many economic historians before and after me have noted, the institutions relevant to the *economy* of Britain in fact did not change much in the very late seventeenth century, or even over the long eighteenth century 1688-1815. The eminent economic historian Nicholas Crafts notes that the various models of endogenous growth proposed by the economic theorists do a poor job of accounting for what happened in the eighteenth and nineteenth centuries. And as to the Northian version, he continues, “there was no obvious improvement in institutions at the time of the Industrial Revolution.”²⁴ There *was* by contrast an obvious improvement in the dignity and liberty of the bourgeoisie, apparent for example in the invention of the science of political economy itself. But the surrounding institutions of the economy were old. The long eighteenth century begins with the Glorious Revolution, and the Revolution was surely glorious. It created the “transcendent power of Parliament,” as Maitland once called it, that could allow projects for canals, turnpikes, and enclosures to take from some to give to others, in the name of general efficiency. Economists call such trade or compulsion in aid of general efficiency the Hicks-Kaldor Criterion.

Dan Bogart has done some excellent research claiming that 1689 made for more cumbersome but more fair Parliamentary procedures for instituting projects of transportation improvement. Parliament “reduced uncertainty about the security of improvement rights.” By contrast, “for most of the seventeenth century, promoters turned to the Crown for patents or to Parliament for acts. Some undertakers lost their rights following major shifts in power like the Civil War and the Restoration.”²⁵ Well, yes: revolutions do turn things upside down. But the economics would require that people anticipated the Revolutions, for otherwise the prospective uncertainty is not increased by them. If 1642, and especially its outcome, was a surprise, it cannot be counted as a source of *ex ante* uncertainty. That 1689 was a settlement, true, would make for a more tranquil environment for investment. Well into the eighteenth century, though, the regime was uncertain – if not as uncertain as, say, the Commonwealth in September, 1558. But in any case, as Bogart acknowledges and as I have argued above, canals, turnpikes, and enclosures were routine investments in capital with modest social savings, not epoch-making innovations like steam engines or electricity or organic chemistry. They changed locations, not amounts. The legal changes attendant on the Glorious Revolution and its aftermath had essentially nothing to do with the wave of gadgets.

Before and after North's favored long eighteenth century the sheer economic institutions-as-constraints and the budget-line incentives changed more sharply than during it. Before it the Tudor administrative revolutions of the sixteenth century were as important for the actual economy as any institutional change in the eighteenth century. The defeat of the Armada in 1588 was as important for English economic liberties as the events of 1688. The English pattern of overseas settlement — England's decentralized and heavily populated empire — was set not in the decades after 1688 but in the few decades after the 1620s, a third of a million people leaving for Massachusetts, Virginia, and above all the West Indies, with consequences to follow. The big Revolution of 1642 as against the Glorious one of 1688 made ordinary people bold. They never forgot thereafter that they were free-born English people, free increasingly even to change jobs, even to invent machines — or free to behead an anointed king. (The English kings didn't forget, either.) And anyway in England the claim of free-bornness was by 1688 hundreds of years old, whatever the actual incomes and privileges of a yeoman as against a duke.

And on the other side of the long eighteenth century the great Victorian codifications of commercial and property law did more to alter strictly economic incentives than anything that happened 1688-1815, as did the Victorian perfection of the common law of contract. Regulation of *laissez faire* began with the Victorian Factory Acts. The democratization of the British electorate after 1867, slowly, had heavier consequences for economic performance, such as the welfare state and the later nationalizations than any previous legal change, including even the triumph of Parliament in 1688. Most of the legal changes after 1815 occurred by way of statute, overcoming a common law romanticized in the Northian story, with more economic effect than all the Georgian enclosure bills and other strictly economic results of 1688 taken together.

And on a still wider view of what the professor of law Simon Deakin calls "the legal origin hypothesis" of North and his followers, one can see little evidence that the long history of English common law was causal for the Industrial Revolution. In the matters of employment contracts and joint stock companies, Deakin writes, "industrialization preceded legal change in Britain, whereas this relationship was reversed in France and Germany," merely because British law was imitated (he speaks of "sharing of legal ideas," another example of lateral transfer of cultural genes). And then after a lag the result of Continental civil law

were imitated in common-law regimes in the British Empire. Laws converged. Legal cultures did not matter for economic performance, at any rate in the England-admiring way that North's school wishes. Deakin concludes that "the picture is not one of a more market friendly common law contrasting with regulation in the civil law."²⁶ In a longer perspective, indeed, the point is obvious from the results – all rich countries have achieved essentially the same level of real national income per head, regardless of their supposedly inherited cultures of law. North has the same problem that Clark has: memes spread by imitation as much as or more than by inheritance. Countries such as France or Germany without the meme that he regards as an English uniqueness caught on, and commenced growing at modern rates.

The economists want the big change to be a matter of Northian "institutions" because they want incentive to be the main story of the Industrial Revolution and the modern world. But suppose incentive (Prudence Only) is not the main story, and cannot be the main story without contradiction: if it was Prudence Only the Industrial Revolution would have happened earlier, or elsewhere. Suppose that other virtues and vices matter a lot – not only prudence, beloved of the Samuelsonians; but temperance, courage, justice, faith, hope, and love, which changed radically in their disposition in the seventeenth and eighteenth centuries. Suppose that the ideology, the rhetoric, the public sphere mattered a great deal, and suppose that these like legal ideas were often and quickly shared across countries. Voltaire and Montesquieu looked across the Channel, with the result that Anglophilia governed one strain in French opinion, and in French public policy. Tom Paine wandered the world looking for places where men were not free, and shared revolution. Suppose that the spread of institutions, such as the dignity and liberty for the bourgeoisie, once revealed as efficacious, like reading, is as much horizontal across countries as vertical across time. Suppose that institutions viewed as incentives and constraints are not chiefly what mattered, but rather community and conversation.

That is what economist should consider. Insisting that every change in "institutions" is the same thing as a change in constraints, and insisting contrary to the evidence that the time of the Industrial Revolution depended on a revolution in property rights, has a sweetly Samuelsonian air. But it is not good history and it is not a good explanation of the unprecedented economic event we are seeking to explain.

* * * *

North's story resembles that of his friend the late Fernand Braudel (North is a francophone and a wine connoisseur among his many other accomplishments). As we have seen, Braudel argued that out of local markets came, with the expansion of trade, the age of high commerce, and that out of the age of high commerce came, with the expansion of trade, the Industrial Revolution. Likewise North writes, "long distance trade in early modern Europe from the eleventh to the sixteenth centuries was a story of the sequentially more complex organization that eventually led to the rise of the western world."²⁷ Braudel was less celebratory than North has been about the progress from local to world-wide trade, and thence to industrial innovation, retaining the French intellectual's suspicion of *les bourgeois*.

But North and Braudel agree on the machinery involved. Expansion fueled it, they say, and so it awaited the late eighteenth century to come to fruition. Foreign trade is their engine of growth. "Increasing volume," writes North, "obviously made such institutional developments [as modern capital markets] possible."²⁸ "The size and scope of merchant empires" made arm's length transactions possible. "The volume of international trade and therefore . . . economies of scale" made for standardization and information."²⁹ The result was a virtuous spiral of economic forces: "the increasing volume of long distance trade raised the rate of return to merchants of devising effective mechanisms for enforcing contracts. In turn, the development of such mechanisms lowered the costs of contracting and made trade more profitable, thereby increasing its volume."³⁰ To use the jargon of the recent mathematical "theories of economic growth," the growth is "endogenous," generated inside the economic sphere itself. Growth leads to growth, which leads to . . . growth.

Note, however, that most of North's story tells of routine search for better institutions. The search is "routine" because it is a pretty much predictable result of investment. If you reorganize at great expense the docklands of London, and arrange to collect some of the gain for yourself, you or your heirs will reap some profit. The society-wide economic gains, from which you extract some profit, are that traffic gets in and out of port with less delay. Ship stores are more readily available. Information about cargoes coming and going are cheaper. Loss in storage is lower. North's best and Nobel-winning scientific work, on ocean freight rates before the nineteenth century, gives evidence for such

effects. Doubtless you as a dockland investor might make a mistake, and over- or under-invest, or fail to secure your claim to some of the profits of the new docks. But the prospect of net profit, while not perfectly predictable, is what motivates you in such a routine investment. The improvement is like the draining 1848-1852 of the Haarlemmermeer (where Schiphol Airport now sits), one of the numerous great projects of Dutch water management. Cost: steam pumps. Benefit: farmland. *Goed idee*.

For such routine investment as an explanation of the modern world, however, there are two big problems. For one thing, there's an economic problem. Routine, incremental investments, naturally, yield routine, incremental returns. North writes that his Max-U merchant "would gain. . . from devising ways to bond fellow merchants, to establish merchant courts, to induce princes to protect goods from brigandage in return for revenue [note the quid pro quo: it is like hiring a policeman], to devise ways to discount bills of exchange."³¹ The implied claim that we grew as rich as we are by simply piling brick on brick, or in this case contract on contract, was as I have noted the usual way of thinking in economics from Smith in 1776 through W. W. Rostow in 1960. After all, that's how we as individuals save for old age, and it is what we urge on our children. But no one, to repeat, grows *very* rich by routine investment, and neither did Western society 1800 to the present. The new American economic history of the 1960s, which North helped invent, and the old British economic history of the 1950s, which explored the same issue with less rigorous economics, showed it. Routine investment was a good idea, just as the draining of the Haarlemmermeer was *een goed idee*, and just as saving for your old age is a good idea — provide, provide. But the astounding growth after 1800 needs an astounding explanation.

And that's the other, historical problem. If routine investment explains the modern world, why didn't the modern world happen in ancient times? Routine is easy. That's why it is called "routine." Ancient China was peaceful and commercial for decades and often for centuries at a time. Its foreign trade was enormous. The disturbances in the Roman Empire were usually palace uprisings in the city of Rome or battles out on the Germanic or Parthian frontier, minor matters — nothing like the economy-disturbing invasions and especially the plagues that finally overcame the Empire. The ancient Egyptians had command over resources and had famously stable regimes as well. The Muslim empires in the two centuries after Mohammed grew at gigantic rates, in extent

and in economies of scale. They became brilliant in economy and culture – yet nothing like to the startling degree of northwestern and then all of Europe 1700-2000 C.E. The Aztecs and before them the Maya had great trading empires, as did earlier civilizations still to be explored in the New World. If growth produces growth, which produces growth, as the economists delight to hypothesize (the model is so beautiful), why did modern economic growth wait to happen in the eighteenth, nineteenth, and twentieth centuries, and then begin in a notably turbulent patch of the globe?

North's answer is the good institutions, such as the settlement of 1689 in England. That has seemed reasonable on its face to many economists, who "don't know much about the Middle Ages, / Look at the pictures and turn the pages." They think, as I said, in terms of maximization *under constraints*, and therefore are fascinated by a claim that institutions just *are* constraints, which got relaxed in 1689. "Cute," they think. Some of these relaxing of constraints, too, North wants to make endogenous, caused by the very growth. "Cuter," say the economists in their unscientific innocence. The Max-U merchant's "investment in knowledge and skills would gradually and incrementally alter the basic institutional framework."³² But if they are endogenous, as against "exogenous" (the Greek means "outwardly born"), then again why didn't the same institutional changes happen in Egypt under the pharaohs, or for that matter in Peru under the Incas?

North praises, as would many economists, including me, a "credible commitment to secure property rights."³³ But his seminal essay with Weingast in 1989 has been widely credited with claiming, as North and Weingast sometimes do and sometimes don't in their last few interesting but self-contradicting paragraphs, that the introduction of a Dutch-style national debt in the 1690s shows "how institutions played a necessary role in making possible economic growth and political freedom."³⁴ It does not. It shows how a state can become powerful by reliably paying its debts to citizens and to foreigners. Robert Ekelund claims that "the credible commitments . . . were required of new institutions [namely, the English and then British national debt, and led]. . . to modern capitalism."³⁵ No they didn't. They allowed Dutch William to begin the 120 year war against France that characterized the long eighteenth century in Britain.

John Wells and Douglas Wills succeed in showing statistically that the Jacobite threat to the Protestant succession haunted early eighteenth-

century politics in Britain (which may have been ascertained, perhaps with less trouble, by wallowing a bit in the cultural mud of novels and newspapers and street ballads). But in supporting North and Weingast they too claim offhandedly that “the resulting institutional changes [of 1688] ushered in financial developments that laid the foundation for the Industrial Revolution and ultimately established Britain as a world power.”³⁶ The second half of the claim, about power, is true. A parliamentary monarchy that could borrow reliably was one that could intervene in the balance of power on the Continent, and did. But the first half is at best unproven by any of the analytic narratives offered in its favor. In the title of their paper Wells and Wills summarize how they see the threats from the Old and New Pretender out of France connecting with the claims of North and Weingast: “The Jacobite Threat to England’s Institutions [of financing the national debt] and [therefore] Economic Growth.” But the national – that is, governmental – debt had no demonstrated connection to economic growth. Those founts of historical wisdom, Sellar and Yeatman, well anticipated in 1931 the mishmash here: “It was William and Mary who first discovered the National Debt and had the memorable idea of building the Bank of England to put it in. The National Debt is a very Good Thing and it would be dangerous to pay it off, for fear of Political Economy.”³⁷

That the British state did not then use the wealth acquired by such a Good Thing to obstruct economic growth and destroy political liberty – as so many states enriched by, say, drilling for oil have done – had nothing to do with the imitation under William III of bourgeois, Dutch methods of drilling for loans, and building the Bank of England to refine them in. An historian of Parliament noted of its transcendent power, “despotic power was only available intermittently before 1688, but it was always available thereafter.”³⁸ And as the economists Carmen Reinhart, and Kenneth Rogoff put the point, “It is not clear how well the institutional innovations noted by North and Weingast would have fared had Britain been a bit less fortunate in the many wars it fought in subsequent years.”³⁹ Britain got a military-financial complex up and running in the 1690s and had the good fortune of Churchills and Clives and Wolfes and Nelsons and Wellesleys in its operation. Good on them. But it is not the modern world. The argument confuses – as we have seen many have – victory with enrichment.

What mattered had to do with the change in political and economic rhetoric about the same time that made the British state prudent in the

financing of its wars of imperial adventure 1690 to 1815, as the Netherlands had earlier learned to be prudent in the financing of its wars of survival, 1568-1648 and (complements of the envious English) during the four Anglo-Dutch wars of 1652-54, 1665-67, 1672-74, 1680-84 (no wonder the Dutch and the English finally gave up their quarrels and adopted William as their joint stadhouder/king). In 1787 the professor of civil law at Glasgow, John Millar, had it more right than North does: the “energy and vigor which political liberty [my claim], and the secure possession and enjoyment of property [North and Weingast's claim], are wont to inspire. . . . was obtained by the memorable Revolution of 1688, which completed. . . a government of a more popular nature.”⁴⁰ Secure possession of property is necessary. But it had little to do with the financial innovations that North and Weingast stress, because it had been established centuries before. A government of a more popular nature, and political liberty, and above all the energy and vigor that a new deal brought forth from England’s bourgeoisie, were what mattered.

The figures of North and Weingast imply that total central government *expenditure* under James I and Charles I was at most a mere 1.2 to 2.4 percent of national income. At the same time the Romanovs were spending nearly 15 percent of Russia’s entire national income on war, and shortly afterwards the Hohenzollerns learned how to spend comparable shares on the largest standing army in proportion to population in Europe.⁴¹ We nowadays face central government expenditures among free countries ranging from the U.S.’s and South Korea’s low of 21 percent to France’s high of 46 percent.⁴² The four forced “loans” from the rich of London 1604-1625 amounted to a trivial 1 percent of the national income earned over those years.⁴³ Of course, as the American case in the 1770s showed, a tax on stamps taking a tiny portion of income can trip off a revolution, and so here. But even the Stuart kings, grasping though they were, and enamored as were many monarchs at the time with a newly asserted divine right of kings, were nothing like as efficient in predation as modern governments – or indeed as were the Georgian kings of Great Britain and Ireland who succeeded them. Macaulay had in 1830 spoofed the alarm of “the patriots of 1640,” who exclaimed, “A million a year will beggar us.” By 1783, Macaulay noted, the alarm was instead over the £240 millions of debt that the British state could then command.⁴⁴ By the end of the long century of struggle with the French, in 1815, the United Kingdom owed

in its national debt a sum twice its annual national income (over three times the ratio in the United States in 2009 – though the figure does not include the gigantic unfunded debt such as Social Security and especially Medicare). Britain paid off the debt by the 1840s, at the height of Political Economy.

No quantitative case can be made, in short, that it was after 1688 that England moved from predation to security of property. England was a nation of laws from the time of *Quia Emptores* (1290), or Edward I (ruled 1272-1307), or earlier. As North and Weingast themselves admit, “the fundamental strength of English property rights” could be dated from the Great Charter of 1215, and surely earlier.⁴⁵ And what then of Italian or for that matter Byzantine or Islamic or Chinese property rights?

In certain smallish matters the law of property was indeed improved by the Glorious Revolution – for example (not so small, actually) in 1689 and 1693 landlords were granted clear rights to tin, copper, iron, or lead under their properties, free of harassment for violating an old prerogative of the Crown (which claimed silver and gold thus extracted, even if incidental to the mining of the base metals). But there’s not much in it. Certainly no economy can prosper, as North and Pipes and Harold Demsetz and I warmly agree, in which a Bad Sir Botany can go around blipping people on the head and seizing whatever he wishes.⁴⁶ “Trade cannot live without mutual trust among private men,” wrote Temple in 1672.⁴⁷ Otherwise we face Hobbes’ war of all against all: “In such condition there is no place for industry, because the fruit thereof is uncertain: and consequently no culture of the earth; no navigation, nor use of the commodities that may be imported by sea; no commodious building; no instruments of moving and removing such things as require much force; no knowledge of the face of the earth; no account of time; no arts; no letters; no society.”⁴⁸ North and Weingast correctly assert, with Millar, the importance of “the ability to engage in secure contracting across time and space.”⁴⁹ Private property is not optional, and market socialism is a contradiction in terms. Even some Marxists nowadays, especially the economists among them, agree on the point. But the problem is, as I have said, that there was little recently new in British property rights around 1700 that can explain its subsequent economic success.

The Northian story has passed into conventional thinking, as for example in an alarming article on “Growth and Institutions” for *The New*

Palgrave Dictionary of Economics (2008) by the economist Darin Acemoglu:

Consider the development of property rights in Europe during the Middle Ages. Lack of property rights for landowners, merchants and proto-industrialists [*An error: property was very fully developed, especially in land and in personal possessions; land markets functioned in large and small parcels; exchange on secure terms took place in all commodities, at the latest from the Normans and their lawyers, or outside the King's court in leet courts registering peasant deals in the thirteenth century, and in most respects hundreds of years earlier*]⁵⁰ was detrimental to economic growth during this epoch [*No: lack of property rights had nothing to do with poor medieval productivity*]⁵¹ Consequently, economic institutions during the Middle Ages provided little incentive to invest in land, physical or human capital, or technology [*Another error: incentives of a strictly economic sort did not change between 1000 and 1800, not much*],⁵² and failed to foster economic growth [*Economic growth did not occur, but – outside of Russia – not because of lack of property rights*]. These economic institutions also ensured that the monarchs controlled a large fraction of the economic resources in society [*An error: even in early modern times the percentage 'controlled' by monarchs was small by modern or some ancient standards: think 5 percent of national income, though rents from royal estates, until sold off, would make the figure higher; but the estates are rental income, an affirmation rather than a violation of the rights of private property*], solidifying their political power and ensuring the continuation of the political regime. The seventeenth century, however, witnessed major changes in the economic [*An error: the economic institutions, if by that one means property rights, or even taxation, did not change much then*] and political institutions [*Finally a partial truth, at least in England and Scotland: not in "Europe" as he claims*] that paved the way for the development of property rights [*An error: property rights were already developed, centuries earlier*] and limits on monarchs' power [*A truth, but a British and later a Swedish truth, and having nothing to do with an allegedly novel security of property, for all the self-interested talk by the gentry at the time, from John Hampden to Thomas Jefferson; and the share of British government taxes in national income did not fall in the eighteenth century: it strikingly rose*].⁵³

Acemoglu in short has gotten the story embarrassingly wrong in every important fact.

It is not his fault, though, since the historians he has consulted, especially North, have told the story to him wrongly. The problem is, to

say it yet again, that much of Europe – or for that matter much of China or India, not to speak of the Iroquois or the Khoisan, when it mattered – had credible commitments to secure property rights in the thirteenth century C.E., and in some places in the thirteenth century B.C.E.⁵⁴ China, for example, has had secure property in land and in commercial goods for millennia. And in the centuries in which the economists claim that Europe surged ahead in legal guarantees for property the evidence is overwhelming that China had secure property. True, early in their rule (Yuan, 1279-1368) the Mongols put in place such anti-economisms of bad property rights as prohibiting autumn planting . . . in order to give ample grazing for Mongol horses. But even the Mongols eventually realized that a prosperous and property-respecting China made a more profitable cash cow. And under the Ming and Qing (1368-1911), property and contract laws were enforced on high and low. Merchants were more, not less, secure on the roads of the Chinese Empire than a western Christendom plagued until the nineteenth century by pirates, or highwaymen riding up to the old inn door. Chaucer's merchant in 1387 "wished the sea were kept [free of pirates] for anything/ Betwixt Middleburg [in Zeeland] and Orwell [in Lincolnshire]," as the Chinese and the Japanese and the Ottomans had already long kept their seas.⁵⁵ After all, the necessary condition for the creation of *any*economy is the ability to engage in secure contracting across time and space. No Mesopotamian merchant could buy copper from Anatolia without property rights, whether enforced by the state or more powerfully by the customs of the merchants themselves. North and Weingast and their student Acemoglu are letting their chronology get radically and misleadingly compressed. Certainly the development of property rights away from the arbitrary rule of a war chief in, say, 588 C.E. in Wessex mattered for economic incentives. But by 1688 such a development in England had long, long occurred. It was not true, as Sellar and Yeatman asserted in their loony way, that "there was an Agricultural Revolution which was caused by the invention of turnips and the discovery that Trespassers could be Prosecuted. This was a Good Thing, too, because previously the Land has all been rather common, and it was called the Enclosure movement and was the origin of Keeping off the Grass, . . . [culminating] in the vast Royal Enclosure at Ascot."⁵⁶

What is true, however, is that during the decades up to 1700 the effective rulers of Britain became in theory and practice more and more mercantilist, and then by the end of the eighteenth century even a little

bit free trading (thus Ekelund and Tollison) – anyway more and more after the late seventeenth century concerned with *national* profit and loss, instead of ensuring this man’s monopoly profit and that woman’s church attendance. No wonder that the worldly philosophy called “political economy” grew up *pari passu*, considering that it is precisely the national, or international, view above the struggle of interests that economics claims to take. The wise professor of English quoted earlier, Michael McKeon, put it this way: the mercantilist pretense of “state control of the economy becomes intelligible as one stage in a long process in which the power to modify the heavenly laws . . . and to reform the environment is vouchsafed to increasingly autonomous and individualized human agency.”⁵⁷ That is, both mercantilism and laissez faire are distinguished from what came before by their focus on a new idea of the economy as a separate thing. The wise philosopher quoted earlier, Charles Taylor, asserts a similar emergence of The Economy as an explicit object of concern in the seventeenth century, and Joyce Appleby gave the story in detail of how by the time Hume and Smith took up their pens “economic life had been successfully differentiated from the society it served.”⁵⁸ In Thomas Mun’s *England’s Treasure by Foreign Trade* (1621), Appleby writes, “for the first time economic factors were clearly differentiated from their social and political entanglements.”⁵⁹ ***Give quote.

