

Meet the Author. *Farewell to Alms* by Gregory Clark

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(Note: This is a transcript of remarks to the session of the SSHA dedicated to *Farewell to Alms*, and reflects the rhetorical conventions of that venue. This session was taped by David Hacker and transcribed by Susan Wolcott, both of Binghamton University. Comments have been edited slightly for clarity, with the speakers' advice and consent. Note that three of the speakers have published or will soon publish more complete critiques of this book. Jack Goldstone's review is published in *World Economics*, vol. 8, no. 3 (2007), Deirdre McCloskey has a review available at her website, given below, and George Grantham is writing a critique for a symposium to be published in *European Review of Economic History*.)

Joel Mokyr (Northwestern): Good Morning everybody. Thank you for getting up for this special session on Gregory Clark's *Farewell to Alms*. I am Joel Mokyr from Northwestern. We are going to play a little bit Hamlet without the prince this morning. Greg sent me an email last night which told me that his flight from Sacramento to Denver had been much delayed and he wouldn't be able to get to Chicago before 11 o'clock, and he went home.

He did send me his reply to his critics which I will present, though it will not be as good as Greg. He has seen 3 of the 4 comments, though I don't think he has seen George's. He's seen what is going to be said. There is nothing to be done. This is the age in which our lives depend upon United Airlines and when they screw up that is it.

Ok. So these are the participants: Jack Goldstone, Deidre McCloskey and George Grantham. These are all, I hate to say it, old timers.

First, a shameless ad from the commerce division. This book is from the series, *History of the Western World*, edited by yours truly.

So, because I am the editor in chief of this series, there is some conflict of interest. And I have refused all requests to review this book for obvious reasons, much as I would have liked to review it. So, my talk is called, inevitably, "If I Reviewed" (Laughter.) As editor I have been living with this manuscript for the last three years and read it ad nauseum. Coming back to it after not having looked at it since the page proofs, here are the 3 propositions I see. Before 1800 nothing much happened in history due to the Iron Law of Wages. Now Greg doesn't believe that literally. Lots of things happened and he knows it as well as