Sir William Temple noted of the great nations of Europe in 1672 that until the end of the Thirty Years War “their trade was war.” But “since the Peace of Munster, which restored the quiet of Christendom in 1648, not only Sweden and Denmark but France and England have more particularly than ever before busied the thoughts and counsels of their several governments. . . about the matters of trade.”⁶⁰ He was premature in announcing Christendom’s quiet, since William’s and then Anne’s and then the Georges’ eighteenth-century epic against the French was to begin in earnest after Dutch William III taught the undisciplined English to have a national debt and store it in the Bank of England. Other countries at the time had more of a trade of war. Voltaire said of Prussia that most nations had an army, but in Prussia the army had a state. But Temple was right in emphasizing the spread of the Dutchlike subordination of politics to trade at least in Britain. As Montesquieu put it in 1748, “other nations have made the interests of commerce yield to those of politics; the English, on the contrary, have ever made their political interests give way to those of commerce.”⁶¹ Well. . . not “ever,” but by 1748 often.

Such an ordering of ideas was second nature to the Dutch in 1600. It had to be learned by the British. The British following the Dutch came to be known in the world as unusually calculating – instead of as before unusually careless in calculating. No one in Europe in 1500 would have thought of the English as anything but arrogant and warlike: “See approach proud Edward’s power,” sang the Scots, who had occasion to know, about a much earlier intervention of the English, “Chains and slavery.” The actual alteration in individual behavior in the direction of bourgeois values by around 1700 was not great. Well into the twentieth century the rest of the world had occasion to be shocked by the aristocratic/peasant brutality of British soldiers. Consider General Kitchener ordering Boer and black women and children into concentration camps, in which a quarter died of hunger and disease in 1900-1901. Consider the massacre at Amritsar in British India in 1919, or the bold Black and Tans suppressing Irish rebellion in 1920. A little rich island did not paint a quarter of the world red, or win two world wars (with a little help), by sweetly bourgeois persuasion. But the change in rhetoric towards bourgeois cooperation was permanent and finally softening, and in any case the sociological change in the direction of a new dignity and liberty for the bourgeoisie made innovation commendable and possible.

Notes

21. Letter to Corcelle, Sept. 17, 1853, quoted in Swedberg 2009, p. 280.
22. Migheli 2009.
23. North and Thomas 1973, pp. 2-3.
24. Crafts 2004, p. 10 of manuscript.
25. Bogart 2009, p. 28.
26. Deakin 2008, pp. 2, 26.
27. North 1991, p. 105.
28. North 1991, p. 106.
29. North 1991, p. 106.
30. North 1991, p. 107.
31. North 1991, p. 109
32. North 1991, p. 109.

33. North 1991, p. 101.
34. North and Weingast 1989, p. 831.
35. Ekelund 2003, p. 366.
36. Wells and Wills 2000, p. 418.
37. Sellar and Yeatman 1931, p. 77.
38. Hoppit 1996, p. 126.
39. Reinhart and Rogoff 2008, p. 53.
40. Millar 1787 (1803), Chp.III.
41. Hellie 2003, p. 416
42. World Bank for 2005, at http://siteresources.worldbank.org/DATASTATISTICS/Resources/table4_10.pdf
43. North and Weingast 1989, Tables 2 and 3, with their guess at national income of £41 millions in 1642.
44. Macaulay 1830, pp. 186-187.
45. North and Weingast 1989, p. 831.
46. Demsetz 1967 is a fount for the insight.
47. Temple 1672, Chp. VI.
48. Hobbes, p. NNN***
49. North and Weingast 1989, p. 831.
50. One of the leading students of medieval English agriculture, Bruce Campbell notes that "Tenants of all sorts were active participants in the market, trading in commodities, buying and selling labour and land, and exchanging credit," citing some of the numerous medievalists who agree (Campbell 2005, p. 8) . That does not mean that everything worked smoothly. Campbell argues that the fourteenth century was characterized by "rural congestion engendered by the lax tenurial control exercised by most landlords" (p. 10). But anyway his picture, based on the best scholarship, is the opposite of the exploitation and the absence of markets posited by Acemoglu. The serfs owned the lords, not the other way around.
51. McCloskey 1975a.
52. Berman 2003.
53. Acemoglu 2008; compare Acemoglu, Johnson, and Robinson 2005, citing for example R. H. Tawney, unaware it appears that his Fabian views have largely been overturned.
54. Clark 2007 is good on this, pp. 10, 212.
55. Chaucer, Canterbury Tales, "General Prologue," ll. 276-277.
56. Sellar and Yeatman 1931, p. 94.

57. McKeon 1987 (2002), p. 201.
58. Appleby 1978, p. 22.
59. Appleby 1978, p. 41.
60. Temple 1672, Chp. VI
61. Montesquieu 1748, Book XX, sec. 7.

Chapter 28: And So the Chronology of Property and Incentives Has Been Mismeasured

That is to say, to return to the theme of North and Weingast's work, the innovations of the Financial Revolution in late seventeenth- and early eighteenth-century Britain have no important connection to secure contracting – not even, as North and Weingast somewhat desperately aver, as indirect “evidence that such a necessary condition has been fulfilled.”⁶² Frederick Pollock and F. M. Maitland's great book of 1895 was *The History of English Law before the Time of Edward the First*. By the year 1272, they (principally Maitland) showed, English common law was firmly in place – though of course the endogenous elaborations, such as statutes against perpetuities and a wider law merchant and the extension of the King's common law to all free-born Englishmen when they became in fact free-born, remained to be accomplished. Avner Greif begins his long-awaited book on the subject by reporting that “On March 28, 1210, Rubeus de Campo of Genoa agreed to pay a debt of 100 marks sterling in London on behalf of Vivianus Jordanus of Lucca. There was nothing unusual about this agreement. . . . Impersonal lending among traders from remote corners of Europe prevailed and property rights were sufficiently secure that merchants could travel.”⁶³ Exactly, and so also in China and the Middle East and South Asia. The Glorious Revolution brought no unprecedented rule of property law. It was a constitutional, not a common-law or statute-law, revolution. The earlier James of England (the first Stuart and the grandfather of the James deposed in 1688 for his proposal that Catholics might be tolerated), had reigned over one of the most law-dependent countries in Europe – though violent in duels and other affrays, and certainly not so peaceful as the Bourgeois Era would make it. English people went habitually to law, with all its delays, because it worked, and had for centuries.

North also praises patents. Many economists have been intrigued by the simple logic entailed: make innovation into property and, *voilà*, innovation will be pursued as routinely as is plowing or building. It is another attempt by economists to bring the most unusual event in human history under a routine of marginal benefit and marginal cost. Joel Mokyr has written a devastating essay surveying the historical evidence on the matter. He asks, “what could be wrong with this picture [painted by North and, from North, by Acemoglu and other

economists]? The answer is basically ‘almost everything’.⁶⁴ British patents were very expensive, a minimum of £100 (a respectable lower-middle class annual income at the time) and requiring many months of attendance on law courts in London. Therefore they were taken out as only one of many alternative ways of establishing ones credibility as an ingenious person – someone to be admired, and to be paid to do all sorts of engineering work, or to be given a governmental sinecure. Patents were considered undignified by many inventors, and were often treated with suspicion by judges, as constituting monopolies (as they do). Getting a head start in producing according to ones idea was then, as usually also today, better assurance of fame and fortune. Patents sound neat, but were not.

And North admires, too, “laws permitting a wide latitude of organizational structures,” such as incorporation laws. But general incorporation laws were passed only in the middle of the nineteenth century (the first in 1844), and were taken up unevenly – many companies were mere shells, or dissolved quickly. Businesspeople, it appears, were not much constrained by the earlier lack of permission to incorporate. As late as 1893 Gilbert and Sullivan were spoofing general incorporation, as a foolish flower of progress:

Some seven men form an Association
(If possible all Peers and Baronets),
They start out with a public declaration
To what extent they mean to pay their debts.
That’s called their Capital. . . .
When it’s left to you to say
What amount you mean to pay,
Why, the lower you can put it at, the better.⁶⁵

The anglophile king of Utopia, eager to adopt all the elements that “have tended to make England the powerful, happy, and blameless country which the consensus of European civilization has declared it to be,” inquires further: “And do I understand you that Great Britain / Upon this Joint Stock principle is governed?” To which Mr. Goldbury of the stock exchange replies: “We haven’t come to that exactly – but / We’re tending rapidly in that direction.”

And so an embarrassing North Gap in the explanation of an economic revolution opens up, fully 528 years in length calculated from 1800, 1800 minus 1272. Or else it is 100 negative years, 1800 minus 1844.

Legal developments in England that happened many centuries before or many decades after cannot explain the exceptional applied innovations of northwestern Europe 1700-1848. Security of property was a very old story in the England of 1600, as it was in the Chinese or Ottoman Empires at the same time. The depredations by the Stuarts were minor, if infuriating to the wealthier Londoners of a non-Conformist disposition. The merely prudential incentives to innovate were just as great in the thirteenth century as in the eighteenth. Property rights, that is, were pretty full at both dates. Money was to be made. (The fact is contrary to the Romantic and then Marxist-influenced tale that the feudal era knew not the use of money or property or wages or trade or capital.) As Alan Macfarlane declared in 1978, "England was as 'capitalist' in 1250 as it was in 1550 or 1750."⁶⁶

What actually changed between the thirteenth and the eighteenth centuries was, as Joel Mokyr puts it, "the mental world of the British economic and technological elite."⁶⁷ Indeed, the very idea that a mere inventor or merchant or manufacturer could be part of an "elite" was entirely novel in England in 1700, following the Dutch example of the Golden (and Gold-Earning) Age. What was new after 1688 in England was a new *honor* for trade. Hume had this right in 1741: "commerce, therefore, in my opinion, is apt to decay in absolute governments, not because it is there less secure, but because it is less *honorable*. A subordination of ranks is absolutely necessary to the support of monarchy. Birth, titles, and place must be honored above industry and riches."⁶⁸ (France was his instance of "absolute" government; he should have seen Russia.)

And even then the so-called "incentive" to innovate was plainly not only the making of money. Robert Allen asserts that "technology was invented by people in order to make money," and therefore that "invention was an economic activity."⁶⁹ No, it wasn't, not by any means entirely. Allen adopts a reductionism that has lately become a standard rhetorical move in Samuelsonian and Beckerian economics. In 1725 Bishop Butler complained about "the strange affection of many people of explaining away all particular affections and representing the whole of life as nothing but one continued exercise of self-love."⁷⁰ "It is the great fallacy of Dr. Mandeville's book," wrote Adam Smith in 1759, "to represent every passion as wholly vicious [that is, a mere matter of profit-making prudence and self-interest] which is so in any degree and any direction."⁷¹ Money mattered. But so did other motives. Joel Mokyr

emphasizes the glory of the game. Allen himself admits that patents for invention, though available in England from 1624 on, were in fact as I've noted little used, which would be odd if making money were all that was involved. And he argued long ago and persuasively, as also noted, that "collective invention" was often the ticket, which "divided the costs and pooled the gains," open source technology.²² Ben Franklin gave away his inventions, such as the lightning rod and the Franklin stove. So did Michael Faraday. Such examples argue against the reduction of innovation to cost and benefit. Thomas Carlyle, the scourge of the classical economists, remarked in 1829 that "with men: that they have never been roused into deep, thorough, all-pervading efforts by any computable prospect of Profit and Loss, for any visible, finite object; but always for some invisible and infinite one."²³

An economist who is thinking like an economist, instead of like a fourth-rate applied mathematician who knows only the use of Max U and Max's marginal balances, does not in fact find it so strange. Computable prospects would already have been discovered. Routine balances of profit and loss cannot have motivated the sudden, unique, and gigantic lurch forward 1700-1900. Or so the economist would argue if he believed classical or neo-classical or even Samuelsonian economics *after* equilibrium. The margin of cultivation did not move out by just a little bit – it leapt forward. *Illa humanitatis fecerunt saltum*. Human affairs made a jump.

A recent calculation by the ever-useful economist William Nordhaus reveals that nowadays an inventor gets a mere 2.2 percent of the economic gain from an invention: "only a miniscule fraction of the social returns from technological advances over the 1948-2001 period was captured by producers, indicating that most of the benefits of technological change are passed on to consumers rather than captured by producers."²⁴ The inventor had better get such a low share, or else economic growth would be a grim story of the Walt Disney Corporation getting richer and richer on its novelties, with no gain at all to we who do not own Walt Disney stock. The argument is another way of seeing that the Modern Jump cannot have been the result of the mere seizing of computable prospects of profit. Two percent of the entire social gain from the high-pressure steam engine is of course immense. But most inventions were, Mokyr note, "micro," that is, little improvements of existing inventions, not revolutions in the way of doing business. As Mokyr then says, "the standard pecuniary incentive system [which does

not in any case explain what it is meant to explain] was supplemented by a more complex one that included peer recognition and the sheer satisfaction of being able to do what one desires." "When one loves science," the chemist Claude Louis Berthollet wrote to James Watt, "one has little need for fortune which would risk ones happiness," though as George Grantham observes Berthollet was in fact paid well as a high civil servant.⁷⁵ Horace could not have put it better, or Adam Smith, the supposed prophet of profit, who declared the poor man sunning himself by the side of the road more happy than a prince. Weak incentives that were fully present in the thirteenth century cannot explain frenetic innovation in the eighteenth and nineteenth centuries.

* * * *

One way of getting around the North Gap and the feeble economistic "incentives" in North's argument and the strange assertion that the financial revolution after 1689 was just the same as the introduction of secure property rights is to emphasize the modern state as a source of growth. North would then join with the political scientist Liah Greenfeld in elevating nationalism to a cause of modern economic growth.⁷⁶ The Greenfeld hypothesis has the merit of *not* depending entirely on monetary incentives. People can innovate for the honor of Britain. Some few probably did. Rule Britannia.

But it is a different proposition to say, as North does, that "the state was a major player in the whole process."⁷⁷ Thank the Lord, I would say, it was not. State-guided growth was once highly thought of by economists and economic historians, and has always been popular among statesmen. In 1975, for the example, the eminent economic historian Marcello de Cecco wrote in praise of the "national economy" of Friedrich List (1789-1846), which sought a place in the sun for Germany outside the shade of the then-dominant British: "By adding dynamism and history to classical [i.e. Ricardo's] analysis, List obtains a strategy for fast economic growth that is perfectly suitable to the socio-economic conditions of countries which want to undergo a process of modernization."⁷⁸ So thought many in 1975, or in 1841 (*Das Nationale System der Politischen Ökonomie*). But in the meantime Listian policies such as protection for "infant industries" (such wailing infants as General Motors in 2009) and "import substitution" (in Latin America under the influence of the the Listian analysis of Raúl Prebisch [1959]) have proven unhappy in results. De Cecco goes on: "We can clearly see . . . [List's realization] of the impossibility of founding a modernization on

a bourgeois revolution, i.e. on the English model, and of the ensuing need to find a different ‘national way,’ based on collective action.” I say on the contrary that without something like a bourgeois revolution at least at the level of rhetoric no lasting modernization can happen. You can lead by “collective action” the Russian people into gigantic auto factories, but you can’t make them think. The Chinese and the Indians are embourgeoisifying. That’s the way forward.

My model on the contrary is of technological causation, the technology being caused by the coming of bourgeois dignity and liberty. Many who advocate industrial policy and other economic planning by experts would disagree. I would claim that such intervention by the state typically reduces what could be achieved by bourgeois dignity and liberty. It doesn’t have to. It’s a matter of fact, not pure theory. In some worlds it would not. On a blackboard one can prove, indeed, that state intervention to deal with externalities *will* improve the performance of an economy. But in the actual world, the actual interventions by actual states have usually not improved performance. Running an economy by the dictates of political pressure and the force of anti-bourgeois ideology has not normally led to decisions that were best for economic growth and for the future of the poor. Thus the Soviet Union after World War II kept its people anti-bourgeois, and poor.

North and Weingast’s article of 1989 praises the ability of the English and then British state to finance wars after 1694. They take it to be a Good Thing (except presumably from the French and Indian point of view). But financing wars is not the same thing – in fact, it is rather the opposite – of “the secure contracting over time and space” that North and Weingast anachronistically attach to the Financial Revolution.⁷⁹ Ask the British investors incommoded by the unanticipated starting and stopping of Britain’s long eighteenth-century struggle with France, 1692 to 1815, whether they felt secure in contracting. Interest rates bounced up and down, as did insurance rates for shipping, and demand for naval stores. Some security.

True, as I have repeatedly noted, contracting *with the British state* became more secure over time and space. But the state thus enabled can turn in a moment into a Frankenstein’s monster, and often has. North well understands the point, when he is not trying to connect the Glorious Revolution to the Industrial Revolution. Greenfeld sometimes appears not to emphasize it quite as much as a native Russian might. The change in rhetoric that up-valued bourgeois virtues, fortunately, kept the British

state from becoming an anti-bourgeois monster like the Russian state in 1649 or the French state in 1700 or the German state in 1871, or the Japanese state when it, too, in the late nineteenth century went on the gold standard and was suddenly able to finance wars of aggression. The Russian state after 1917, by contrast, was at least for a while confined by its inability to borrow massively abroad to merely domestic violence – until Hitler’s imprudent invasion brought American credits for the Soviets, and the West’s salvation, and Eastern Europe’s woe.

North nonetheless stresses “the extent [to which] the state was bound by commitments that it would not confiscate assets.”⁸⁰ We have seen the quantitative flaws in the North and Weingast claim that the Stuart kings of England were masters at confiscating their subjects’ wealth. It was a good thing, not a bad thing, that the Stuarts were in fact such tyros in expropriation, suffering the indignity of frequent breakdowns of their credit with bankers, and in 1672 actual bankruptcy. James I and II and Charles I and II were in fact stumbling amateurs by the standards of the modern bureaucratic state. Capitalists in the law-abiding, innovating United States were haunted in the 1930s, as the economic historian Robert Higgs has shown, by Roosevelt’s repeated gestures towards expropriating the economic royalists – which gained force by being promised at a time in which communist and especially fascist states had actually just done so.⁸¹ And in 1946-51 the very home since the year of Our Lord 1272 and before of credible commitments to secure property rights, England itself, proceeded to nationalize in succession the Bank of England, coal, inland transport, gas, steel, health services, and much else. Even under the Conservatives, who reassumed power in 1951, the nationalization was only partly overturned, and the wartime (and anti-capitalist) controls on prices persisted. After a failed attempt to lift controls on sweets in 1949, rationing of them was dropped at last in February 5, 1953, as every British person born between, say, 1941 and 1949 well remembers. And yet afterwards for a while in the land of original free enterprise the sugar itself continued to be rationed.

In his 1991 essay North has a canny section describing the different fates of the lands “north and south of the Rio Grande.”⁸² “The gradual country-by-country reversion to centralized bureaucratic control characterized Latin America in the nineteenth century.”⁸³ Yes, and then, thus enabled, in the twentieth century the Latin American states carried out disastrously Listian policies. In other words, the nation state has by no means always been good news for economic growth, and it is

doubtful that Greenfeld is correct to credit the Good Nation States (namely, Britain and the United States) with modern economic growth. The Japanese and German nation states would have been much better off economically in 1945 without having had their defeated nationalisms. We all agree that abstaining from violating property rights through seizing or taxing all the gains from trade is a necessary condition for any economic growth. Witness Zimbabwean agriculture in recent times. But refraining from catastrophic intervention in the economy is not the same as being in an admirable sense “a major player in the whole process.”

It does not seem, in short, that changes in “institutions” have much to do with the Industrial Revolution. On the contrary, institutional change appears to be still another attempt to reduce a great historical surprise to a materialist routine. As Tocqueville wrote in 1834, “all the efforts in political economy seem today to be in the direction of materialism,” and so they were 1890-1980. “I would like,” he continued, “to try to introduce ideas and moral feelings as elements of prosperity and happiness.”⁸⁴ Just so.

Notes

62. North and Weingast, p. 831, a page which rewards rhetorical study as an example of how to claim in the conclusion of an essay propositions that bear no connection to the evidence offered.
63. Greif 2006, p. 3.
64. Mokyr 2008, p. 3.
65. Gilbert and Sullivan 1893, Act I, pp. 537-538; and pp. 532, 539
66. Macfarlane 1978, p. 195.
67. Mokyr 2008, p. 94 ***or so.
68. Hume 1741; 1777 (1987), p. 93 ("Of Civil Liberty")
69. Allen 2006, pp. 2, 3.
70. Butler, Fifteen Sermons, 1725, Preface, p. 349.
71. Smith 1749 (1790) VII. ii. 4. 12., p. 312.
72. Allen 2006, p. 3, referring to Allen 1983. Nuvolari 2004 applies Allen's idea to Cornwall's pumping engines.
73. Carlyle 1829, quoted in Bronk 2009, p. viii.
74. Nordhaus 2004. The quotation is from the abstract.

75. All this is from Mokyr 2008, p. 95-97 ***or so. Grantham 2009, p. 4.
76. Greenfeld 2001.
77. North 1991, p. 107.
78. De Cecco 1975, p. 11.
79. North and Weingast 1989, p. 831.
80. North 1991, p. 107.
81. Higgs 1997, 2006.
82. North 1991, p. 110.
83. North 1991, p. 111.
84. Letter to Louis de Kergorlay, Sept. 28, 1834, quoted in Swedberg 2009, p. 3.

Chapter 29: And Anyway the Entire Absence of Property is not Relevant to the Place or Period

In his book of 1999, *Property and Freedom*, the historian of Russia Richard Pipes ventures on an analysis of seventeenth-century English history with a similar pro-market purpose as North's, whose guidance, alas, he acknowledges, à la Acemoglu.⁸⁵ Like North and many other historians, Pipes correctly attributes the supremacy of the English Parliament to a long series of accidents in the provisioning of the monarchy. Fiscal crises, such as Charles I's crisis over "ship money" imposed on non-maritime English cities, certainly did raise up the Mother of Parliaments, for which we praise God. But Pipes, like North, then slips into the claim, which we have seen is foggily seconded by a few economic historians themselves, that the constitutional innovations of the very late seventeenth century were somehow connected with the Industrial Revolution. Indirectly they surely were, by way of the resulting freedom of discussion that made first Holland and then England into lands of innovation. But North and Pipes (and Ekelund and Tollison and Wells and Wills and Acemoglu and others who keep springing up to offer evidence beside the point), by contrast, want to claim that an alleged perfection of property rights in the late seventeenth century improved incentives. Back to Max U and the constraints on his asylum/institution.

The reason Richard Pipes, though, falls into the error of overemphasizing the Glorious Revolution is not a Northian compression of chronology but an irrelevant comparison. Quite understandably, since Russian history is his profession, he has always in mind the dismal Russian case. True, Pipes depends on surprisingly elderly historical opinion for his allegedly widespread examples outside Russia of "patrimony" – that is, in Pipes' usage, the literal ownership of the nation by the king, contrary for example to the history of China (except for the First Emperor or the early Mongol period or other and rare upheavals) or, for that matter, the history of the ancient Israelites. His references are centered on the 1920s, and likewise throughout his book for all manner of non-Russian facts.⁸⁶ (He justifies his dependence on histories quite early in the professionalization of history with the surprising doctrine that historical knowledge does not advance.)⁸⁷

But at least on Russia he can be taken without too many grains of salt. He argues persuasively that the development of private property was short-circuited in Russia by the Mongol invasion of 1237, which subordinated the princelings of Muscovy in the two centuries afterwards to the Golden Horde, called "Tartars." When it first took direct control, the Horde governed from its camps on the lower Volga by absolute terror, as is the habit of conquering nomads, and brooked no countervailing powers or property rights. A Timur the Lame making pyramids of 70,000 skulls in Isfahan — who by the way damagingly sideswiped the Golden Horde in 1395 on the way to his own conquests — typifies nomad warfare, reintroduced in another key by the Germans and Japanese and the Russians themselves in the 1940s.

Pipes argues that the grand princes of Muscovy and their heirs after 1547, the tsars of all the Russias, learned "patrimony" from the Mongols. Without the Mongols the old commercial tradition of Novgorod would have triumphed, he says, as similarly bourgeois habits did elsewhere in Europe. But unhappily the bourgeois habits lost out, and instead in 1478 a warlike and property-despising Muscovy annexed Novgorod, and a century later Ivan the Terrible methodically dispersed its bourgeoisie. As the leading historian of early modern Russia, the late Richard Hellie, put it, "by 1650 Moscow [that is, the Tsar personally] had nearly complete control over two of the major economic factors, land and labor, and had substantial control over the third, capital, as well."⁸⁸ In early modern times the Russian state enserfed the peasants just when serfdom was eroding in Western Europe. The Law Code of 1649 repealed a statute of limitations on recovering runaway serfs (compare the year-and-day custom in the West — city air makes one free). The Code "legally stratified the rest of society," Hellie noted, "thus giving the government control over nearly all of Russia's labor."⁸⁹

"The rest of society" included its top. A mercantilist Peter the Great, and even an enlightened and physiocratic Catherine the Great, says Pipes, treated everyone in Russia from lowest to highest as in effect serfs. It was, as one aristocrat put it, "despotism tempered by assassination" (of Peter III, Paul I, Alexander II, Nicholas II). So long as the tsar survived the dagger or the pistol, everyone's property was at his disposal. Acemoglu's erroneous belief, acquired from North, that in *Western* Europe "economic institutions also ensured that the monarchs controlled a large fraction of the economic resources in society," is correct for Russia — but nowhere else in Europe. Once William the

Conqueror divided up the land of England among his followers, they owned it, though “of” the king. The aristocrat paid knight service, as the serf paid six capons, but knight and peasant owned the land, and bought and sold it with enthusiasm. Even the arrogant Prussian dukes-margraves-kings were limited by property and customary law. But a great Russian lord, however arrogant and French-speaking, was still merely of the “service” class.

The Pipes history of Russia fits smoothly with that of “the Steppe and the Sown” (as the title of a famous book in 1928 expressed it).⁹⁰ Historians such as Peter Perdue (2005), William McNeill (1964), Owen Lattimore (1942), back to the Muslim historian Ibn-Khaldun (1377) – with the example of Timur literally before him – have emphasized the role played again and again by conquerors from the steppe.⁹¹ Perdue notes “that like good bank robbers, nomadic state builders went where the wealth was. As China centralized under a new dynasty [sometimes itself descended from the Steppe], a nomadic state often rose along with it.”⁹² The stolid agriculturalists of Mesopotamia or Rome or the Ganges Plain or China or the Indus Valley were repeatedly subject to waves of barbarians on horses (or from dry areas, camels) riding out of central Asia, with a nautical variation on the theme around the edges, such as the barbarous Sea People in the Eastern Mediterranean in the late second millennium B.C.E. or the barbarous Vikings in Europe in the late first millennium of our era.

Richard Hellie argued that Russia became in response a “garrison state,” a modern version of Sparta, partly because the remnants of the Golden Horde “raided Russian ceaselessly in a search for slaves. . . . Had Moscow not taken effective countermeasures, all its population would have been sold through the Crimea into the slave markets of the Middle East and the Mediterranean.”⁹³ In 1942 Owen Lattimore wrote, again, that “the Manchu conquest of China in the seventeenth century was the last rush of the tide [he spoke in watery metaphors of a ‘reservoir’ of ‘border nomads’ sophisticated in the ways of both steppe and sown] whose ebb and flow along the Great Wall Frontier had been so important in working the mechanism of Chinese history.”⁹⁴ Until the time of the disintegration of the Golden Horde and the decline of Mughal power in India and finally the conquest of the Mongols and other central Asian threats by the Qing Chinese – that is, until the coming of massed and disciplined gunpowder infantry – the wild horsemen ruled from time to time, and sometimes for quite a long time (Ibn-Khaldun reckoned their

time as forty years). If they did not become conquered in economic ideas by the city-dwelling proto-bourgeoisie they had conquered, which was what usually happened, they brought the propertyless rule of the Steppe along with them. That is Pipes' grim claim for Russia. The Russian tsar (called today "the president," or sometimes the "prime minister"), he argues, owned everybody, all the way up to princes of the blood and arrogant oil millionaires. "Muscovy has tried to leave its despotism," wrote Montesquieu. "It cannot."⁹⁵ Property there was no independence, as in the lands of the Sown it came gradually to be by immemorial custom.

The case of India's Mughal emperors, ruling from 1526 until the British Raj, is instructive. They were descendents of Timur, and never lost the conviction, it is said, that having conquered northern and then all of India they owned it outright, lock, stock, and barrel. Mughal India was glorious in many ways. Yet innovation, except to serve the tastes of the Emperor and his present selection of favorites, had a thin market. South Asia, though in 1526 in many parts much more sophisticated economically than the Western infidels, remained poor while Europe began to innovate. The conventional view of the Mughals is that every citizen from highest to lowest was subject to having all his wealth taken in a trice — in order, say, to construct the Taj Mahal to commemorate the Emperor's favorite wife. True, recent work has suggested that "earlier estimates of one-third to one-half or more [of national income flowing to the state are questionable]. . . thereby raising the issue of whether the Indo-Muslim state was, in fact, the crushing Leviathan that it has been made out to be. . . . There was . . . the growth of property rights in land."⁹⁶ And after all, Bengali textiles were the wonder of the eighteenth-century world.

* * * *

But all this interesting historical assertion, whether true or false or merely Memorable, is irrelevant to explaining a change in Europe 1600-1800, or 1300-1900. The sad Russian and Mughal cases teach us that private property is essential for human flourishing beyond the patriarch's tent. They usefully warn against a socialism that analogizes to a whole nation an idealized family (and in practice often an abusive family) — such as Papa Joe Stalin, the pipe-smoking father of the nation. But in places like Holland and Britain and France in 1600 the private property of people was solid, and sold, and neither the father nor the mother of the nation could seize it without due process of law.

Pipes himself points out that for all the talk of the divine right of kings in Western Europe in the seventeenth century, no monarch west of Russia believed he literally *owned* his subjects. Thomas More in 1516 had one of his characters in *Utopia* complain that bad counselors tell the king “that all property is in him, not excepting the very persons of his subjects: and that no man has any other property, but that which the King out of his goodness thinks fit to leave him; . . . that . . . it were his advantage that his people should have neither riches nor liberty; since . . . necessity and poverty blunt them, make them patient, beat them down, and break that height of spirit.” But, he declares, “I should rise up and assert, that such councils were both unbecoming a king, and mischievous to him: and that not only his honor but his safety consisted more in his people’s wealth, than in his own; if I should show that they choose a king for their own sake.”⁹⁷ He might have added that English kings were anyway subject to law, and the bad counsel was therefore an irrelevant wish for a patrimony not in the English cards. In 1649 Charles defended himself against the Rump Parliament in the trial for his life in 1649 by declaring, quite truly, that “pretend what you will [oh Parliamentarians], I stand more for their [i.e. the people’s] liberties. If power without law may alter the fundamental laws of the kingdom [for example, by executing an anointed king], I do not know what subject he is in England that can be sure of his life, or *anything he calls his own*.”⁹⁸ At his hour of execution he said again that English law protected property against anyone, King or Commons: “liberty and freedom consists in having of government those laws by which their life and their goods may be most their own.” Certainly in England, and even in “absolutist” France, private property was itself absolute against the king.

It is therefore misleading of Pipes to declare in the style of North, and contrary to his own evidence just assembled, that “thus, *in the course of the seventeenth century*, it became widely accepted in Western Europe that there exists a Law of Nature . . . [and that] one facet of the Law of Nature is the inviolability of property.”⁹⁹ It is true that more people *said* it in the seventeenth and especially in the eighteenth century, for which we are glad. Saying matters. But Pipes himself shows that the idea and especially the practice was already many centuries old, in English law, in the writings of Aquinas, and, as he notes in the paragraph preceding his Northian and behavioral declaration, in those of Seneca of Rome. Pipes had just argued that even Jean Bodin, the influential French theorist of absolutism and of the divine right of kings, declared in 1576 that private

property was a law of nature, secure against the grandest sovereign, citing Seneca to the same effect.¹⁰⁰ Bodin posits no serf or service class owned by a Timur or an Ivan the Terrible. A Frenchman of the late sixteenth century was no item in the baggage of a propertyless nomad of the Steppe.

In some ways modern economies — with their gigantic governments spending half of national income, and regulating still wider fields of economic activity — create less, not more, security of property than a feudal economy with diffuse centers of power, or than an early modern state such as Stuart England with a less-than-impressive ability to tax. The fact is an historical irony on which Pipes and North and Harold Demsetz and I would doubtless agree. An American state armed with the doctrine of eminent domain and the power to tax incomes at combined rates of 35 percent, not to speak of unusual definitions of torture and the ability to tap telephones, and having a passionate desire to limit people's consumption of recreational drugs, looks at least in the matter of state power more, not less, like the Muscovy of old than did, say, France in 1576. The economist Milton Friedman was fond of saying, "Just be glad you don't get the government you pay for."

To quote again the far-sighted Macaulay in 1830, against Robert Southey's proto-socialism: Southey would suggest that "the calamities arising from the collection of wealth in the hands of a few capitalists are to be remedied by collecting it in the hands of one great capitalist, who has no conceivable motive to use it better than other capitalists, the all-devouring state."¹⁰¹ But in Western Europe in 1200 or 1700 a right to property that protected in Lockean fashion against an all-devouring state was nothing new. Roman law had protected property very well, and the Roman state took little more than English Stuart's shares of national income for its purposes, 5 percent.¹⁰² The Mughal state, by contrast, erected on a principle of patrimony that would look reasonable to a tyrannical socialist state nowadays, is asserted (we have seen that the assertion might be wrong) to have taken 50 percent.

Ownership anyway is not a modern idea and not an exclusively bourgeois idea, though the town-dwellers have worked most vigorously to extend the meaning of "property." Feelings of private property are hard-wired into humans, or so anyone who has raised a two-year old would attest. Little Daniel needs to be *taught* to play nice and to share in a sweetly socialist way — his instincts are brutally selfish, the worst of capitalism, very much more interested in Mine than in Thine. The

economist Herbert Gintis speaks of a “private property equilibrium,” noting that “preinstitutional ‘natural’ private property has been observed in many species, in the form of the recognition of territorial possession.”¹⁰³ Indeed, a classic 1976 paper in evolutionary biology by John Maynard Smith and Geoffrey A. Parker spoke of an evolutionary stable strategy as “bourgeois” (following the marxoid assumption widespread among the clerisy of the day that so far as humans are concerned private property is a new and novel stage of history) if existing property among animals was used to settle disputes. A speckled wood butterfly, *Pararge aegeria*, intruding in a wood on a patch of sunlight on ground already the property of another speckled wood butterfly would be inclined by evolution to yield. Gintis makes the Smith-Parker argument more precise and brings to bear other evidence that animals and two-year old humans in fact have incentives to take a “bourgeois” attitude towards property, whether or not Leviathan enforces property rights.¹⁰⁴ And repeatedly it has been observed that when property comes to matter — that is, when the beaver or the acre of land or the right to take water from the Colorado River becomes valuable enough that its misallocation would cause substantial social loss — even a communalist or tyrannical government will often start enforcing its privateness.¹⁰⁵ It does so unless, indeed, it is under the influence of some anti-bourgeois rhetoric, such as the fierce personal loyalty of the Steppe horseman to his chief, or the collectivist, Romantic, post-Christian, and pseudo-familial dreams of nineteenth-century Europeans, bearing fruit in twentieth-century authoritarianism of *der Führer* or the General Secretary.

As an example of the scientific missteps in this literature, consider the famous “tragedy of the commons” on which in 1968 Garrett Hardin wrote (in aid, it should be remembered, of an authoritarian proposition usual in his time — and persisting still among radical environmentalists — that freedom to have a family is intolerable and that population policy should be, as he put it, “mutual coercion mutually agreed upon”).¹⁰⁶ True, as Hardin asserted, if villages in Europe allowed the common fields to be overstocked, there would be a loss of efficiency, because the sheep and cattle would tread down the grass, and eat up the early shoots renewing it. But the villagers in question, not surprisingly, understood the point as well as modern academics do, maybe even better, and to prevent the loss they introduced limitations (“stinting”). The loss from not stinting the commons would be gigantic at small numbers of grazers if, as Hardin

assumes, each grazer acts as a Cournot oligopolist, that is, if he idiotically ignores the response of others when he puts an extra cow on the commons.¹⁰⁷ Hardin admits that “in an approximate way, the logic of the commons has been understood for a long time, perhaps since the discovery of agriculture or the invention of private property in real estate.” Perhaps. And perhaps it was understood even among hunter-gatherers irritated by the overharvesting of deer by a competing tribe. Hardin’s sole empirical argument for the relevance of his posited régime of non-property-even-when-it-matters is that still “at this late date, cattlemen leasing national land on the Western ranges demonstrate no more than an ambivalent understanding, in constantly pressuring federal authorities to increase the head count to the point where overgrazing produces erosion and weed-dominance.” Of course they do: they are farming the government, not merely the pastures, and the public lands are therefore nowadays overgrazed. But in olden days, such as the days of open-field agriculture, the land was private or was regulated when it mattered. And in any case, as the political scientist Elinor Ostrom has shown repeatedly, people cooperate, too: they do not always defect from the common good, as assumed by Hardin.¹⁰⁸ It is one of the main findings of experimental economics that people cooperate much more than the prudence-only model Hardin was using would imply. Anyone who troubles to examine local regulations or legal cases in the not-so-wild West, or in English villages in the fourteenth century, will find stinting enforced.¹⁰⁹ Hardin, though an impressive scholar in some other ways, appears not to have looked into the evidence.

Likewise, if you look into the national and local regulations and legal cases in thirteenth century England you will find private property enforced – and never mind the alternative of “preinstitutional ‘natural’ private property” enforced by shame and ostracism that Gintis talks about. North, though an impressive scholar in some other ways, appears not to have looked into the evidence. The legal historian Harold Berman, whom North might have consulted, and on whom Pipes wisely depends, has no doubts on the matter: “Modern English, German, French, Italian, Swedish, Dutch, Polish, and other national European legal systems were initially formed in the twelfth and thirteenth centuries under the influence . . . of the new canon law. . . [and] of the discovery . . . [of] Justinian’s Roman law and of the parallel . . . development of systems of [law] . . . not covered by canon law,” such as the law merchant. The medieval foundations survived. “For example,” Berman goes on to say,

“the elaborate rules of contract law and of credit transactions . . . survived successive economic changes and were an essential foundation of the laissez-faire capitalist economy that emerged in the nineteenth century.”¹¹⁰

Part XII. Science, Bourgeois Dignity, and the Industrial Revolution

Abstract

What happened to make for the factor of 16 were new ideas, what Mokyr calls “Industrial Enlightenment.” But the Scientific Revolution did not suffice. Non-Europeans like the Chinese outstripped the West in science until quite late. Britain did not lead in science – yet clearly did in technology. Indeed, applied technology depended on science only a little even in 1900.

Chapter 30: The Cause was Not Science

We are back to what actually happened 1700-1848, and then on to 2010 and beyond, a rise of income per person by a factor by the end, let us say very conservatively, of 16. The happening was recognized slowly in the twentieth century. Among many economists and economic historians the recognition slowly killed the notion that thrifty saving was the way to massive and colossal productive forces. In 1960 the economist Friedrich Hayek questioned “our habit of regarding economic progress chiefly as an accumulation of ever greater quantities of goods and equipment.”¹

So: it was not capital. Nor was it any such thing. It was not for example the better allocation that comes with better institutions, or commercialization. Yet even many good economists could not grasp that static allocation is not the key to the success of market societies. Nice though it is, efficiency – making supply equal to demand – is not the main point. Innovation is. The inefficiency of democratic socialist regimes, therefore, is a pity, but it has not yet been a catastrophe either politically or economically. It has *not* led down the road to serfdom, which is why Western Europe’s moderate version of socialism has proven viable.² True, empirically, as a contingent fact about human nature, the dignities and liberties of the bourgeoisie do result in more innovation. But the “social market economies” of Finland and Holland continue to deliver pretty well, because they do not rigorously assault the dignities and liberties. The supply curves keep moving out in Holland and Sweden.

It could be, conceptually, that the nature of man under the other, more rigorous socialism – central-planning, zero property, shoot-the-bourgeoisie socialism – would result in such a rise in public spirit, say, or such a reduction of alienation, that desirable innovation would flourish, and the supply curves move out. Since nothing would stand in the way of the use of the Caspian Sea for irrigation, all would be well, and no destruction of the environment would result. The Public Good would be served by consulting the *Volonté General*. But the evidence is in, and it speaks unambiguously. Serf socialism *is* a catastrophe and probably always will be. In 1917 one might reasonably have believed that a society without an admired and enabled bourgeoisie would in fact

innovate more than one with the appalling bourgeoisie in power, and thereby socialism would pull the poor out of their poverty. By now the belief that Stalinism is Good For You is unreasonable. “Communist” China innovates, but does so precisely in its capitalist, bourgeois-admiring parts, only. Elsewhere it constructs by government fiat great armies to crush dissent and great dams that will silt up in twenty years.

All right. Again: what then explains innovation?

New thoughts, new habits of the mind, what Mokyr calls the “industrial Enlightenment.” “The rise of our standard of living,” wrote Hayek, “is due at least as much to an increase in knowledge” as to accumulation of capital.³ The great economist Simon Kuznets, notes his student Richard Easterlin, believed that “the ‘givens’ of economics – technology, tastes, and institutions – are the key actors in historical change, and hence most economic theory has, at best, only limited relevance to understanding long-term change.”⁴ Mokyr and Goldstone and Jacob and Tunzelmann and I and some others would go one step further, to ideas. It was ideas of steam engines and light bulbs and computers that made Northwestern Europe and then much of the rest of the world rich, not new accumulations from saving. As Nicholas Crafts wrote: “The hallmark of the Industrial Revolution was the emergence of a society that was capable of sustained technological progress and faster total factor productivity growth.”⁵ The new society was one of innovation.

* * * *

Many scholars with whom I agree on many other points, however, think that it was in particular the ideas of the Scientific Revolution that caused the innovation.⁶ Lay people (not the scholars) speak loosely in a portmanteau phrase of “science-and-technology” making us better off. The phrase makes it possible to ignore the political and social change, the bourgeois Revaluation, that put the science to work. There’s politics in it. With “science-and-technology” as the explanation of the modern world one can sit comfortably on the left, for example, and contrary to the opinion of Marx and Engels will not need to admit that the bourgeoisie has created more massive and colossal productive forces than have all preceding generations. Or one can sit comfortably on the right, too, and admire the aristocratic genius of the Great Scientists – not the alertness of the mere vulgar businesspeople who made the science economically relevant. Combining “science-and-technology” in one hurriedly pronounced phrase mistakes the past, certainly, and much of the present,

justifying a worshipful attitude towards science that is not entirely *economically* justified. The phrase needs to be broken in two. Science. Technology.

In one respect I am inclined to agree with the Science-Did-It scholars, and even the Science-and-Technology lay people, because the impulsive force is then ideas rather than matter alone. As Richard Easterlin put it, “the growth of scientific knowledge [he instances biological discoveries improving public and then private health] has been shaped much more by internal [that is, intellectual] factors than external factors such as market forces.”^z

But of course one problem that has to be faced by advocates of science is that Chinese and at one point Islamic science and technology, separately and together, were superior to Western in every way, and yet resulted in no industrial revolution. Another is that the inspiring discoveries of a Newtonian clockwork universe, and the great mathematization in Europe of earthly and celestial mechanics in the eighteenth century, had practically no direct industrial applications until the late nineteenth century at the earliest. The historian of technology Nathan Rosenberg noted that “before the twentieth century there was no very close correspondence between scientific leadership and industrial leadership,” instancing the United States, which had negligible scientific achievement around 1890 and yet industrial might, and Japan, ditto, around 1970.^s

Mokyr concludes that “the full triumph of technology was only secured after 1870 with the arrival of cheap steel, electrical power, chemicals, and other advances associated with the second Industrial Revolution,” and associated sometimes with science.⁹ “Cheap steel,” though, is not a scientific case in point. Tunzelmann notes that even in the late nineteenth century “breakthroughs such as that by Bessemer in steel were published in scientific journals but were largely the result of practical tinkering.”¹⁰ My own early work on the iron and steel industry came to the same conclusion. Such an apparently straightforward matter as the chemistry of the blast furnace was not entirely understood until well into the twentieth century, and yet the costs of iron and steel had fallen and fallen for a century.

The economic heft of late-nineteenth-century innovations that did *not* depend at all on science (such as cheap steel) was great: mass produced concrete, for example, then reinforced concrete (combined

with that cheap steel); air brakes on trains, making mile-long trains possible (though science-dependent telegraph was essential to keep them from running into each other); the improvements in engines to pull the trains; elevators to make useful the tall reinforced concrete buildings (though again science-based electric motors were better than a steam engine in every building more than four storeys tall, though the “science” in electric motors was hardly more than noting the connection between electricity and magnetism); better “tin” cans; faster rolling mills; the linotype machine; cheap paper; and on and on and on.¹¹ In 1900 the parts of the economy that used science to improve products and processes – electrical and chemical engineering, chiefly, and even these sometimes using science pretty crudely – were quite small, reckoned in value of output or employment. And yet in the technologically feverish U.K. in the eight decades (plus a year) from 1820 to 1900 real income per head grew by a factor of 2.63, and in the next eight decades “scientific” decades only a little faster, by a factor of 2.88.¹² The result was a rise from 1820 to 1980 of a factor of $(2.63)(2.88) = 7.57$. That is to say, since 2.63 is quite close to 2.88, nearly half of the world-making change down to 1980 was achieved before 1900 – in effect, before science. This is not to deny science *afterscience*: the per capita factor of growth in the U.K. during the merely twenty years 1980 to 1999 was fully 1.53, which would correspond to an 80-year factor of an astounding 5.5. The results are similar for the United States, though as one might expect at a more frenetic pace: a factor of 3.25 in per capita real income from 1820 to 1900, 4.54 from 1900 to 1980, and about the same as Britain after 1980.¹³

But understand the main point here: even today a great deal of economic growth in a country has little or nothing to do with science. The spread of economic growth to places like Brazil or Russia or India or China uses some science-based technologies, but uses also a great many merely *technology*-based technologies free of much input from science (I offer again reinforced concrete). And the international spread of growth has on the contrary intensively used the social “technology” of bourgeois dignity and liberty.

I do not deny that economic growth nowadays depends to some degree on science. We are all very thankful for the physical and biological scientists among us – though observing that most of them work on problems that will never bear technological fruit (an extreme case being modern pure mathematics, such as number theory). But I do deny that modern enrichment by an unprecedented and Malthus-

denying factor has been heavily dependent on the physical and biological sciences. Just as Britain in 1850 was far from exclusively a steam-driven cotton mill, so the world now is very far from a computer-driven automatic lathe. Strictly speaking a world without modern electrical, electronic, chemical, agronomical, aeronautical, or for that matter economic science would still be very much richer than the world of 1800.

Tunzelmann also notes that Britain was not “particularly conspicuous as a leader in science,” which is to say, propositional as against applied science and especially technology. Scientific advance was pan-European from Copernicus to Carnot, and then became strikingly German. Yet the Industrial Revolution of the eighteenth and early nineteenth century was strikingly British, and despite the mistaken rhetoric of late Victorian “failure” the British continued into the late nineteenth and indeed into the twentieth century to be great innovators. It is conventional to observe in explanation that unlike the French or Germans the British were not significant theorists (with rare if glorious exceptions like Newton, Darwin, Maxwell, Kelvin, Hawking), but that they were very significant tinkerers and muddlers through. Technologists.

Goldstone defends the science-based argument this way:

The distinctive feature of Western economies since 1800 has not been growth per se, but growth based on a specific set of elements: engines to extract motive power from fossil fuels, to a degree hitherto rarely appreciated by historians; the application of empirical science to understanding both nature and practical problems of production; and the marriage of empirically oriented science to a national culture of educated craftsmen and entrepreneurs broadly educated in basic principles of mechanics and experimental approaches to knowledge. This combination developed from the seventeenth to nineteenth centuries only in Britain, and was unlikely to have developed anywhere else in world history.¹⁴

One can agree especially with the “since 1800” specification. The economic historian George Grantham has argued that the real economic payoff from Continental science – chemistry and plant science in particular – came as a result of the massive up-scaling of science in the German universities during the 1840s, allowing the training of hundreds of careful experimenters and theorists, some of whom made breakthroughs such as the discovery of the carbon ring. Until then Continental science had been pursued mainly an aristocratic hobby. “For science to develop on a wide base, it could not continue to rest on a small number of wealthy persons supporting themselves in a life of research.

The growth of organized science thus implied an institutional structure in which researchers are salaried.”¹⁵ “From an intellectual standpoint,” Grantham concedes, “the Scientific Revolution takes its roots in the breakthroughs of the seventeenth century.” But “from the institutional perspective, the Revolution belongs to the nineteenth.”¹⁶ Without a doubt Western science eventually pays off to some degree economically. Look around at your light bulbs and TV sets and synthetic fibers and cell phones and ample food supply, and offer up prayers of thanksgiving to the physical and biological scientists. But the payoff was late in modern economic growth, and it would not have had such consequences without dignity and liberty for the bourgeoisie.

The relative price of bourgeois standing changed, and made for large innovation in total. In doubting with Tunzelmann and me that theoretical science had much to do with the Industrial Revolution, Robert Allen quotes a fine passage from an author whom Adam Smith and I do not much admire, Bernard Mandeville, in 1714. The people who merely “inquire into the reason of things,” declared Mandeville, are “idle and indolent,” “fond of retirement,” and “hate business.”¹⁷ Until 1871 Oxford and Cambridge excluded Nonconformists (that is, non-Anglicans such as Quakers, Unitarians, Baptists, Congregationalists, and later in great numbers Methodists), which left the dissenting academies to give Nonconformist children an education that did not inspire the hating of business, or favor retirement in studying the argument from design or the three forms of indirect speech in Attic Greek. From around 1700 the Scottish universities took a practical turn, notes Alastair Durie, and were “not merely concerned with the niceties of theology but endeavored to relate scientific enquiry to industrial application.”¹⁸ Theology itself in Britain joined enthusiastically with Newtonian science, whether inside or outside the universities. Scottish intellectuals invented a *social* “natural theology” in parallel with the physical one of their English neighbors, one step towards the Scottish discovery of economics.¹⁹

Celestial mechanics and anti-clericalism, in other words, could not by themselves have revolutionized Europe, any more than the great lead in science until 1600 or so by China and the Muslim world had revolutionized them. Mere curiosity and originality by a handful of Galileos and Newtons does not an industrial revolution make. Mandeville’s dialogue again: “*Horatio*: It is commonly imagined that speculative men are best at invention of all sorts. *Cleomenes*: Yet it is a mistake.” It is impossible to imagine our world view without Galileo’s

Dialogo or Newton's *Principia* or Hutton's *Theory of the Earth* or Darwin's *Origin of Species*. But it is easy to imagine our industry up until about 1900 without them. The new dignity and liberty for the bourgeoisie were essential. Greece's invention of most of the arts and sciences (with borrowings from eastern sources), and its partial freedom to doubt the gods, had not revolutionized the Greek economy or enriched its poor. Ancient Greek society despised physical work as slavish and womanly, and devalued gadgets (with Archimedean exceptions), and above all looked down on the bourgeoisie. French science in the eighteenth century depended notably on aristocrats such as Lavoisier and Laplace and Georges-Louis Leclerc, Comte de Buffon, retaining a glorious and axiomatic impracticality imparted first by Descartes. As Jacob emphasizes, "the aristocratic character of French scientific institutions" was in sharp contrast to the workmanlike and practical tone in Britain.²⁰ Science in the Anglophone world depended much more on bourgeois, working, experimental figures like Newton or Priestley or Franklin or Hutton or Davy or Thomson.

And scientists, by the way, are not always harbingers of progress. After all, a little after the stirrings of dignity for the bourgeoisie and its world-changing innovations, the most advanced scientists and the most Enlightened thinkers commonly became the most virulent enemies of economic innovation, and often the most virulent enemies, too, of the freedom to have children or the freedom to speak one's mind or the freedom to live outside of a gulag. Consider, to take apparently hard cases, the much-admired geneticist and statistician R. A. Fisher (1890-1962), who passionately supported a racist eugenics; or the also-much-admired ecologist, as I have said, Garrett Hardin (1915-2003), who passionately supported compulsory sterilization. Though often very nice, the scientists and atheists — the two are not the same — are not automatically the best friends of human dignity and liberty.

The crux around 1700 was not the new sciences about anatomy and astronomy (neither of which much affected industrial development), but the new rhetoric about bourgeois innovation. True, some little of the New Science improved industry, as Jacob has argued for hydrology. Yet what mattered for the scale of innovation in total, Mandeville argued, is not to have scientists, but to have masses of "active, stirring, laborious men, such as will put their hand to the plow, try experiments [there's the scientific attitude], and give all their attention to what they are about."²¹

And especially what matters is that the rest of the society honor and liberate such people.

Jacob and Mokyr would reply that such active people of whatever class were increasingly merged with the scientists. Mokyr for example argues that “eighteenth-century Britain was what we may call a technologically competent society. It was teeming with engineers, mechanics, millwrights, and dexterous and imaginative tinkerers who spent their time and energy designing better pumps, pulleys, and pendulums.”²² In the English-speaking world, however, such practical savants attended to business, and that is the main point. Mokyr continues: “Even wealthy landowners and merchants [in Britain] displayed a fascination with technical matters.” Yes. In 1752 an elaborate diagram of the “Yorkshire maiden” washing machine, which was in actual use, was displayed in the January 1752 edition of *Gentleman’s Magazine*. Note: by then “gentlemen” had long been presumed in Britain to have an interest in mechanical devices other than machines of war. The very word “engine,” which had once named hunting snares and then catapults and siege engines, comes by 1635 to name civilian machines, and gives rise by 1606 to “engineers” and their flourishing in England and Scotland and America and France towards 1800. It climaxes in the lives of the engineers, devoted to profitable (and unprofitable) projects of industrial design, experimenting madness. Henry Maudslay (1771-1831), for example, an English working class boy who became prosperously bourgeois, and redesigned machine tools, came upon the problem of screw-making. In the immortal words of the historian of the lathe, one Holtzapfell, “Mr. Maudslay effected nearly the entire change of screw making . . . to the modern exact and scientific method. . . . and he pursued the subject of the screw with more or less ardor and at enormous expense until his death.”²³

Notes

1. Hayek 1960, p. 42.
2. Berman 2006.
3. Hayek 1960, pp. 42-43.
4. Easterlin 1997, p. 8.
5. Crafts 2004 (2005), p. 10 of manuscript.

6. The classic statement for science as the cause is Musson and Robinson 1969 and Musson 1972, but I refer here especially to later work by Jacob, Mokyr, and Goldstone.
7. Easterlin 1995 (2004), p. 99.
8. Rosenberg 1978, pp. 282-283; compare Rosenberg 1982, p. 13.
9. Mokyr 2007a, p. 30.
10. Tunzelmann 2003, p. 86.
11. See for example on cement Prentice 2008.
12. Maddison 2006, pp. 437, 439, 443, in 1990 international Geary-Khamis dollars, uncorrected for improved products à la Nordhaus.
13. Maddison 2006, pp. 465, 466, 467.
14. Goldstone 2002b, abstract.
15. Grantham 2009, p. 13.
16. Grantham 2009, p. 5
17. Allen 2006, p. 14 of manuscript, quoting Mandeville, Vol. II, "Third Dialogue," p. 144.
18. Durie 2003, p. 458.
19. The economist and theologian Paul Oslington has argued so to me.
20. Jacob 1997, p. 108.
21. Mandeville, Vol. II, "Third Dialogue," p. 144.
22. Mokyr 2003, p. 50.
23. Bowden, Karpovich, and Usher 1937, p. 311. By the way, I believe the historian gets the date of Maudslay's death wrong-but after all he did not have the advantage of Google and Wikipedia other modern aids to high-class scholarship.

Chapter 31: But Bourgeois Dignity and Liberty Entwined with the Enlightenment

One can agree with Goldstone, who in defending the new-old view of Margaret Jacob and Joel Mokyr that Science Did It, writes that “what transformed [European] production was a generalized belief in the possibility . . . of progress. . . . The longstanding traditional barriers between upper-class philosophers, market-driven entrepreneurs, large-scale industrialists, and skilled craftspeople and technicians dissolved, so that all of these groups came together to initiate a culture of innovation.”²⁴ But then it is not science but the “breakdown of traditional barriers” – precisely the coming of a business-respecting civilization – which is the crux. The widening belief that the physical and therefore the social world can be changed, and is not frozen in a Great Chain of Being, might be attributed in part to science, though the Reformation and the Revolutions and above all the Revaluation surely figure, too. And one could just as well believe that a Newtonian universe would be worshipped instead for its clocklike stability, with conservative social conclusions. Jacob has taught us that Newton himself drew such conclusions.²⁵ The success of business projectors, whether bourgeois or aristocratic, was surely more effective than science in showing people that they too, and not only God’s grace and miracles, could change things. By the middle of the eighteenth century the literary man Samuel Johnson, though a Tory in politics, could write in favor of innovation thus:

That the attempts of such men [projectors] will often miscarry, we may reasonably expect; yet from such men, and such only, are we to hope for the cultivation of those parts of nature which lie yet waste, and the invention of those arts which are yet wanting to the felicity of life. If they are, therefore, universally discouraged, art and discovery can make no advances. Whatever is attempted without previous certainty of success, may be considered as a project, and amongst narrow minds may, therefore, expose its author to censure and contempt; and if the liberty of laughing be once indulged, every man will laugh at what he does not understand, every project will be considered as madness, and every great or new design will be censured as a project.²⁶

There’s a declaration for bourgeois dignity and liberty, against their enemies.

Easterlin draws a striking comparison between the Industrial Revolution and the Mortality Revolution. He notes that the demographer Samuel H. Preston’s decomposition of falling mortality into the outcome of mere enrichment with given technology as against the outcome of

technology with given enrichment is analogous to the economist Robert Solow's decomposition of enrichment itself into mere capital accumulation as against technology. He concludes that "when the quest for the economic historian's Holy Grail, the causes of the Industrial Revolution, is couched in terms of commonalities in the Industrial and Mortality Revolutions, economic explanations of the Industrial Revolution become less persuasive."²⁷ So they do. "In seeking an explanation," he continues, ". . . one must ask what is new on the scene." For both Revolutions, he says, with Jacob, Mokyr, and Goldstone, that it was science.

But what was also "new on the scene," and tracks the beginnings of economic growth and mortality reduction more precisely (considering that after the steam engines and water treatment plants are invented, they can be imitated), is the attribution of bourgeois virtue, such as from Johnson. It is seen in an early form around 1720 as a new dignity and liberty for traders and innovators (consider *Robinson Crusoe*, and all of Defoe's works). And a century before Defoe the English were beginning to learn from the Dutch the improving spirit of active, stirring, laborious men, such as will put their hand to the plow, try experiments, and give all their attention to what they are about. Henry Robinson was very busy in the 1640s issuing pamphlets advocating improvements such as compulsory swimming lessons for the poor. Francis Bacon's proposals during the 1620s for improving science look like those of a bourgeois projector (though my Lord Bacon was as far from bourgeois, and as far from an advocate for dignity and liberty, as one can imagine). Let us do thus-and-such, organized in this way, says the projector in Holland and then England, and — behold! — what great benefits will flow! It is a methodical and accounting rhetoric, foreign to an aristocratic society.

Much later the rhetoric appears in the public and bourgeois spirit of people like Nassau Senior around 1840 or John Snow around 1850 calling for urban renewal and the redirection of water intakes. The germ theory of disease, Mokyr has emphasize, was of course a late nineteenth-century discovery, before which and quite independent of science a cleanliness obsession had taken hold among bourgeois men and especially women, long anticipated in the Low Countries and finally spreading to France and England. Nobody took care of the water supply or public education in London in the eighteenth century. Benjamin Franklin stood out in Philadelphia for his bourgeois public spirit. A century later in both places a very great care indeed was being taken — again, proper

theoretical science aside. The banker and writer Matt Ridley in 1996 looked back his home town of Newcastle-upon-Tyne in 1800, as “a hive of local enterprise and pride” with “great traditions of trust, mutuality and reciprocity on which such cities were based.”²⁸ Bourgeois dignity and liberty contains much more than isolated monads and an ethic of devil-take-the-hindmost. The Market of the economist’s imagining is in truth and in history embedded in ethics and society.

Further, the political revolutions of the seventeenth century in England were surely more important to more people than the novelties of the Scientific Revolution – though the point can hardly be used against Jacob because she herself made it. She writes in the Preface to a new edition of her book of 1981 introducing the idea of a “radical Enlightenment” that “beginning in the 1680s northern and western Europe experienced a series of shock waves that in turn produced a new radicalism in thought both in matters political and religious. French bellicosity, the revocation of the Edict of Nantes in 1685, and the appearance on the English throne in the same year of a Catholic king threw Protestant Europe into turmoil.”²⁹ It is her origin story, and a good one. But she and Jonathan Israel (who later carried on the argument with what Jacob characterizes with a hint of distaste as “a very different and largely idealist methodology”) see the results through intellectual life, with the intellectual life then affecting the society and the economy. A more direct chain of causation would be revolutions (1642 as much as 1688, as Jacob also emphasizes; or for that matter 1568 in the Netherlands and 1517 in Germany) causing a new self-respecting by the bourgeoisie, and other-respecting for it, too – and at length the Bourgeois Revaluation. The ideas directly in support of economic change, as Jacob’s colleague Joyce Appleby shows, were fruits of social and intellectual change in England during the seventeenth century, coming to full ripeness much later in French physiocracy and Scottish political economy. Joyce argues, for example, using Barry Supple’s early work on the economic crisis of the early seventeenth century, that the disorders of the 1620s forced English people to think hard about a thing increasingly conceived as a separate “economy.”³⁰

Goldstone defends the Jacobian chain of Boyle-Newcomen-Watt in which revolutionary consequences follow from the scientific discovery in England in the seventeenth century of the weight of the atmosphere (by the way, actually discovered in China centuries before, with no such practical result): “Great Britain had what no other nation on earth had, or

would *for more than a generation*: a cheap and reliable means of converting heat energy (mainly from coal) into uniform rotary motion” (italics mine).³¹ Note the italicized phrase, which Goldstone inserts with characteristic precision. That’s right: for a mere generation or so the English coal miners and coal burners had an advantage. But a business-respecting civilization would have adopted the steam engine pronto, with coal or not. Bourgeois dignity and liberty made for quick imitation as much as ingenious invention.

Jacob noted that the very “backlash against the Enlightenment testifies to the enormous change in Western values witnessed in the eighteenth century.”³² Surely. But the change was not mere enlightenment. What finished the job was a society-wide shift towards the admiring of bourgeois virtues, supplementing the Enlightened attitude among the elite towards the creative destruction from new knowledge. Mokyr writes that “The Enlightenment affected the economy through two mechanism. One of them is the attitude toward technology and the role it should play in human affairs. The other has to do with institutions and the degree to which rent-seeking and redistribution should be tolerated.”³³ But such an answer to the question *Was ist Aufklärung?*” comes very close to my alleged “dignity and liberty of the bourgeoisie.” An instrumental (and bourgeois) attitude towards technology gives ordinary affairs a dignity they did not formerly have. And resistance to the rent-seeking and redistribution that characterize an ageless mercantilism and, later, national economy is precisely the liberty from interference that the bourgeoisie sought – once it had been compelled to surrender its medieval attitude towards preserving the home market for itself. There’s not much in the difference. I readily admit that the issue is tangled. I only suggest that one strand, without which the rope of modernity would have broken, was bourgeois dignity and liberty. Jacob herself points out, for example, that the founding rhetoric of the New Science emphasized the dignified *laboriousness* of scientific inquiry. Insight was to be achieved not by heroic gesture or God’s grace but by thoroughly bourgeois works.³⁴ It is very Dutch, and then English and Scottish and American. And anyway bourgeois.

The Enlightenment, Jacob argues, was of Northern origin – “the beginning of the European Enlightenment can in many instances be traced to post-[Glorious] revolutionary England and the Dutch Republic,” then shifted to France: “by 1750, the Enlightenment had left its northern roots and become remarkably Parisian.”³⁵ But had it stayed

Parisian it probably would not have stayed at all. The production of encyclopedias and the wit of salons, if it had not worked within an increasingly bourgeois civilization led by an astonishingly innovative Britain, would have resulted (as it did in France) in hot-air balloons and military signaling systems, not steam engines and railways. The heroic engineer/entrepreneur such as the builder of the Great Western railroad and the Great Eastern steamship Isambard Kingdom Brunel (British, but the son of an exile from France) would not have triumphed. Jacob notes that “the civil engineer [of docks and canals and roads] emerged in Britain by 1750; his French counterpart was a military man. . . . standing aloof from the entrepreneur.”³⁶ From 1747 the Frenchman graduated from the state school, *École Nationale des Ponts en Chaussées*. British engineers by contrast graduated from the private school of practice.

Jacob writes that “the Enlightenment returned to England, the land of its [1680s] birth, largely as a result of the American Revolution.”³⁷ She means a *political* Enlightenment, since England and then Scotland never let go of the scientific and practical side. By 1750 in fact the other, British Enlightenment, of a much more practical nature, was being practiced in Edinburgh, and in 1765 in Birmingham, and earlier even in far Philadelphia. The coal mines of Northumberland were filled with Newcomen engines by the 1740s, pumping out the water and permitting the deepest coal mines in Europe, but it was well into the nineteenth century before such wonders affected much else in the economy. Jacob asks of the engineers and inventors, “can we imagine an industrial revolution without Thomas Newcomen, Desaguliers, John Smeaton or James Watt?”³⁸ True, we can’t. But the Bourgeois Revaluation, not high theory in Science, made the engineers. Or rather, high theory in science – and innovation in literature, in Birmingham toys, in painting, in steam, in journalism, in theology, in music, in port design, in philosophy, in constitutions – was as David Landes puts it various “manifestations of a common approach. . . . The response to new knowledge . . . is of a piece, and the society that closes its eyes to novelty from one source has already been closing them to novelty from the other.”³⁹ The economic historian Peter Mathias wrote that “both science and technology [in the British eighteenth century] give evidence of a society increasingly curious, increasingly questing, increasingly on the move, on the make, having a go, increasingly seeking to experiment, wanting to improve.”⁴⁰ The originality of Japanese color prints in the eighteenth century representing the “floating world” of prostitutes and kabuki actors

betokens an openness to novelty that one sees also in the Osaka merchant academies of the late seventeenth century.⁴¹ But until 1868, alas, in the face of Tokugawa conservatism, these were swallows without a spring. It is not Science that was the key to the door to modernity but the wider agreement to permit and honor innovation, opening ones eyes to novelty, having a go.

Had the Ottoman or the Qing empires so admired trade and innovation, then, they, not the Europeans, would have come first to apply science where one could, here and there – and anyway would have been the first to embark on the feverish pursuit of practical innovation in all fields from poetry to pottery that characterizes Britain and then Europe after 1700 and especially after 1800. But instead of taking advantage of their own highly developed cultures and sciences, the Eastern empires of China, India, and the Middle East, and plenty of European régimes, too (one thinks of the Counterreformation in Poland and Spain), turned in the seventeenth and eighteenth centuries, as Goldstone argues persuasively, to an intellectual conformity quite foreign to their earlier openness to ideas – just at the time the northwestern Europeans, and a few in East Prussia, awakened from their dogmatic slumbers. Yet without a radical change in attitudes towards innovation for optimistically hoped-for glory in a society newly admiring the bourgeois virtues, with a little money profit on the side, the sheer intellectual awakening in Europe would not have enriched the world. The rediscovery of analytic geometry three centuries after an Arab had invented it, the rediscovery of chemical principles known for hundreds of years in China, the questioning of religion centuries after sophisticated scholars in Baghdad and Delhi and Beijing, or for that matter Athens and Jerusalem, had been doing so would have yielded no industrial fruit.

Orthodox Christianity differed from Catholic Christianity in only a few minor doctrines (*filioque*; clerical celibacy), and yet a corner of the Catholic West initiated growth while the Orthodox world stagnated. The case (which is that of the historian Lynn White) shows the drag from a rhetoric hostile to commercial values, and by contraries the importance of the Bourgeois Revaluation. The sociologist of comparative religion Michael Lessnoff summarizes with approval White's remarks on the matter: "In Greek Christianity, the influence of classical Greek culture was considerably greater [than in the West], including the philosophers' depreciation of technology, economic activity, and the active life

generally. . . . Mechanical clocks, which proliferated in Western churches, were banned from Orthodox ones.”⁴² In the West, by contrast, Newtonian Anglicans took the clock as their central theological metaphor, and the pocket watch discovered in a field as their main argument for God’s existence.

The new bourgeois society was pragmatic and non-utopian, but also a little mad — the madness that overcame European men and women once they came to believe that they were free and dignified and should have a go. Joel Mokyr cites the madness of the Montgolfier brothers and their floating of a sheep, a rooster, and a duck in a hot-air balloon in 1783 at Versailles. (Ben Franklin watched many such ascents, and at one powered by hydrogen replied to a skeptic about its usefulness: “Sir, of what use is a new born baby?”). The lurching progress of innovation has never been seriously in doubt since around 1800. For a time during the Great Depression many doubted (though the economic historian Alexander Field has shown that the 1930s in the United States was in fact a technologically progressive time⁴³). But the doubt was followed after the War by the greatest innovative boom since then. And world income has since further accelerated.

What was *not* routinely available in the eighteenth century was the great stock of inventions yet to be imagined, including the institutional inventions allowing cooperation among masses of people without the application of knout and sword. This is why China and India can now grow at rates inconceivable in the eighteenth and early nineteenth centuries before the inventions were well launched. Goldstone observes that human innovation until the eighteenth and especially the nineteenth centuries was “sporadic and isolated.”⁴⁴ The Chinese invented the blast furnace, yes, and the Europeans much later got hold of it. Then the technology of the furnace stagnated until the British started charging furnaces with coke in the eighteenth century and then the Americans started hard driving with forced air in the late nineteenth century and then the Austrians and the Japanese reformulated the charge with the new chemistry in the twentieth. As I have said, it is a sort of madness, which now much of world outside the Bottom Billion has caught. Make your fortune with another invention. An Indian recently invented wide and light paddle-like shoes for walking about on the water in rice paddies. Bravo.

What did happen in the seventeenth and eighteenth centuries to prepare for all this, you might think, is an original accumulation of

inventive people, such as Richard Arkwright and Benjamin Franklin. But such a Great Inventor account is not quite right, either. Notions of social or spiritual capital, alleged to give rise automatically to Arkwrights and Franklins, force the evidence to lie down on the economist's bed of accumulate, accumulate. The crucial change was rather about habits of the mind and lip. Accumulated physical, human, and spiritual capital help the talk and thought, surely. If you are illiterate you are probably superstitious and conservative. But talk and thought possess a creativity that mere piling up of capital of whatever sort does not. One speaks of a "well-stocked mind," and the economist obsesses on getting "good training in the tools" of the currently fashionable formalities of his trade. Yet both of these likely as not create a mind unable to think, mechanically marshalling her knowledge of the classical languages or his tool of an econometrics over-accumulated. Thorough knowledge of Latin and Greek produced sometimes a Matthew Arnold, who could think. But sheer accumulation of learning also produced Oxford dons who almost never had an original idea and didn't publish on the rare occasions they did. The poet and Latin scholar A. E. Housman wrote in 1921 an essay against the non-thinkers in his field, "The Application of Thought to Textual Criticism." He recommended that his colleagues try thinking. Likewise in economics. Taking three of the standard graduate courses in econometrics (as I for example did) produces usually not an economist thinking but an idiot savant good at following rules. A new dignity for innovators and a new liberty to try things out mattered more than such accumulation — although of course one needs minds minimally prepared, too. English literacy and technical apprenticeship did the job. But Japan at the time had similar levels of literacy and technical apprenticeship, without yielding an Industrial Revolution.

The other problem with the Procrustean move of forcing creativity to lie down on models of accumulate, accumulate is that people too depreciate over time. What had to happen was a change in the social rhetoric to make generation upon generation of people, educated in masses every year, *want* to innovate, and to innovate, and to innovate. There's the social or spiritual capital — but it's located in conversations. As suggested by the work of Christine MacLeod and Antonio Gramsci (an odd pairing!) the new rhetoric has to be renewed and strengthened with each new generation. Otherwise it returns to dust. The change of mind and lip was not once-for-all. What Gramsci called a "historical block" needed to be constantly renewed, as though it were a machine

subject to rapid depreciation – my own book here is an example of such rhetorical investment in renewal. MacLeod argues that the “commemorative statuary [for James Watt erected in 1834] and the fundraising efforts [1824-1834] surrounding it both raised awareness of new technology and helped shape attitudes more positively towards it.”⁴⁵

Notes

24. Goldstone 2009, p. 134.
25. Jacob 1997, p. 65.
26. Johnson 1753.
27. Easterlin 1995 (2004), p. 99.
28. Ridley 1996, p. 263. Compare Prince Kropotkin 1901, giving a very similar view of an ideal town from a very different political perspective.
29. Jacob 1981 (2006), p. vi.
30. Appleby 1978, Chaps. 1 and 2. Supple 1959.
31. Goldstone 2002a.
32. Jacob 2001, p. 68.
33. Mokyr 2007a, p. 1.
34. Jacob 1997, p. 59.
35. Jacob 1981 (2006), p. x; Jacob 2001, p. 50.
36. Jacob 1998, p. 71.
37. Jacob 2001, p. 63.
38. Personal correspondence 2008.
39. Landes 1998, p. 35.
40. Mathias 1972 (1979), p. 66.
41. Najita 1987.
42. Lessnoff 2003, p. 361.
43. Field 2003, 2006; confirmed by Alexopoulos and Cohen 2009.
44. Goldstone 2009, p. 29.
45. MacLeod 1998, p. 98.

Part XIII. Creative Language, Creative Destruction, Creative Politics

Abstract

Why did the North-Sea folk suddenly get so rich, get so much cargo? The answers seems not to be that supply was brought into equilibrium with demand – the curves were moving out at breakneck pace. Reallocation is not the key. Language is, with its inherent creativity. The Bourgeois Revaluation of the 17th and 18th centuries brought on the modern world. It was the Greatest Externality, and the substance of a real liberalism. Left and right have long detested it, expressing their detestation nowadays in environmentalism. They can stop the modern world, and in some places have. The old Soviet Union was admired even by many economists – an instance of a “cultural contradiction of capitalism,” in which ideas permitted by the successes of innovation rise up to kill the innovation. We should resist it.

Chapter 32: It was Not Allocation, but Language

The main economic puzzle with the explanations of the Age of Innovation proposed so far is that they assume that, until 1750 and the wave of gadgets sweeping over England, opportunities for profit were simply ignored. As I've said now repeatedly, that's not economically reasonable. If the spinning jenny was such a swell idea in 1764 C.E., why was it not in 1264, or 264, or for that matter in 1264 B.C.E.? If factories extracted surplus value in 1848, why not in 1148? Thus the economic puzzle of the Industrial Revolution.

The other, historical puzzle, as I've also noted repeatedly, is that many of the so-called preconditions (high savings rates, lots of international trade, private property, science) happened long before, and in other places than northwestern Europe. Bragging, thrusting, crusading Christendom was notably backward compared to the great Asian empires even in 1700 and certainly in 1600, and quite embarrassingly so in 1500. Imagine as a mental experiment that preconditions of the material sort – investment, trade, empire, science – do make for an industrial revolution and for the sustained enrichment of the poorest among us. In that case China or India should have had an industrial revolution in 1600, or centuries earlier, as should Rome or Greece. The historical puzzle is the temporary oddness of the lands around the North Sea after, say, 1700 or 1800. One can offer plausible offsets in the case of Greece or Rome, especially the slavery and misogyny that supported a contempt for labor, and for active, stirring, laborious men of business. It might apply to China and India and the Ottoman Empire, too. In other words, I am claiming, the anti-bourgeois character of society before 1700, in Europe, too, explains the lag.

The economic and the historical puzzles are twins. If having lots of foreign trade in Britain in 1700 C.E. made for explosive opportunities for profitable innovation and an Industrial Revolution by 1800, and a sharp rise of living standards in northwestern Europe by 1900, then why did it not do so in China in 700 C.E. or Egypt in 1700 B.C.E.? If security of property and other such legal institutions made the modern world, why did they not in Republican Rome or Muslim Spain? Unless European people changed around 1600 or 1700 in their greediness – a popular notion right down to modern anti-consumerism, though hardly plausible

– heaps of 100-guilder or 100-pound-sterling notes or coins cannot have sat on the ground for hundreds of years un-picked up. Whatever the cause of the modern world, in other words, it has to be something that does not assume that earlier or non-North-Sea people were so stupid as to ignore strikingly good deals. And it has to be unique to a very recent time and to a northwestern European place.

Why did the North-Sea folk suddenly get so rich, get so much cargo? The answer can't be that the Dutch and English (suddenly, belatedly) showed racial superiority. A sensible answer has to honor the Dutch and English around 1700, but not in the same breath dishonor the rest of humanity, including in the dishonor the earlier Dutch and English. After all, the rest elsewhere caught on to the North-Sea routine pretty quickly once it had been invented. If they happened to move to Holland or Britain or America they did well, whatever their genes. And at home they often nourished their own, if constrained, traditions of bourgeois virtue. In the end people in Asia and Africa and all over, in Taiwan and Botswana and Chile, learned pretty quickly to perform the northwestern European trick. But the trick could not have consisted of an open opportunity lying around all over the place, unused even in England for centuries, such as the routine taking of opportunities for profit from digging a canal or from sending a ship to Africa – that would violate economics just as Euro-centrism violates history.

* * * *

I admit the danger in the argument here, the Fallacy of the Immeasurable Residue. It is not entirely cogent to keep measuring causes, finding the measurable ones to be small, and then concluding that The Cause Our Author So Persuasively Proposes *must* be true, though hard to measure. The method of knocking off contrary hypotheses, I said, is what John Stuart Mill recommended in his *System of Logic*, and is the admired practice in physical and biological sciences. But it is biased towards the immeasurable – witness string theory in physics, or for that matter Newton's anti-Aristotelian but question-begging terminology of "gravity" as a force, measurable in result but not in cause. As Mill wrote, the Method of Residues works "provided we are certain that [in the present case, a rhetorical change] is the only antecedent to which [the Industrial Revolution] can be referred. But as we can never be quite certain of this, the evidence from [the method] is not complete."¹ What may be missing is an unnoticed but still material and measurable alternative. (There are immaterial *and measurable* causes,

too, by the way: it is another of the numerous materialist prejudices floating in the minds of many historians and social scientists in the twentieth century that there aren't any. Opinion, for instance, is measurable – better measured in many cases, for example, than pot-of-pleasure “happiness.”) Theists have often made the similar tactical error of positing a God of Gaps, supposing on the eve of the discovery of evolution by natural selection, for example, that the complexity of, say, the astonishing and delicate machinery of the eye implies an unexplained gap in materialist explanations, and there an eye- (and watch-) making God.² Like the unlucky theists, maybe I have overlooked some material cause that in contrast all the ones I have here examined, separately or in combination, actually explains the factor of 2 or 16 or 100. I'm very willing to concede the scientific point – if some materialist can find a material cause that works. I have little optimism that she will succeed, having myself tried them repeatedly since 1966 and having found them in the end to be wanting. As Emerson noted, “an idealist can never go backward to be a materialist.”³

A piling up of rejected alternatives, all of the same re-allocative character, does suggest by sober scientific criteria that we may be looking in the wrong place – perhaps under the lamppost of static economics, or under a somewhat grander lamppost of a dynamics depending on statics, or under the grandest lamppost discovered so far, of a non-linear dynamics of chaos theory. Perhaps we are looking in such places not because the evidence leads us to them but on account of the excellent mathematical light shining under all these impressively ornamented lampposts. Yet one after another of the proffered material explanations has failed. No believable case can be made that adding them all together would change much, or that other countries and other times did not have equally favorable material conjunctures – not if we are trying to explain the unprecedented factors of growing production per head.

The problem with all the economistic explanations lies deep within classical and most of subsequent economic thought: the conviction that shuffling stuff around makes us rich. Transportation. Reallocation. Information flow. Accumulation. As Kirzner expressed it, “for [the British economist flourishing in the 1930s Lionel] Robbins [and the Samuelsonians], economizing simply means shuffling around available resources in order to secure the most efficient utilization of *known* inputs in terms of a *given* hierarchy of ends.”⁴ Yet the path to the modern was

not through shuffling and reshuffling. It was not by the growth of foreign trade or of this or that industry, here or there, not by shifting weights of one or another social class. Nor indeed was it about reshufflings of property rights. Nor, to speak of another sort of reshuffling, was it through rich people piling up more riches. They had always done that. Nor was it through bosses being nasty to workers, or through strong countries being nasty to weak countries, and forcibly shuffling stuff towards the nasty and strong. They had always done that, too. Piling up bricks and money and colonies had always been routine. The new path was not about accumulation or theft or commercialization or reallocation or any other reshuffling.

It was instead about discovery and a creativity supported by novel words. Previously unknown inputs were discovered (coal for steam engines; coke for iron), fresh hierarchies of ends were articulated (in the new political economy, for example, the ends of general vs. privileged prosperity; in the new politics the radical end of achieving strict equality), new goods and services were created (black tulips, common stocks). The new path led around 1700 from the change in rhetoric by around 1800 and especially by around 1900 to shocking innovations in factory machinery and in business practice. It was supported and extended by shocking innovations in politics, with the result that as early as 1832 a few countries protected your life, liberty, and pursuit of innovation from progressive or conservative assault. The result was a startling enrichment of our ancestors, poor though they began. We ourselves are now better off than all but the richest of the ancestors were, measured by goods and human flourishing.

In a deep sense, in other words, the economist's model of allocation does not come close to explaining the factor of sixteen. If allocation and accumulation and property rights were the only causes, then previous centuries and other places would have experienced what Britain experienced 1780 1860 and after. Macaulay said, in a Smithian way, "We know of no country which, at the end of fifty years of peace, and tolerably good government, has been less prosperous than at the beginning of that period."⁵ Yes, agreed. But 100 percent better off, and most particularly on the way to 1,500 percent better off? There had been many times of such peace before, with no such result as the factor of sixteen. By 1860 "what had really changed" writes the wise Goldstone, "was that innovation became common and widespread, even expected, because a British culture of innovation gave people the outlook and the

intellectual and material [and sociological] tools to search for their own new ways of working.”⁶

To put it another way, economics in the style of Adam Smith, which is the mainstream of economic thinking, is about scarcity and saving and other Calvinistic notions.^z In the sweat of thy face shalt thou eat bread, till thou return unto the ground. We cannot have more of everything. Grow up and face scarcity. We must abstain Calvinistically from consumption today if we are to eat adequately tomorrow. Or in the modern catch phrase: There Ain't No Such Thing As A Free Lunch (TANSTAAFL).

I have the greatest respect for such economics, which I acquired laboriously, Calvinistically from 1961 to 1981 or so, and of which I am still learning new uses and new tricks. It is a great intellectual construct. I've written whole books in its praise. No joke.^s But the chief fact of the quickening of industrial growth 1780-1860 and its amazing aftermath in the Age of Innovation is that scarcity was relaxed. It was relaxed in the long view, not banished in the short view by an “affluent society” – whatever the size of income at any one time, more of it is scarce, and cannot be seized for admirable public purposes without loss. That is what economists mean by a “production possibility curve.” More Housing has always an opportunity cost in All Other Goods and Services. So far Samuelsonian economics goes – and is correct. But over time, taking the long view, modern economic growth has been a massive free lunch. Discovery, not reshuffling, was the mechanism. As Kirzner put it, entrepreneurship is not about optimal shuffling – a hired manager can carry out that routine. “The incentive is to try to get something for nothing, if only one can see what it is that can be done.”⁹ A new rhetorical environment in the eighteenth century encouraged [literally: gave courage to] entrepreneurs. As a result over the next two centuries the production possibility curve bulged out by a factor of sixteen, and more.

In 1871, a century after Smith, John Stuart Mill's last edition of *Principles of Political Economy* marks the perfection of classical economics. Listen to Mill: “Much as the collective industry of the earth is likely to be increased in efficiency by the extension of science and of the industrial arts, a still more active source of increased cheapness of production will be found, probably, for some time to come, in the gradual unfolding consequences of Free Trade, and in the increasing scale on which Emigration and Colonization will be carried on.”¹⁰ Mill (whom you know

I admire) was here in error. The gains from trade, though statically commendable, and well worth having, were trivial beside the extension of industrial arts. The passage exhibits Mill's classical obsession with the "principle of population," a leading theme in economics from 1798 to 1871. Mill, with many others, believed that the only way to prevent impoverishment of the working people was to restrict population growth. His anxieties on this score find modern echo in the environmental and family limitation movements, such as China's one-child policy, arising from pessimistic (and Orientalist) theorizing in the West. The prudence of such a policy seems very doubtful today, and its lack of justice and liberty are plain. In any case the Malthusian idea told next to nothing about the century to follow 1871. The population of the United Kingdom increased by a factor of 1.8, yet income per head more than tripled.¹¹ Nor did Mill's classical model, as we have seen, give an altogether reasonable account of the century before 1871.

Mill again: "It is only in the backward countries of the world that increased production is still an important object: in those most advanced, what is economically needed is a better distribution, of which one indispensable means is a stricter restraint on population" — still more wrong, in light of what in fact happened during the century before and the century after.¹² Mill did not anticipate the larger pie to come, so strong was the grip of classical economic ideas on his mind — even in 1871, even after a lifetime watching the pie grow larger. He says elsewhere, "Hitherto it is questionable if all the mechanical inventions yet made have lightened the day's toil of any human being," a strange assertion to carry into the 1871 edition, with child labor falling, education increasing, the harvest mechanizing, and even the work week shortening.¹³

Mill was too good a classical economist, in other words, to recognize a phenomenon inconsistent with classical economics. That the national income per head might triple in the century after 1871 in the teeth of rising population is not a classical possibility, and he would have seen the factor of sixteen in Britain from the eighteenth century down to the present as science fiction. And so the classicals from Smith to Mill put their faith in greater efficiency by way of Harberger Triangles and a more equitable distribution of income by way of improvements in the Poor Law. It should be noted that Mill anticipated social democracy in many of his later opinions, that is, the view that the pie is after all relatively fixed and that we must therefore attend especially to

distribution. That the growth of the pie would dwarf the Harberger Triangles available from efficiency, or the Tawney Slices available from redistribution, did not fit a classical theory of political economy. Macaulay's optimism of 1830 turned out to be the correct historical point: "We cannot absolutely prove that those are in error who tell us that society has reached a turning point, that we have seen our best days. But so said all who came before us, and with just as much apparent reason."¹⁴ The pessimistic and Calvinistic classical economists, with the pessimistic and Calvinistic and Romantic opponents of industrialization at the time such as Carlyle and Ruskin, and the Calvinistic and Malthusian opponents of modern economic growth nowadays, too, have come up short.

In the beginning was the word. Free innovation led by the bourgeoisie became at long last respectable. For instance, the merchants and machine makers and manufacturers in northwestern Europe were elevated for the first time to the rank of "gentlemen" (the ladies, once "women" or "wenches," were carried along). The middling sort of man came slowly to be called by the word previously reserved for the idle and well-born. For that matter some of the gentlemanly idle and well-born, in Holland and England and Scotland and the British colonies, and then a few decades later even in France, took to trade and innovation. Voltaire wrote in 1733 that in England "a peer's brother does not think traffic is beneath him. . . . At the time that the Earl of Orford [that is, Robert Walpole] governed Great Britain, his younger brother was no more than a factor in Aleppo."¹⁵ A Swiss traveler wrote about the same time that "in England commerce is not looked down upon as being derogatory, as it is in France and Germany. Here men of good family and even of rank may become merchants without losing caste."¹⁶ He meant it literally: in France and Spain a nobleman caught engaging in commerce could be stripped of his rank. The rule was ancient. "In Thebes," wrote Aristotle with evident approval, "there used to be a law that one who had not abstained from the market for ten years could not share in office."¹⁷ Surprisingly, in their rhetoric the northwestern European elite began to deem a bourgeois career honorable. During the seventeenth and early eighteenth centuries at Rotterdam, Bristol, Glasgow, Boston, and then later at Rouen and Cologne, the younger sons of gentry and even of noblemen embarked at length on bourgeois careers. And indeed the honorable classes in Holland and England had

long viewed the improving of their estates as a good idea – if not going so far as to become a factor in Aleppo.

The historian Tim Blanning puts it so: “In the past it had been an axiom of English political theory that a virtuous polity depended on a traditional of civic humanism, sustained by a landed elite whose independence ensured their virtue” – thus Roman and neo-Roman theorizing down to Thomas Jefferson, and in the mid-twentieth century also certain British Tories and American Republicans. By the early eighteenth century in England, though, a century after its emergence in the Netherlands, “there emerged a greater willingness to view commercial society, not as a sink of corruption but as a wholly legitimate sphere of private sociability.”¹⁸ The debate in the middle of the eighteenth century, argues John Danford, was “whether a free society is possible if commercial activities flourish.”¹⁹ The models on the anti-commercial side of the debate, as Pocock and Skinner have shown, were Republican Rome and especially, of all nightmarish ideals, Sparta. Thus Thomas More’s Utopia. Commerce such as the Athenian and now the British favored would introduce “luxury and voluptuousness,” in the conventional phrase of the Scottish law lord Kames, as the debate reached its climax, which would “eradicate patriotism,” and extinguish at least ancient freedom, the freedom to participate. As the Spartans vanquished Athens, so likewise some more vigorous nation would rise up and vanquish Britain, or at any rate stop the admirably Republican “progress so flourishing . . . when patriotism is the ruling passion of every member.” And the poet William Cowper in 1785: “Increase of power begets increase of wealth;/ Wealth luxury, and luxury excess.”²⁰

Danford reads Hume as opposing such a civic humanist view, that is, the view that stressed “the primacy of the political.” Commerce, said Hume, was good for us, and Georgian mercantilism in aid of the political was bad for us. “In this denigration of political life,” writes Danford, “Hume [is] thoroughly modern and [seems] to agree in important respects with [the individualism of] Hobbes and Locke.”²¹ Hobbes, Locke, and Hume constituted “the challenge posed by early modern thinkers to the understanding of human nature which had been regnant for nearly two thousand years.”²² Danford does not claim that all we moderns now reject the nationalist, sacrificial, anti-luxury, classical republican view. On the contrary, he says, no paradigm rules without challenge. We can see the Spartan ideal in politics left and right, Green and nationalist. Classical republicanism is alive and well and living in

the pages of *The Nation* and *The National Review*. In Germany, for example, great social distance and a deference to various pseudo- and real aristocracies persisted into recent times, with unhappy results. The secularized Christianity known as socialism scorned the bourgeoisie in Russia, with equally unhappy results. Still today, even in the strongholds of commercial prudence in America and Europe, the old models of priest or knight continue to shine, alongside the new model of the entrepreneur. The academic expert is a new priest, the TV cop a new knight. The entrepreneur gets the blame – because after all she makes obscene amounts of money. Some of our fictional heroes are businesspeople (Jimmy Stewart in “It’s a Wonderful Life”), but not many.

By the late nineteenth century in the democracy-honoring and bourgeois-admiring United States, which lacked real aristocrats, the word “gentleman” – so called in address, if less so behind his back – became almost completely democratic. It meant any adult, male, white, non-immigrant citizen. Outside the old Confederacy few aristocratic gestures were admired. Mark Twain’s Connecticut Yankee in King Arthur’s court astounds the aristocratic rubes with industrial devices, not with knightly heroism, which on the contrary he thinks silly. Outside of church, a peasant/Christian holiness was laughed at. Twain spoofed Christian Science so harshly that (it is said on admittedly dubious authority) those mild folk are sworn to undertake to cut out any reprinting of the essay from public library books. By now over 90 percent of Americans identify themselves in surveys as part of a quasi-gentlemanly “middle class.” It shows up in the terminology of American elections, in which “the middle class” means virtually everybody.²³ (“Don’t tax him./ Don’t tax me./ Tax that duke behind the tree.”) The words assume that dealing and marketing and innovating is what we Americans are supposed to do. Every gentleperson from truck driver to congresswoman in the United States thinks of herself as doing a little business, and dreams of novelties.

Less so in other countries. In a much more class-conscious Britain the percentage self-identifying as “middle class” in 2007 was only 37 percent, though well up from figures one would get in 1900.²⁴ In France in 2004, 40 percent replied “middle” to the question, “To which class do you have the feeling of belonging?” About 23 percent in France replied “working” – high by American standards, if sharply down from what French (and British and even American) people would have said in 1904.

That in the French survey only 4 percent called themselves “*bourgeois*” reflects the unpopularity of the B-word in modern European politics. It would be good to revive the word and its associations with liberty. But even so, note that forty percent and more of people in rich countries call themselves middle class, if not the Marx-spoiled “bourgeois.” Compare the much lower percentages one can imagine in the worlds of André Gide or of Stendhal, not to speak of Molière. The change in rhetoric has constituted a revolution in how people view themselves and how they view the middle class, the Bourgeois Revaluation. People have become tolerant of markets and innovation.

The argument applies to routine innovation as much as to great creative ideas, to Mokyr’s macro-invention as much to the micro-inventions that refine the inventions. The economist Alan Kirman has pointed out to me that much innovation is as he puts it “generated by demand,” such as the improvement in the ballast-sweeping brooms on rail lines that an Australian friend of mine resident in Amsterdam has developed and sold to railways worldwide. But such innovations depend if anything more on respect for the bourgeoisie and the liberty to innovate than the macro inventions. Great geniuses forcing the pace of innovation like Edison or Ford might have braved contempt and interference better than the modest genius improving ballast-sweeping.

Notes

1. Mill 1843, p. 464.
2. Collins 2007 93, 95, 193-195, 204.
3. *Essays*, "The Transcendentalist," p. 1.
4. Kirzner 1976, p. 79.
5. Macaulay 1830, p. 183.
6. Goldstone 2009, p. 120.
7. Again see Nelson 1991, 2001.
8. See all my writings before about 1983, and many even afterwards.
9. Kirzner 1976, p. 84.
10. Mill 1871: Bk IV, ch. ii. 1 : 6. Note his usage of the word "science," in the older and wider sense of "systematic inquiry," as in all his writings.
11. Maddison 2006, pp. 415, 419, 439, 443.

12. Mill 1871 : Bk IV, ch. vi. 2: 114.
13. Mill 1871: Bk IV, ch. vi. 2: 116.
14. Macaulay 1830, p. 186.
15. Voltaire 1733, p. 154. The remark is not strictly accurate, since Walpole, though the longest-serving prime minister in British history (1721-1742), became an Earl only after his fall from power in 1742 (Voltaire must have added the remark to a later edition, since the earldom did not exist at the time of the first edition, in 1733). But for my purposes it will do: Walpole when in power was made early a Knight of the Bath, and was in other ways a member of the aristocracy, or at the worst the very highest ranks of the gentry.
16. César de Saussure in 1727, quoted in Blanning 2007, p. 110.
17. Aristotle, *Politics* 1278a, 20-25.
18. Blanning 2007, pp. 110-111.
19. Danford 2006, p. 319. The quotation from Lord Kames (1774) is Danford's.
20. Cowper 1785, *The Task*, Book IV.
21. Danford 2006, p. 324.
22. Danford 2004, p. 325.
23. Pew Research Center 2008, p. 10. The authors of the report, for reasons they do not state, want to define people who call themselves "upper middle" (19 percent) as "upper" and people who call themselves "lower middle" (another 19 percent) as "lower," which is how they arrive at the assertion that only 53 percent identify as middle class (these being people who replied to the phone survey "middle" with no adjectives). That puts Americans in the same range as British and French respondents. But taking people at their self-defining word, all but the 2 percent pure "upper" and the 6 percent pure "lower" (and 1 percent not replying at all), use the middling word. The fact is at least rhetorically interesting.
24. National Centre for Social Research 2007, p. 2. Compare Marshall and others 1988, p. 144, 38.5 percent identifying as middle class.

Chapter 33: Dignity and Liberty for Ordinary People, in Short, were the Greatest Externalities

I have argued that the Industrial Revolution and its sequel cannot be explained by open opportunities such as trade or property rights lying about unused until taken up in the eighteenth century. The economic theories depending on routines such as accumulation or imperialism, that is, can't explain the factor of sixteen. The innovation was fundamentally unpredictable. If it had not been – if it was routine economic opportunities lying about – then it would have happened elsewhere at other times. Hayek put it this way: "Nowhere is freedom more important than where our ignorance is greatest – at the boundaries of knowledge, . . . where no one can predict." And the greater is "our" knowledge the greater is the ignorance of any one of us, whether a central planner or a great scientist. "The more men know," Hayek continues, "the smaller the share of all that knowledge becomes that any one mind can absorb."²⁵ It is said that John Milton was the last man in Europe who had read *everything* – well, everything in Western European and certain biblical languages. It's been a long time since Milton. The more social knowledge there is, the more urgent it is for free arrangements to try out an idea in this or that way, since no one mind can predict where it will end. No one in 1990 could have guessed how the internet would turn out. Inventors themselves commonly do not know what use their invention will be. "Prediction is difficult," said Yogi Berra, "especially about the future." Thomas Edison believed his recording cylinders would be used mainly for office dictation. When someone asked Orville Wright what he thought the use of his airplane was going to be, he replied, "Sport, mainly."

But economists have a word for *closed* opportunities that *can* lie about unused, until stumbled into – "positive externalities." The more transparent word for the idea is "spillovers." In the jargon, a spillover or an "external effect" means some harm or benefit that is not paid for with money in a market. Therefore it spills over from one person to another without being subject to market discipline, or the market signals for an opportunity. It stands off the market's stage, so to speak, hidden in the wings, unpaid and unheeded. Yet it will from time to time loudly deliver its own lines, disrupting or advancing the play. It has real effects, in

other words, though not accounted for in private financial statements, and therefore not attended to.

Smoke from a power plant is called a “*negative externality*” (like all masters of mysteries, the economists love jargon). The harm caused by the smoke does not show up as a money cost to the power plant or to the users of its electricity. That’s why the disruption is ignored, external, offstage, unpaid. “Luckily,” says Charles Montgomery Burns, rubbing his hands with glee, “I don’t have to pay money for the privilege of dumping the radioactivity from my power plant into the air you breathe. So what do I care?!” There’s no market in which another person can buy the radioactivity or smoke or aircraft noise to stop it, expressing her distaste in money bids.

But not all externalities or spillovers are bad, like power-plant smoke or aircraft noise or other dumping of by-products. Some are good, those positive externalities. Even some smoke – from leaf fires in autumn or from wood fires in winter – is not a harm but a benefit, at any rate to older folk remembering the sweet smells of 1959. Some of us even have a loony nostalgia for the smell of diesel exhaust from the old London buses. More seriously, having lots of educated people around is a spillover beneficial to you and to me and to many others, educated or not. We do not pay fully for the educated-populace benefit in a market. (We do pay in part through wages paid to educated workers.) And so the uncompensated part is an externality. You would pay a little if it could be arranged to get the sweet, nostalgic smell of autumn or winter, or of London in a late 1950s smog. You would pay a lot to deal with people who can read and can calculate and can see through the more obviously manipulative campaign advertisements. People routinely pay the big costs of migration to get from countries that do not have such positive externalities of education into those that do.

A pair of positive externalities, I have been arguing, had been untried on a large scale until stumbled into by the United Provinces in the seventeenth century and by the United Kingdom imitating the bourgeois Dutch in the eighteenth century. They were a new dignity for the bourgeoisie in its dealings and a new liberty for the bourgeoisie to innovate in economic affairs. Both were necessary for the modern world. The two, when linked, appear even to have been sufficient, if you supply a few routine background conditions – having already somewhat large cities, for example, and extensive trade and reasonable security of property and cheap if slow riverine or coastal transport. Such

background conditions were widespread in the world of 1700, and cannot therefore be thought of as shocking Dutch and English novelties. China had them. So did Japan, the Mughal Empire, the Ottoman Empire, northern Italy, the Hansa.

But without the two necessary, and large scale, conditions of dignity and liberty for the innovating class, we would have no modern world. Both were necessary. Without the liberty to innovate no amount of new social prestige for the previously scorned bourgeoisie would have done the trick. The constitution of 1689, wrote Hume in the last volume of his *The History of England* (1754-1755), “gave such an ascendant to popular principles, as has put the nature of the English constitution beyond all controversy. And it may justly be affirmed, without any danger of exaggeration, that we, in this island, have ever since enjoyed. . . the most entire system of liberty that ever was known amongst mankind.”²⁶ He perhaps overstates the case — Holland led the way, after all, to speak only of recent examples. And the poor in Britain, though vividly aware that they were freeborn English men and women (and very willing in the eighteenth century to riot in aid of such a notion), had not yet been emancipated in politics or in wealth. Yet Frenchmen like Voltaire and Montesquieu and later Tocqueville were right to emphasize the peculiarity of English liberties — habeas corpus, Parliamentary pre-eminence, and especially the ancient English security of property. Tocqueville wrote in 1835 that “it is above all the spirit and habits of liberty which inspire the spirit and habits of trade.”²⁷ Liberty is necessary. Merchants and manufactures could have been brought with full dignity into the British national elite of 1700, with ribbands, stars, and a’ that, but had they lacked the liberty to profit from innovation, either in machines or in ways of doing business, nothing would have happened. The French in the eighteenth century illustrate the problem in their state-sponsored prizes and industrial espionage, namely, that they did not give liberty to innovation. In France as in Japan and the Ottoman Empire one had to apply to *l’État* for permission to open a factory. With such lack of liberty (and without the Dutch and then the British examples) the program of the French elite would have stayed as it had for centuries, namely, the preservation of the old ways, the cake of custom. Or so at least an economist would claim.

But without the new dignity for merchants and inventors, no amount of the liberty to innovate would have broken the old cake, either. Or so at least a sociologist would claim. The foreigners were startled by

the esteem in which trade was held in Britain, though also noting the continuing hauteur and practical power of the British aristocracy. Merchants in Japan and China were ranked for millennia close to night-soil men. In Christian Europe they were considered for millennia the enemies of God. Innovations were for millennia viewed as threats to employment. And so the best minds went into war or politics or religion or bureaucracy or poetry. Some still do, often on anti-bourgeois grounds taught to them by the clerisy after 1848.

By adopting the respect for deal-making and innovation that Amsterdam and London pioneered around 1700, the modern world was born. Dignity and liberty still work. The special development zone of Shenzhen in mainland China, a suburb of Hong Kong, went from being a small fishing village to an eight-million soul metropolis in two decades. Such a feat required a shift in rhetoric: stop jailing millionaires and start admiring them; stop resisting creative destruction and start speaking well of innovation; stop over-regulating markets and start letting people make deals.

In 1776 Adam Smith, who invented sociology as much as economics, called the new amalgam “the obvious and simple system of natural liberty.”²⁸ But my point, and his, is that, astonishingly, the system was not considered “obvious and simple” until the eighteenth century. That’s the point of theorizing it as an “externality.” In many circles to this day it still is suspect. You can still hear people who do not pretend to have thought very deeply about the matter declaring confidently that the market of course needs to be closely regulated, or that trade needs to be fair, or that immigration must be restricted, or that jobs are to be created by governmental programs, or that businesspeople routinely cheat, or that markets are chaotic, or that the more complex an economy is the more it needs government regulation, or that that governmental bureaucracies are always fair and efficient. And many still declare that it is ever-so-much more dignified to work as a professor or a civil servant or another sort of non-profit employee than as someone making deals in the financial services industry or in the wholesale meat trade. Such anti-bourgeois people (many of them my good friends) do not believe the bourgeois axiom that a deal between two free adults has a strong presumption in its favor, practically and ethically and aesthetically. They deny that allowing such deals and honoring their makers has resulted in the modern enrichment of the poor. They think instead, against the historical evidence, that action by government or trade unions did it.

But a sufficiently large number of Europeans were converted to a rhetoric of bourgeois-respecting in the late seventeenth and especially in the eighteenth century. Nowadays many people worldwide have come believe in market-guided innovation, and have learned to speak kindly of it. The endlessly renewed schemes of “protection,” which seek to keep us doing what we have always done, have enemies they did not have in 1600. The evidence has become overwhelming that letting innovation rip is the best plan for helping the poor – from the enrichment of poor Europeans around 1900 to the enrichment of poor Indians around 2000. (One is reminded of the old joke: “Do I *believe* in infant baptism?! I’ve *seen* it!”) As early as 1641 one Lewes Roberts in England praised “the judicious merchant, whose labor is to profit himself, yet in all his actions doth therewith benefit his king, country, and fellow subjects.”²⁹ Adam Smith could not have put it better. In 1675 an anonymous English writer declared that “cupidity has taken the place of charity, and effects it after a manner which we cannot enough admire.” Note the word “admire.” He asked, “What charity will run to the Indies for medicines, stoop to the meanest employments, and not refuse the basest and most painful offices?” Note, too, the hierarchy in which many “employments” are reckoned mean and base, not honorable. A job of work in those hierarchical days was “service,” as in “servant.” And yet he continued, “cupidity will perform all this without grudging,” to our collective good.³⁰ John Stuart Mill could not have put it better. Dudley North, that man of aristocratic background enriched by a bourgeois career trading with the Ottomans, wrote in 1691 that “to force men to deal in any prescribed manner may profit some as happen to serve them; but the public gains not, because it is taking from one subject to give to another.”³¹ Milton Friedman could not have put it better. “I don’t know which is the more useful to the state,” wrote Voltaire in 1733 with heavy sarcasm, “a well-powdered lord who knows precisely when the king gets up in the morning. . . or a great merchant who enriches his country, sends orders from his office to Surat or to Cairo, and contributes to the well-being of the world.”³² The emphasis was soon to shift from merchants to manufacturers, who also buy low and sell high. But the young Robert Nozick could not have put it better. Deals to buy spices or steam engines low and to sell them high were for the first time admired. The admiration overturned the various versions of anti-bourgeois hierarchy which had so long prevailed: that deals are dirty, that the dealers are dangerous and disreputable, and that men of honor, such as the gentry or the mandarins, should of course keep them in their place.

To put the historical point in the economist's jargon, then, the new bourgeois liberty and the new admiration for the bourgeois life constituted world-making externalities. They were not tried in earlier times or other places because they stood offstage, and the prevailing powers wanted them to stay there. The powers could not imagine how very rich allowing onstage the honoring and liberating of economic innovation would make the powers themselves – and by the way their subjects. No economist, for one thing, had stated the argument persuasively. That economics itself is such an oddly modern invention lends plausibility to the case for a modern shift in rhetoric. The professors of Salamanca, the pamphleteers of Amsterdam and London, the political economists of Edinburgh were figures of the sixteenth, seventeenth, and eighteenth centuries. Nothing like their thought can be found earlier in Europe, and only glimmers elsewhere. And in early times, for another, no stunning, whole-country examples of success from according dignity to the bourgeoisie and leaving it free to innovate had stood in mute testimony, such as Holland in the seventeenth century, or now China in the twenty-first.

On the contrary, dignity and liberty for the bourgeoisie was viewed, until the view suddenly changed in academic circles in Spain and in commercial circles and Holland and then in Britain and then (in all circles) in the United States, as an outrageous absurdity. *Of course* the bourgeoisie was contemptible, in Confucianism the fourth and lowest of the social classes, or in Christianity the rich man of the Gospels who can scarcely enter heaven. *Of course* the market needed to be regulated in the interest of the rich – and if not the rich baldly, then regulated in the interest of the continued rule of the rich by way of enriching some selected and favored and relatively well-off poor (unskilled automobile workers earning \$30 an hour, high-school-graduate Cook-County hospital administrators earning \$100,000 a year, members of local 881 of the United Food and Commercial Workers International Union earning more than what Wal-Mart employees are eagerly willing to work for). *Of course* people should be arrayed in a great chain of being from God to slave, and kept in their place, except by royal favor or state examination or Party membership.

My theme in short is the true liberal one of the de la Court brothers, Thomas Rainsborough, Dudley North, Locke, Voltaire, Hume, Turgot, Montesquieu, Smith, Tom Paine, Destutt de Tracy, Jefferson, Madame de Staël, Benjamin Constant, Wilhelm von Humboldt, Charles [not Auguste]

Comte, Charles Dunoyer, Malthus, Ricardo, Harriet Martineau, Tocqueville, Giuseppe Mazzini, Frédéric Bastiat, Mill, Henry Maine, Richard Cobden, Elizabeth Cady Stanton, Cavour, Johan August Gripenstedt, Herbert Spencer, Karl von Rotteck, Friedrich Dahlman, Johan Rudolf Thorbecke, Lord Acton, Josephine Butler, Knut Wicksell, Luigi Einaudi, H. L. Mencken, Johan Huizinga, Frank Knight, Ludwig von Mises, Rose Wilder Lane, Nora Zeale Hurston, Karl Popper, Isaiah Berlin, Friedrich Hayek, Raymond Aron, Ronald Coase, Milton Friedman, James Buchanan, Gordon Tullock, Thomas Sowell, Julian Simon, Israel Kirzner, Wendy McElroy, and the young Robert Nozick. It is the obvious and simple system of natural liberty. It contradicts the aristocratic sneering by conservatives at innovation and at the bourgeoisie, or the clerical sneering by progressives at markets and at the bourgeoisie. The true-liberal claim is that unusual bourgeois dignity and personal liberty in northwestern Europe, and especially in Holland and then in Britain, made for unusual national wealth, by way of a Revaluation of ordinary, bourgeois life. "The true end of Man," wrote von Humboldt expressing in 1792 the elevated form of the claim, "is the highest and most harmonious development of his powers to a complete and consistent whole. Liberty is the grand and indispensable condition which the possibility of such a development presupposes."³³ Notice that a Kantian (and novel) respect for personhood is here combined with a political demand for liberty.

The conservative political theorist Tod Lindberg points out that neo-conservatism was for a while animated by empirical studies of what did not work in the aspirations of post-War American liberalism – minimum wages that unfortunately damaged the poor, educational expenditure that unfortunately enriched middle-class teachers' unions and mis-educated the poor, foreign aid that unfortunately enriched big men, and so forth. But he concludes that "the proper response to a mugging by reality is not the abandonment of liberalism, broadly construed, in favor of a pre-liberal or anti-liberal or 'conservative' alternative, neo- or otherwise, but rather the abandonment of those elements (rife in postwar liberalism) that reality would not accommodate in favor of those that reality would accommodate and, indeed, compel. This is our current and future politics."³⁴ I agree. The economic history supports our opinion.

Dignity and liberty, to put the point in economic terms, were the Greatest Externalities. As the historical anthropologist Alan Macfarlane

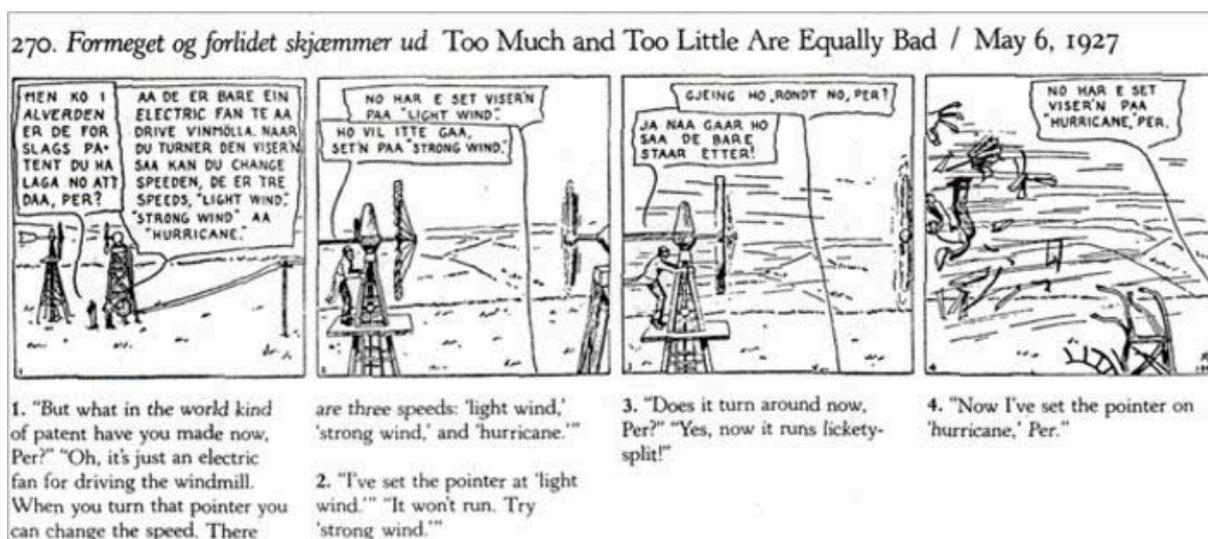
writes in summarizing the liberal theme, “political and religious freedom seem to have a close association with the generation of economic wealth.”³⁵ That is to put it mildly. A notion of liberty to try novelties that in its origins was “a liberty,” that is, a special privilege, as in the phrase “a freeman of the City of London,” came by various happy accidents to be asserted by wider groups, and to characterize northwestern Europe and its offshoots. At the same time a life in trade and manufacturing came to be a little bit honored, at more than a local level. Liberty, I say again for the benefit of my libertarian colleagues, does not by itself suffice. The political theorist James Otteson asserts a theorem that many libertarians believe: “Those countries that respect private property and efficiently administer justice prosper, and those that do not do not. It is as simple as that.”³⁶ Not quite, unless the word “respect” has more meaning than “enforce the laws of property.”

The older aristocratic and peasant/Christian rhetorics began to be questioned, if never entirely abandoned. When a bourgeois rhetoric born in Venice or Antwerp in the Middle Ages began to be elevated during the seventeenth century into an ideology, equipped with its own literature and its own history and its own symbolic life, no longer borrowing these from court or church, and came to be equipped with the muskets and cannons to deal peremptorily with traditional folk, the Bourgeois Era was fairly launched. Richard Steele, with Joseph Addison, in the *Spectator* 1711-1712 had provided a weekly reflection on bourgeois vs. gentry-aristocratic virtues. Ten years later, in his play of 1722, *The Conscious Lovers*, Steele has Mr. Sealand (thus the range of merchant, from sea to land) declare, “we merchants are a species of gentry that have grown into the world this last century, and are as honorable, and almost as useful, as you landed folks, that have always thought yourselves so much above us. For your trading, forsooth, is extended no farther than a load of hay, or a fat ox.”³⁷ George Lillo’s embarrassingly cloying play another ten years later, in 1731, *The London Merchant*, can stand as an emblem for the change – though a change always under challenge from the aristocracy and the clerisy and the peasantry/proletariat. The honest merchant of the title (absurdly named “Thoroughgood”) declares in the first scene that “as the name of merchant never degrades the gentleman, so by no means does it exclude him.”³⁸ The play was put on at least annually until 1818 for the edification of the apprentices of the City of London. Courtesy, once confined literally to the court, spread to the middle class. At the Octagon

Room in Bath later in the century the daughters of the better merchants danced with the sons of the lesser gentry. A century later the heiresses of American bankers and manufacturers were refreshing the fortunes of British ducal families.

The dual ethical change of dignity and of liberty for ordinary bourgeois life led to a reign of sense and sensibility from which we are still benefitting. Its virtues are commercial prudence and family love, combined in the self-defined middle class with an almost insane inventive courage fueled by hope, protected in its politics by faith and temperance, and by a just improvement in the condition of the other, working classes – the ancestors of all the rest of us, to say it again – who themselves at last came to partake of the citizenly, bourgeois dignity of a vote, a house, an education, and became themselves “gentlemanly” middle class.

Thus Norwegian immigrants to the upper Midwest read a comic strip drawn by Peter Rosendahl from 1919 to 1935 in their community newspaper, *Decorah-Posten*, concerning the adventures of Han Ola and Han Per (“Han” means “Him,” in the sarcastic sense of “Himself,” “His Nibs”). One of the running jokes is Per’s obsessive inventiveness, sometimes a crazy reuse of older technologies. During the life of the strip he tries out with disastrous effect fully sixty new machines, the editor of a collection of the cartoons notes, “invented (or bought) by Per. Rosendahl presents him as the undying optimist, trying in every way possible to mechanize not only the outdoor work of the farmer but also the indoor work of his wife.”³⁹ Thus in 1927:



It is all very American, as the characters keep saying. People in the Bourgeois Era were free to dream of innovation, and found the attempt

dignified. Even fools were free thus to dream. They found their dignity, and their comeuppance, in comical attempts at innovation.

The rhetorical explanation for such a historically unique madness seems to cohere within itself and to correspond with the facts better than the materialist alternatives from left or right.

Notes

25. Hayek 1960, p. 26.
26. Hume 1754-1755, p. 531.
27. Tocqueville 1835, p. 116.
28. Smith 1776, IV.ix.51, p. 687 (vol. II).
29. Lewes 1641, pp. 1-2, quoted in McKeon, p. 202.
30. Quoted in McKeon 1987 (2002), p. 197.
31. North 1691, Preface, p. viii.
32. Voltaire 1733, Letter 10, p. 154f.
33. The first sentence of Chapter 2 of *The Spheres and Duties of Government* (published only in 1851, after his death, because of its libertarian content, and swiftly translated into English.)
34. Lindberg 2004.
35. Macfarlane 2000, p. 207.
36. Otteson 2006, p. 160.
37. Steele 1722, Act IV, sc. 2, p. 159 in Quintana 1952.
38. Lillo 1731, Act I, sc. 1, p. 294 in Quintana 1952.
39. Rosendahl, p. xi. The cartoonist "Rosendahl," by the way, would appear to have come from the unique barony of that name (unlike Danes and Swedes, the Norwegian peasants working their wretched soils were not on the whole serfs of any baron). It is three miles from the Dimelsvik of my ancestors.

Chapter 34: They Warrant Not Political or Environmental Pessimism, but an Amiable Optimism

The economist Bryan Caplan has argued recently that the economist and the citizen disagree on four points.⁴⁰ The economist says that: markets work well because of profits, foreigners deserve as much ethical weight as we do, production not “jobs” is the point, and things are getting better and better. The average citizen believes on the contrary that the food market needs close regulation (the discipline of publicity and profit does not suffice), that protection against the “flood” of Chinese goods is an ethically justified idea, that a football stadium “generating jobs” must be a good idea, too, and that the sky is always falling.

I would add a fifth disagreement. The average citizen does not realize that her paid work is beneficial to others. She therefore believes that only charity or volunteer work “pays something back to the community.” The economist, who looks at the economy from the eighth floor, sees markets and innovation as enormous engines of (unintended) altruism. We do good by doing well. As Smith famously put it in 1776, “As every individual, therefore, endeavors as much as he can both to employ his capital . . . that its produce may be of the greatest value; every individual necessarily labors to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. . . . He intends only his own gain, and he is in this, as in many other cases, 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 no 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. I have never known much good done by those who affected to trade for the public good.”⁴¹

Caplan argues that an economy governed on Citizen Principles will impoverish the citizens. He worries, as many have since Tocqueville and Bastiat and before, that a democratic politics can lead to disastrously protectionist and redistributive policies, as in Peron’s Argentina. He’s right. It is sadly true that democratic politics unprotected by a rhetoric of free trade and creative destruction can ruin economies. (Democracy is

thus the worst system – except for all those others that have been tried from time to time.) Every agricultural economy until Holland and England and the English American Colonies was governed on a similarly self-destructive theory (though nothing like democratic). The governing theory was the Aristocratic Principle that most people exist for the comfort of a small group of lords and priests and kings. Bizarrely, the Aristocratic policy and the Citizen policy closely resemble each other in what they recommend. Against the positive-sum theory of the bourgeoisie they advocate expropriation of profit and the close regulation of markets, xenophobia, irrational projects of public works, protectionism amounting to staying forever in the same job, and a grim zero-sum belief that one person's or one country's gain is another's loss – and that only charity therefore can help the poor.

The point here is that brief reign of the entirely new and more genial Bourgeois Economist's Principles led to the modern world. Yet in many countries the civic religion recommended by the clerisy remains a version of the Citizen or the Aristocratic policy – stubbornly anti-capitalist, protectionist, anti-technological, allied with anti-Americanism. French thinkers of the 1960s, for example, wrote elaborate books on the economy without reading any books on non-Marxist economics, and little enough of Marx. Gilles Deleuze, Jean Baudrillard, Georges Bataille, and other worthies talked about the economy without an acquaintance with the best that had been thought and written about it, excepting a bit of Marx and Engels and Gramsci. The practice persists in university departments of the humanities worldwide.

And therefore it persists in a good deal of teaching worldwide. The required texts for French secondary-school students of social sciences, for example, three volumes called *Histoire du XXe siècle* (2005), declares that “economic growth imposes a hectic form of life, producing overwork, stress, nervous depression, cardiovascular disease, and, according to some, even the development of cancer.”⁴² Such an assertion contradicts the experience of the hundreds of millions of bourgeois and working-class Westerners, whose lives are spent in education up to their early-20s, and in retirement to a life of leisure twenty years longer than the life expectancy of their grandparents by their early 60s (or as early as age 50 if they are engine drivers on the French railways; and age 55 if they are managers). In 1910 a job working 60 hours a week in a factory spinning cotton in Lille might just possibly have been more stressful than one nowadays working 35 hours a week as a computer salesperson in Paris,

or even a train driver. And before that, in 1810, a factory job in Lille just might have seemed less in the way of overwork and nervous depression than farm work west of Puy-de-Dôme in the Auvergne, with no work at all in late winter and hectic harvests and endless threshing, and the children starving in April. At any rate people did move from the farm in the Auvergne to the factory in Lille, with alacrity, and later a smaller distance to the Michelin factory. And then they did move, *avec plaisir*, from the factories to computer sales in Paris or to driving the *Train à Grande Vitesse*.

Recent decades, the French school text admits, have witnessed “doubled wealth” – but also “doubled unemployment, poverty, and exclusion, whose ill effects constitute the background for a profound social malaise.” Yet the unemployment in France, and the barring for example of Muslims from wealth, might perhaps be caused not by “American” capitalism but by exclusive elite education in France, and by segregation of the Muslims in Le-Corbusier-inspired high-rise concentration camps around Paris far from factories, and by heavy regulation of the terms of employment – for example, the near impossibility of firing someone in France once she has miraculously achieved a job. France ranked in 2006, according to the World Bank, 144th out of 178 countries in ease of employing workers. Germany, also then with a high unemployment rate, was 137th and South Africa, with an appalling unemployment rate (but employment laws imitated from Germany), 91st. This against low-unemployment countries such as the UK (21st) and the US (1st).⁴³

Capitalism, according to the French instructors of the young, is “brutal,” “savage,” and worst of all (wait for it) “American.” Globalized capitalism is said to be much worse, for example, than those splendid examples of thoroughgoing socialism covering a quarter of the globe in 1970 from Cuba to North Vietnam. Many on the American left have agreed with their overseas comrades, and would advocate still, as the French schoolteachers put it “the regulation of capitalism on a global scale” – retrying yet again the glorious central-planning-with-gulags socialist experiment of 1917-1989. Such opinions have deep roots among the clerisy. In 1966, at the height of Western optimism about the future of socialism, the United Nations issued an International Covenant on Economic, Social, and Cultural Rights which did not so much as mention the right to property.⁴⁴ The liberal heroes from Locke to Jefferson spun furiously in their graves.

* * * *

The new alternative to central-planning socialism is environmentalism. It is taught now as a civic religion in the American schools (and with an even more fevered rhetoric in Germany and the Netherlands), the way anti-communism was in the American schools of the 1950s or nationalism in the French schools of 1890s or the great chain of being in the English schools of the 1590s. Freeman Dyson, no right-wing crank, wrote in the *New York Review of Books*, no right-wing rag, that "There is a worldwide secular religion which we may call environmentalism, holding that we are stewards of the earth, the despoiling the planet . . . is a sin, and that the path of righteousness is to live as frugally as possible. The ethics of environmentalism are being taught to children . . . all over the world. Environmentalism has replaced socialism as the leading secular religion."⁴⁵ The economist Robert Nelson argues that the American civic religion was once bourgeois economics, but has become progressive environmentalism.⁴⁶ The left has now adopted Malthus, not on fresh scientific evidence but on the mathematical "logic" that "resources" "must" be limited. (Such evidence-free logic might be why a mechanical environmentalism appeals to so many physical and especially biological scientists.) The left's saint has become Malthus, not Marx.

Since 1798, however, the evidence has been no kinder to the clever economist-parson Malthus than to the clever journalist-philosopher Marx. The economic historian Eric Jones notes that "economic history provides the antidote to the assumption that there is a static and readily exhaustible resource base." Yet the "fears of these kinds are hydra-headed and astonishingly resistant to contrary evidence."⁴⁷ The new environmental left has ignored the overwhelming evidence that incomes depend on human creativity not on natural resources, that innovation has unleashed creativity in resource-poor places like Japan or Hong Kong, and that the resulting high incomes generate a demand for a better environment. By what might be called an environmental Say's Law ("supply creates its own demand"), the creativity of innovation generates the supply of environmental improvement, and the enrichment from innovation creates the demand for the improvement by embourgeoisified citizens. It is starting to do even in China, and already has done so in Europe and East Asia and the United States and other high-income places. The air quality of rich cities, for example, has improved radically since 1950.

But the hydra keeps growing new heads, against the evidence. A leading spokesman for the environmental left, Paul Ehrlich, wrote in *The Population Bomb* 1968 that “The battle to feed all of humanity is over. In the 1970s and 1980s hundreds of millions of people will starve to death in spite of any crash programs embarked upon now. At this late date nothing can prevent a substantial increase in the world death rate.”⁴⁸ After Ehrlich’s firm scientific prediction in 1968 the world death rate (and soon the birth rate) fell sharply. The economist Julian Simon, who articulated the economic findings from the 1950s to the 1990s against the population-bombers – and famously won a wager with Ehrlich against the notion that we were running out of mineral “resources” – wrote in 1996 that the bombers “are reduced to saying that all the evidence of history [that in modern conditions population growth is good for people, not bad, and itself results in lower, not still higher, population growth] is merely ‘temporary’ and must reverse ‘sometime,’ which is the sort of statement that is outside the canon of ordinary science.”⁴⁹

The bombers, though, are hard to embarrass with evidence, and carry on railing against motherhood. Many of them are fine scientists in their own fields. They become unsteady, though, when they venture into economics. The paleontologist Niles Eldridge, for example, quoted in 1995 with approval a geologist at Columbia who had predicted in the 1960s on the basis of “simple measures of the volumes of the great sedimentary basins” that the world would run out of recoverable petroleum in the mid-1990s.⁵⁰ After the 1960s, in fact, oil reserves grew worldwide, which by 1995 Eldridge knew. Yet he did not draw the appropriate lesson in economics from the error, or from Ehrlich’s or the Club of Rome’s similar errors during the same era, which he also quoted with approval. He didn’t see that in a world in which people respond to economic incentives, and to environmental worries, too, the mechanical extrapolation of economic variables is not going to work well. For example, it didn’t from the 1960s to the 1990s. Oil got expensive, and oil companies spent more to uncover previously unknown reserves. Infant mortality went down, birth control cheapened, and mothers had fewer children. A path to a fuller life through education opened up, and young people took it.

In 1830 Macaulay asked, “On what principle is it that, when we see nothing but improvement behind us, we are to expect nothing but deterioration behind us?”⁵¹ On what principle indeed. Ehrlich’s 1968 book sold famously, and he continued well into the new millennium to

defend the propositions that the Green Revolution and the fall in the world's the birth rate and the rise of life expectancies and such triumphs of environmental reversals as the banning of spray-can propellants eroding the ozone layer and the banning of soft coal dirtying the cities are temporary and must reverse sometime, and that we have seen our best days and will see nothing but deterioration before us. Nonetheless, the environmental left has won the rhetoric. By now for instance, without evidence or much reasoning, the debate is closed about such a vague and questionably ethical idea as "sustainability" (which entails imposing burdens on present-day poor people in aid of a distant future generation likely to be very much richer), just as in the 1950s the discussion about such a vague and questionable idea as "progressive taxation" was closed without evidence or much reasoning.⁵²

The economists have long tried to provide the reasoning and evidence – to the point where convinced environmentalists have in vexation stopped listening to them, so painful is the experience, and have stopped trying to show that the economists are wrong scientifically or ethically. Allyn Young, the economist responsible for inspiring the new generation of growth theorists in the late twentieth century, wrote thus in 1928 (he died prematurely, and his influence was tenuous until recently revived):

No analysis of the forces making for economic equilibrium, forces which we might say are tangential at any moment of time, will serve to illumine this field, for movements away from equilibrium, departures from previous trends, are characteristic of it. Not much is to be gained by probing into it to see how increasing returns show themselves in the costs of individual firms and in the prices at which they offer their products. . . . The counterforces which are continually defeating the forces which make for economic equilibrium are more pervasive and more deeply rooted in the constitution of the modern economic system than we commonly realize.⁵³

One can only agree, and affirm that such agglomerating and upscaling models are plausible. My economist colleagues (and especially my future-economist undergraduate students) are very, very smart. Their models properly deny, for example, the environmentalists' Malthusian notion that increasing population results in such strong diminishing returns to inputs of labor that people are going to be driven by a Population Bomb back to \$3 a day. On the contrary, say the economists following Allyn Young (and I agree: otherwise I lose my union card), the natural resources that environmentalists obsess on are unimportant constraints in a modern world. The "ultimate resource," as

the economist the late Julian Simon put it, is brain power.⁵⁴ And therefore when the world has become educated and free, and when the implacable populist hostility to bourgeois innovation has faded, then it is quite true that success breeds more success. There develop, the economists put it, those “economies of scale.” Virtuous spirals.

Getting more people and agglomerating them into cities becomes in the models therefore a good thing, not bad, if the people have more going for them than strong backs and the ability to reproduce. Goldstone notes that “by the late twentieth century, in every 20 years [over any one generation, that is] the number of people being born was greater than the entire population of the world 200 years before.”⁵⁵ In each generation we have more chances of a Socrates, an Ibn-Khaldun, an Admiral Zheng He, an Isaac Newton, a James Watt than in all generations before 1800. Africa’s genetic diversity (all the rest of us came from merely 1000 or so Africans, on account of the “founder effect,” as the population geneticists call the falling away of lineages in small populations) implies that when over the next fifty years or so Africa acquires a European standard of living it is going to dominate world culture, producing ten Mozarts and ten twenty Einsteins.⁵⁶

But observe: without the dual ideas of the dignity and liberty for ordinary life and extraordinary innovation, no innovation is going to occur, no one is going to get properly educated, and we are back in the world of lives poor, nasty, brutish, and short (though by no means solitary) – a bomber’s Malthusian world in which diseconomies to labor input overwhelm economies of scale.

Changing social ideas, in short, explain the Industrial Revolution. Material and economic factors – such as trade or investment or exploitation or population growth or the inevitable rising of classes or the protections to private property – do not. They were unchanging backgrounds, or they were consequences of the rhetorical change, or they were beside the point, or they were weak, or they had already happened long before, or they didn’t actually happen at the time they are supposed to have happened, or they required the dignity and liberty of ordinary people to have the right effect. And it seems that such material events were not in turn the main causes of the ethical and rhetorical change itself. On the contrary, for largely non-economic reasons, the prestige of a bourgeois prudence rose around 1700 in the way northwest European people talked, within an economic conversation still honoring a balance of virtues. Economic prudence gradually came to be thought of

as virtuous, though merely one among the virtues of a good townsman.

* * * *

If pro-innovation ideas of *the elite* caused the Industrial Revolution, and if elite artistic and intellectual turned against innovation after 1848, as it did, first in nationalism and then in socialism, and then in national socialism, and finally in environmentalism, why didn't the turn bring to a halt the Industrial Revolution?

One reply is that a split developed between the elite and public opinion, in a new world in which public opinion came to matter as much as elite opinion. The clerical elite despises advertising and advocates central planning and believes we are doomed by population bombs and the destruction of the environment. Other people don't. Many artists and at length professors moved to the left, and developed a socialist and at length an environmentalist rhetoric. Others of them moved to the right, and developed an elitist rhetoric against public opinion itself.

In economic scholarship an emblem of the elite's scorn for bourgeois virtues is the treatment of Friedrich Hayek, the great libertarian economist from Austria, a naturalized Briton. Mention of Hayek can to this day evoke ignorant sneers on the left and center even of economics. While he was still at the London School of Economics, an internationally famous economic scientist, the equal in scientific reputation at the time of J. M. Keynes, he wrote, in 1944, an attack on the then immensely fashionable socialism, *The Road to Serfdom*. In Europe no one much minded such a popular book. But when the book appeared in the United States it caused a furor, partly because a long précis of it appeared in the vulgar and steeply right-slanting *Reader's Digest*. In 1950 Hayek was denied an appointment in Economics at the University of Chicago because of *The Road*, and spent his years at Chicago in the Committee on Social Thought.

But lawyers and at length educated businesspeople adhered to the market values that Hayek admired, against both left and right. In the United States the Eisenhower administration in the United States was an emblem of the split. Elite opinion sneered at Ike and his economic policies — Eisenhower's cabinet was called "eight millionaires and a plumber" (the Secretary of Labor, Martin P. Durkin, had been the president of the plumbers' union). But the bourgeois policies stayed, and worked pretty well.

And certain institutions and countries stored the idea of bourgeois dignity and liberty, which could re-emerge easily after the pessimism about innovation in the decades following the 1930s had passed. Economics itself went through a flirtation with socialism, 1933-1981, and then returned strongly to its true-liberal roots. Non-elite opinion in the United States (see *Reader's Digest*), and to a lesser degree even welfare-state Britain, was always a reservoir of anti-socialist opinion. A world without a United States might have permanently turned after 1945 against the Industrial Revolution, just as a world without Britain and Holland would not have developed bourgeois dignity and liberty in the first place.⁵⁷

A deeper reply is that the turn to the left, and many of the turns to the right, did in fact stop the Industrial Revolution, at any rate in the places where anti-innovation was well and truly tried. To be sure, in 1945 it looked like market societies were exhausted, and that giving socialism and the welfare state a serious trial even in the United States was in the cards. The best economists, such as Joseph Schumpeter, Alvin Hansen, John Maynard Keynes, Oskar Lange, Paul Samuelson, and Abba Lerner, thought at the time – with greater or lesser pleasure at the thought – that the world was moving from capitalism to socialism, whether or not the embattled democracies survived. Many people were impressed by the Soviet successes of the 1930s, whatever their human costs, and were very impressed by Stalin's victory over Hitler. They could not see that in the longer run, when opportunities for imitation had been used up, central-planning socialism could not achieve real innovation. Among students of the Soviet experience only a few, such as G. Warren Nutter and Alexander Gerschenkron and Abram Bergson, stood in the 1950s and 1960s against the prevailing elite opinion that socialism in Eastern Europe had successfully forced fast growth superior to what capitalism would have achieved there.⁵⁸ It was later discovered that after the heroic age of the 1930s the Soviet growth rate fell steadily, reaching such low levels in the 1980s that the growth of productivity relative to inputs was negative.⁵⁹ Indeed, in 1995 the World Bank economists William Easterly and Stanley Fischer reckoned that *only* in the 1950s was Soviet total factor productivity greater than zero.⁶⁰ The capital input in Soviet ideology was treated as a free good, and consequently was overused, in “extensive growth.” Build giant factories and full speed ahead.

Nonetheless as late as 1984 John Kenneth Galbraith was writing that “the Soviet system has made great material progress in recent years is evident both from the statistics and from the general urban scene. . . . One sees it in the appearance of solid well-being of the people on the streets [Galbraith did not perhaps spend much time in the provinces]. . . and the general aspect of restaurants, theaters, and shops. . . . Partly, the Russian system succeeds because, in contrast with the Western industrial economies, it makes full use of its manpower.” In 1985 the great economist Paul Samuelson wrote that “what counts is results, and there can be no doubt that the Soviet planning system has been a powerful engine for economic growth. . . . The Soviet model has surely demonstrated that a command economy is capable of mobilizing resources for rapid growth.” In 1989 Lester Thurow asked, “Can economic command [that is, the industrial policy that Thurow advocated] significantly. . . accelerate the growth process? The remarkable performance of the Soviet Union suggests that it can. . . . Today the Soviet Union is a country whose economic achievements bear comparison with those of the United States.”⁶¹ When a few years later the USSR collapsed and the Soviet statistics were at length opened — or indeed when earlier in the early 1960s the crops had failed — Nutter and Gerschenkron and Bergson were proven correct. (Hard political turns to the right, too, could and did stop industrial revolutions. Nationalist central planning in aid of *Lebensraum* was just as crippling as socialist central planning in aid of steel and farm tractors.)

But the still deeper reply is that once the cat of dignity and liberty was out of the bag she was hard to stuff back in. It was not impossible locally, as in Argentina or in Poland for a while, but the cat was on the prowl. We can if we work hard at it kill her with war and tyranny and protectionism and anti-innovation. But it will be difficult.

* * * *

Still, if the new rhetoric of innovation is what caused the modern world, then it is possible — not logically inevitable, but possible — that losing the ideology can lose the modern world. In other words, the Age of Innovation might have led to anti-capitalist ideologies that destroyed innovation. In fact, it did, in fascism and communism, and in a longer-running form in the clerisy’s disdain for the bourgeoisie. All were annoyed reactions to innovation. The worry is the old one of “the cultural contradictions of capitalism,” as Daniel Bell put it in 1978, anticipated by Schumpeter’s gloomy prediction in 1942 — one of the

darkest years of a dark decade — that the future lay with socialism, and Hayek's of 1944 that the clerisy were advocating a road to serfdom, or Aron's in 1955 that Marxism was the "opiate of the intellectuals." Expressed as hope rather than worry the reversion in rhetoric to central planning socialism is Karl Polanyi's "great transformation," the "double movement" in which society reacts against innovation and reestablishes a suitably embedded and conservative economy under central government control.

By now you will know that I would regard a loss of bourgeois and innovative rhetoric as a deep worry, not a hope, and that one purpose of my hopeful sestet on "The Bourgeois Era" is to argue against accepting such a loss. We need bourgeois rhetoric. Bourgeois innovation supported by the rhetoric has elevated the poor of the world. On the scale of actual relief of poverty from let-it-rip innovation practiced in England in the nineteenth century and nowadays in places like China and India, the dribbles of personal or religious charity, or government-to-government foreign aid, have been negligible, and often enough have perversely damaged the poor.

On the other hand, for the same reasons I have adduced here for not believing that efficiency gains are the heart of past economic growth, I do not believe that the inefficiencies of welfare states are greatly to be worried over — so long as innovation is not restricted. Harberger triangles are not the way to wealth, and consequently their loss from economically inefficient arrangements is not greatly to be lamented. The Swedish economy, for all its questionable payments to able-bodied people who decide not to work (one out of seven Swedes of working age in 2005 were on full disability), retains a good deal of innovative dynamism. The welfare state, we know by now, has not in fact been the first step on the road to serfdom. Not yet at least. Western European social democracy is surely democratic, and (recent anti-immigrant movements aside) has obviated the alternative of fascism.⁶²

Yet reverting to full-scale, central-planning socialism of the sort many of the clerisy still pine for on old socialist grounds or on new environmental grounds would be a catastrophe, judging from results of actually existing socialism that prevailed over large swathes of the world during the twentieth century. It would be scientifically strange to ignore the material and spiritual failures of full-blown socialism from 1917 to 1991, or to ignore the present-day examples to the contrary in China and

India, or to ignore the beginning of it all in the rhetorical change on the shores of the North Sea around 1700.

We need to strengthen the rhetoric of innovation. That does not mean celebrating “greed is good,” which I argued at length in *The Bourgeois Virtues* is a childish and unethical rhetoric – however popular on Wall Street and in the Department of Economics. Strengthening the rhetoric means celebrating innovation and respecting market deals. We must not worship them. That would be in Abrahamic terms idolatry. But we must not, either, cast them out as Baal or Mammon.

Take for example the fraught issue of CEO compensation in the United States. Richard Nardelli was perhaps not worth every dime of the \$50 million a year he earned for running Home Depot into the ground, or for the comparable amount he got during the descent of Chrysler into bankruptcy. On the other hand, few economist can be found who care very much. We economists have long pointed out, and correctly, that CEO pay even of the grotesque variety is a trivial percentage of the earnings of the companies involved. And yet in rhetorical terms the non-economists are right. The danger, many people argue, is that the grotesque salaries and the ego-pleasing rides on corporate jets and the vacation perks for the family paid for by suppliers to the corporation undermine the faith in innovation. *That* matters.

* * * *

A good deal hinges on whether the new understanding of our economic and ethical past that I have argued for here is true or false. If true, a finding that an ethical and rhetorical and ideological change made the modern world would be scientifically important. The Victorian skeptic Alexander Kinglake suggested that every church should bear on its front door a large sign, “Important If True.”⁶³ So here. Economic history faces no more important question than why industrialization and the reduction of mass poverty first started, and especially why it continued. The continuation made us richer and freer and more capable of human achievement than our ancestors. The latest continuation – located most spectacularly in, of all surprising places for it to happen, China and India – shows that the whole world can be so.

For instance, if ideas and ethics and “rhetoric” contributed largely to such a happy result then perhaps we should point our social telescopes also towards ideas and ethics and rhetoric. Looking fixedly at trade or imperialism or demography or property law – very interesting

though all of them are – will not do the bulk of the scientific job. Ideas are the dark matter of history, ignored for a century or so 1890-1980. In those days, I have noted, we were all historical materialists.

To be able to detect the dark matter we will need a new, more idea-oriented economics, which would admit for example that language shapes an economy. For such a humanistic science of economics – explored in this and related books, and which a happy few others of us are working on – the methods of the human sciences would become as scientifically relevant as the methods of mathematics and statistics now properly are.⁶⁴ Such a new economic science would scrutinize literary texts *and* simulate on computers, analyze stories *and* model maxima, clarify with philosophy and measure with statistics, inquire into the meaning of the sacred *and* lay out the accounting of the profane. The practitioners of the humanities and the social sciences would stop sneering at each other and would get down to cooperating for the scientific task.

It will not have escaped you that there is of course a political moral, too. If the economy were understood as more than Prudence Only, then we could re-moralize it. If innovation were an upshot of desirable ethical changes, then we could respect it. The rhetorical change was itself in part a consequence of dignity and liberty. Dignity and liberty were in turn the result in part of the long perfected property rights of Europe, the inheritance from medieval liberties of the towns, the competition among states smaller than the Asian giants, the decline of serfdom outside of sad Russia, the theory of individual dignity in Protestantism and more anciently in all Abrahamic religions, the partial liberation of women outside the Mediterranean, the mind-freeing shock of the Scientific Revolution to Europe's relatively primitive science, the uneven fall of religious and secular tyrants just when Asia was abandoning its much older tradition of toleration, the emergence of at least a tiny public sphere, the careers of quite a few open to talents, the improvements in military technology that briefly gave the West (and the Chinese) the weapons to lord it over aristocratic warriors of horse-using Steppe or elephant-using empire, the techniques of printing on paper imitated and improved from China and the Muslim world, making possible a more free periodical press and reasonably uncensored theatres and publishing houses (all imperfectly implemented 1600-1800, but startlingly novel, it seems, on the scale practiced in northwestern Europe, even allowing for recent findings that Orientalist notions of Asian backwardness are false).

If the technological change was in part a consequence of a new dignity and liberty then we free humans could be modestly proud of it. If our bourgeois building was not raised on foundations of imperialism or exploitation or unequal trade (excepting the brief reign of gunboats, and that in aid of trivial parts of the bourgeois economy), then we could admire it, though self-critically. If serious innovation were not amoral, then we could practice ethics more grown-up than a right-wing Greed is Good or a left-wing Down With the Bosses.

Give a woman some rice, and you save her for a day. That's the simplest form of what Christians flatter themselves by calling "Christian charity." Give a man some seed and you save him for a year. That's the plan of investment in capital, tried for decades in foreign aid without a great deal of success. But give a man and a woman the liberty to innovate, and persuade them to admire enterprise and to cultivate the bourgeois virtues, and you save them both for a long life of wide scope, and for their children's and their grandchildren's lives. That's the Bourgeois Deal. When bourgeois values do not thrive, the results are poor. As the economists Virgil Storr and Peter Boettke note about the Bahamas, "virtually all models of success to be found in the Bahamas' economic past have to be characterized as piratical," with the result that entrepreneurs there "pursue 'rents' rather than [productive] profits."⁶⁵ Piratical greed, which is to say self-interested prudence without the balance of other virtues such as justice, is not good. And contrary to a widespread opinion on left and right, it is not characteristically bourgeois. Bernard Mandeville and Ivan Boesky were wrong. Prudence-only is not the virtue of an innovative society.

* * * *

Yet if innovation, even in a proper context of the virtues, continues to be scorned by the clerisy, as it has been by many of our opinion makers now for a century and a half, we can if we wish repeat the nationalist and socialist horrors of the mid-twentieth century. If we calculate only the disruptions of a pastoral ideal, and neglect the gains from innovation, we can remain poor shepherds and dirt farmers, with little scope for intellectual and spiritual growth. If we abandon economic principles in thinking about the environment, we can revert to \$3 a day, living in huts on a hillock in the woods by Walden Pond. Now in the early twenty-first century we can even if we wish add for good measure an anti-bourgeois religiosity, as new as airplanes crashing into the World Trade Center and as old as the Sermon on the Mount.

But I suggest that we don't. I suggest instead that we recoup the bourgeois virtues, which have made us capable, in von Humboldt's words, of developing the highest and most harmonious of our powers to a complete and consistent whole. We'll need to surrender the economistic idea that reshuffling and efficiency made the modern world. We'll need instead to welcome an economics that properly celebrates ethics, rhetoric, language, creativity, innovation.

Notes

40. Caplan 2007, Chapter 2, "Systematically Biased Beliefs About Economics."
41. Smith 1776 IV.ii.9, p. 456.
42. Theil 2008, from which subsequent quotations are also drawn.
43. *World Bank, Doing Business* (2006).
44. As Marc Plattner noted in 1999, p. 6.
45. Dyson 2008, p. 45, examining sympathetically the arguments of that ever-useful economist, William Nordhaus, in his book *A Question of Balance: Weighing the Options on Global Warming Policies*(2008).
46. Nelson 2010.
47. Jones 2003, p. 58.
48. Ehrlich 1968., p. xi.
49. Simon 1996.
50. Eldridge 1995, p. 9.
51. Macaulay 1830, pp. 186, 187
52. Blum and Kalven 1963.
53. Young 1928.
54. Simon 1981 (1996).
55. Goldstone 2009, p. 17.
56. Compare Tishkoff and others 2009 reporting on the relationships of 2400 people from 113 separate linguistic groups in Africa.
57. I owe these hypotheses to a discussion with graduate students in economics at Northwestern University in March 2009.
58. Nutter 1962; Gerschenkron 1947 and a collection of his papers on Soviet growth in Gerschenkron 1962; Bergson 1961.

59. The summary table of Answers.com at <http://www.answers.com/topic/soviet-economic-growth> tells the sad story, on the basis of research by Gur Ofer (1996), Laurie Kurtzweg, James Noren, and Angus Maddison (2001).
60. Easterly and Fischer 1995, p. 42, Table 4.
61. The Galbraith, Samuelson, and Thurow quotations come from D'Souza 1997.
62. As is argued persuasively by Berman 2006.
63. Tuckwell 1902, Chp. V.
64. Hirschman 1977; and recently Klamer 2003, 2007; Bronk 2009. But one could cite many older economists, as I have earlier, from the sainted Adam Smith to the blessed Frank Knight.
65. Boettke and Storr 2002, pp. 180-181. Compare Storr 2006.

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The Argument of Bourgeois Dignity: Why Economics Can't Explain the Modern World

A précis of the entire argument of the book

We need to explain the astonishing enrichment in bourgeois countries from 1800 to the present, such as Norway's move from \$3 a day in 1800 to \$137 in 2006. But the explanation cannot be economic. If it were so — trade, investment, incentives — it would have happened earlier, or in other places. Economics determines how the tide of growth expressed itself down this inlet or beside that quay. Good. But the tide itself had “rhetorical” causes. Prudence is not the only virtue—so are courage and hope, supported by temperance, justice, love, faith, and hope. Through a “Bourgeois Revaluation” redefining such virtues, first in the Netherlands and then in Britain, people started accepting the creative destruction of innovation — and this for the first time.

Habits of the heart did not change (contrary to Max Weber, for example). And the means of production itself cannot have produced such a stunning change endogenously (contrary to modern growth theorists). What changed were habits of the lip. It's not a “rise of the bourgeoisie,” but a rise in other people's opinion of the bourgeoisie that makes for economic growth — as it is now doing in China and India. When people treat the marketeers and inventors as having some dignity and liberty, innovation takes hold. It was so to speak a shift in “constitutional political economy,” as James Buchanan puts the point. People agreed on the meta-rule of letting the economy go where it will. This contrasted with the earlier mentality, still admired on the left, that treats each act of innovation as an occasion to go looking for its victims. Victims there were, but they were greatly outnumbered by winners. It was ideas, not matter, that made the winners, and brought our ancestors from \$3 to over \$100 a day.

It is a materialist prejudice common in scholarship from 1890 to 1980 that economic results must have economic causes. But ideas caused the modern world. The point can be made by looking through each of the materialist explanations, from the “original accumulation” favored by early Marxist historians to the “new institutionalism” favored by late Samuelsonian economists. They are surprisingly weak. The residual is

ideas, in particular the Bourgeois Revaluation of the 17th and 18th centuries in northwest Europe. The argument takes possibly six books, constituting a full-scale defense of capitalism. One is already published (*The Bourgeois Virtues: Ethics for an Age of Commerce* 2006), and the argument here is of volume 2, forthcoming in late 2010. Volume 3, *deo volente*, will explore exactly how the Revaluation occurred, first in Holland and then by imitation in England, Scotland, Pennsylvania, and the world. Volume 4 (perhaps included in Volume 3), will explore the balance of interest (Max U) and language in explaining the Industrial Revolution and its longer-term consequences. If my energy holds up, a volume 5 will explain why the clerisy of elite artists and intellectuals turned against innovation after 1848; and a volume 6 will ask which of the present-day complaints about free-market economies has merit. Since the sestet ("The Bourgeois Era") is a defense of innovation, one can expect not to find arguments that globalization is bad for the poor, or that innovation has destroyed the environment. Both left and right are suspicious of the modern world, often for the same reasons. "The Bourgeois Era" argues that both are mistaken: that innovation has elevated people, in more than goods alone.

Real national income per head in Britain rose by a factor of about 16 from the 18th century to the present. Other cases, such as that of the U.S. or Korea, have been even more startling, historically speaking. Like the realization in astronomy during the 1920s that most of the "nebulae" detected by telescopes are in fact other galaxies unspeakably far from ours, the Great Fact of economic growth, discovered by historians and economists in the 1950s and elaborated since then, changes everything. And 16, if one follows William Nordhaus' persuasive arguments about quality improvements in (say) lighting, is a very low lower bound: the true factor is roughly 100. As Maxine Berg has argued, changing quality of products was as important as changes in process. But the gain is not to be measured by pot-of-pleasure "happiness studies." These are questionable on technical grounds, but especially on the grounds that they do not measure human fulfillment. They ignore the humanities, pretending to scientific precision. It makes more sense to stay with things we economists can actually measure, such as the rise of human scope indicated by the factor of 16 or Nordhaus' factor of 100, or by what Sen and Nussbaum call "capabilities." Of course, what we really care about are the scope or capabilities of the poor. These have enormously expanded under "capitalism" — though a better word is simply

“innovation,” arising from bourgeois dignity and liberty. It is the Bourgeois Deal: let me alertly seek profit, and I will make *you* rich.”

Britain was first, though the classical (and many of the neoclassical) economists did not recognize that it's course was beginning the factor of 16. The slow British growth in the 18th century proposed by Crafts and Harley is unbelievable, but however one assigns growth within the period 1700-1900 it is now plain that something unprecedented was happening. Only non-economists recognized it at the time. The central puzzle is why innovation did not fizzle out, as Mokyr has put it – as it had at other times and places. Productivity in cotton textiles, for example, grew at computer-industry rates, and continued so into the 20th century. But Europe's lead was not permanent. The California School of Pomeranz and Goldstone and Allen and others have shown that China led the West in 1500, and maybe as late as 1750, then fell dramatically behind. It was the *continuation* of European growth in the 19th and 20th centuries that is strange and new. Explaining the Great Divergence requires focusing on non-European events in the 19th century – not some deep-seated European cultural superiority. On the other hand, Europe's fragmented polity *was* an advantage, as shown in the swift uptake of the printing press. The way that non-European places like Japan or Botswana or India have been able to grow demonstrates that the stage theories popular in European thought from the 18th century to the present (for example, in modern growth theory) are mistaken. The metaphors of biological stages or human foot races are inapt, such as the talk in business schools of “competitiveness” nowadays. The “rise” of non-European economies does not presage a “decline” or Europe or its offshoots, merely a borrowing of social and engineering technologies such as Europe once borrowed from elsewhere. The dignity and liberty of ordinary people stands in the middle of such “technologies.”

Thrift was not the cause of the Industrial Revolution or its astonishing follow on. For one thing, every human society must practice thrift, and pre-industrial Europe, with its low yield-seed ratios, did so on a big scale. British thrift during the Industrial Revolution, for another, was rather below the European average. And for still another, savings is elastically supplied, by credit expansion for example (as Schumpeter observed). Attributing growth to investment, therefore, resembles attributing Shakespeare's plays to the Roman alphabet: the alphabet was

“necessary” in a reduced sense, but was of course an assumed background, not the cause in any useful sense.

Certainly Europeans did not develop unusual greed, and the Catholics – in a society of bourgeois dignity and liberty – did as well as the Protestants (in Amsterdam, for example, where Catholics were one third of the population). Ben Franklin, to cite a leading case, was not (as D. H. Lawrence portrayed him in a humorless reading of this most humorous man) “dry and utilitarian.” If capitalism accumulates “endlessly,” as many say, one wonders why Franklin give up accumulating at age 42.

The evidence also does not support Marx’s notion of an “original accumulation of capital.” Saving and investment must be used when they are made, or they depreciate. They cannot accumulate from an age of piracy to an age of industry. Yet modern growth theory, unhappily, reinstates a theory of stages and, especially, capital accumulation. They are not initiating, whether in physical or human capital. Innovation 1700-2010 pushed the marginal product of all capitals steadily out, and the physical and human capital followed.

Transportation improvements cannot have caused anything close to the factor of 16 in British economic growth. By Harberger’s (and Fogel’s) Law, an industry that is 10% of national product, improving by 50 percent on the 50% of non-natural routes, results in a mere one-time increase of product of 2.5% ($= .1 \times .5 \times .5$), when the thing to be explained is an increase of 1500%. Nor is transport rescued by “dynamic” effects, which are undermined by (1.) the small size of the static gain to start them off and (2.) the instable economic models necessary to make them nonlinear dynamic.

The same holds for many other suggested causes of the modern world: enclosure, for example, or the division of labor or the Kuznets-Williamson Hypothesis of reallocation from agriculture to industry, country to town. Wider geographical arguments, such as Diamond’s or Sachs’, turn out to be ill-timed to explain what we wish to explain. And “resources,” such as oil or gold, have both the Harberger Problem and the timing problem. Not even coal – the favorite of Wrigley, Pomeranz, Allen, and Harris – can survive the criticism that it was transportable and substitutable. The factor-bias arguments of Allen have the old problem of the Habbakuk Hypothesis, namely, that all factors are scarce. Even if we add up all the static and quasi-dynamic effects of resources,

they do not explain Britain's lead, or Japan's or Hong Kong's catching up.

Trade reshuffles. No wonder, then, that it doesn't work as an engine of growth – not for explaining the scale of growth that overcame the West and then the Rest 1800 to the present. Yet many historians, such as Walt Rostow or Robert Allen or Joseph Inikori, have put foreign trade at the center of their accounts. Yet the Rest had been vigorously trading in the Indian Ocean long before the Europeans got there – indeed, that's why the West wanted to get there. Trade certainly set the prices that British industrialists faced, such as the price of wheat or the interest rate. But new trade does not put people to work, unless they start unemployed. If they are, then *any* source of demand, such as the demand for domestic service, would be as important as the India trade. Foreign trade is not a net gain, but a way of producing importables at the sacrifice of exportables. The Harberger point implies that static gains from trade are small when set beside the 1500% of growth to be explained, or even the 100% in the first century in Britain. Trade is anyway too old and too widespread to explain a uniquely European – even British – event.

One can appeal to “dynamic” effects, but these too can be shown to be small, even in the case of the gigantic British cotton textile industry. And if small causes lead to large consequences, the model is instable, and any old thing can cause it to tip. Ronald Findlay and Kevin O'Rourke favor foreign trade on the argument that power led to plenty. But domination is not the same thing as innovation. In short, the production possibility curve did not move out just a little, as could be explained by trade or investment or reshuffling. It exploded, and requires an economics of discovery, not an economics of routine exchanges of cotton textiles for tea.

Since trade was not an engine, neither was a part of trade, such as the trade in slaves. The profits from the trade, which were small and were mainly earned by African slave-catchers, did not finance the Industrial Revolution. Imperialism, too, was a mere part of trade, and despite the well-deserved guilt that Europeans feel in having perpetrated it, it was not an engine of their growth. Stealing from poor people is not a good business plan. Certainly the possession of India did little for the great British public. It taxed them for the Navy. But that Europeans did not benefit from imperialism does not mean that imperialism was good for the imperialized. That a thief kills his victim does not add to the

thief's monetary profit, and some imperialism was certainly killing. The cases of simple theft, such as the Belgian Congo, did nothing to enrich the average Belgian. Nor have internal imperialisms, such as apartheid, been profitable. The episode of economic success in Europe came from domestic sources of innovation, not from exploitation.

"Commercialization" and "monetization" dance with stage theories from Smith to modern growth theory. The sheer growth of trade or the sheer growth of money, though, do not an Industrial Revolution make. The ill-named "Price Revolution," for example, came from American gold, not from population increases, and did not inspire innovation. Commercialization comes from falling transaction costs, which should be directly studied. Fernand Braudel, however, argued for commercialization as a force transforming "capitalism." He distinguished "capitalism" from local trade, which no economist would, and assigned blame to the capitalists. Though hardly a Marxist, he – like a brilliant group of leftish economists such as Marglin and Lazonick – puts emphasis on the struggle over the spoils. But it was not such struggles that made the modern world. It was the positive sum arising from innovation.

An extreme materialist hypothesis explaining the Industrial Revolution would be simply genetic. Gregory Clark asserts such a theory of sociobiological inheritance in his *Farewell to Alms* (2007). Rich people proliferated in England, Clark argues, and by a social Darwinian struggle the poor and incompetent died out, leaving a master race of Englishmen with the bourgeois values to conquer the world. Clark will have no truck with ideas as causes, adopting a materialist (and, as he believes is implied by materialism, a quantitative) theory of truth. His method, that is, follows Marx in historical materialism, as many scholars did 1890 to 1980. But he does not carry out his promise to show his argument quantitatively.

The argument fails, on many grounds. For one thing, non-English people succeeded, as for instance the Chinese now are succeeding. And such people have always done fine in a bourgeois country. For another, Clark does not show that his inheritance mechanism has the quantitative oomph to change people generally into bourgeois, nor does he show that bourgeois habits of working hard mattered, or that bourgeois values caused innovation. What made for success in 1500 is not obviously the same as what made for innovation in 1800. And in the modern world of literacy such values are not transmitted down families, but across

families. Literal inheritance anyway dissipates in reversion to the mean. What mattered in modern economic growth was not a doubtfully measured change in the inherited abilities of English people. What mattered was a radical change 1600-1776, “measurable” in every play and pamphlet, in what English people wanted, paid for, revalued.

Douglass North, with many other Samuelsonian economists, thinks of “institutions” as budget constraints in a maximization problem. But as Clifford Geertz and his colleagues put it, an institution such as a toll for safe passage is “rather more than a mere payment,” that is, a mere monetary constraint. “It was part of a whole complex of moral rituals, customs with the force of law and the weight of sanctity.” The Geertzian metaphor of negotiation and ritual makes more sense than the metaphor of a mere budget constraint. Meaning matters. North in particular thinks that the budget line of anti-property violence was shifted in the late 17th century. It was not: on the contrary, England was a land of property rights from the beginning. So “institutional change” does not explain the Industrial Revolution. The timing is wrong.

Incentive (Prudence Only) is not the main story, and cannot be the main story without contradiction: if it was Prudence Only the Industrial Revolution would have happened earlier, or elsewhere. Other virtues and vices mattered – not only prudence, beloved of the Samuelsonians; but temperance, courage, justice, faith, hope, and love, which changed radically in their disposition in the seventeenth and eighteenth centuries. Sheer commercial expansion is routine and predictable and ill-suited therefore to explaining the greatest surprise in economic history.

The Glorious Revolution of 1689, which North and Weingast have cast in a central role, merely made the British state effective. It did not change property rights (as economists such as Darin Acemoglu have supposed, on the basis of North’s tale). North praises patents and incorporation laws, neither of which had much impact in the Industrial Revolution. The 18th century, in other words, was *not* a century of “institutional change.” Nor is the entire absence of property relevant to the place or period. Richard Pipes argued it was relevant, on the basis of the Russian case. Yet only in society’s dominated by Steppe nomads was property weak. In Europe in the 16th and 17th centuries, as in China then, it had been strong for centuries past. The Stuarts were not princes of Muscovy. And indeed private property characterizes all settled human societies.

What happened to make for the factor of 16 were new ideas, what Mokyr calls “industrial Enlightenment.” But the Scientific Revolution did not suffice. Non-Europeans like the Chinese outstripped the West in science until quite late. Britain did not lead in science – yet clearly did in technology. Indeed, applied technology depended on science only a little even in 1900.

Why did the North-Sea folk suddenly get so rich, then, get so much cargo? The answers seems not to be that supply was brought into equilibrium with demand – on the contrary, the curves were moving out at breakneck pace. Reallocation is not the key. Language is, with its inherent creativity. The Bourgeois Revaluation of the 17th and 18th centuries brought on the modern world. It was the Greatest Externality, and the substance of a real liberalism. Left and right have long detested it, expressing their detestation nowadays in environmentalism. They can stop the modern world, and in some places have. The old Soviet Union was admired even by many Western economists – which admiration is an instance of a “cultural contradiction of capitalism,” in which ideas permitted by the successes of innovation rise up to kill the innovation. We should resist it.

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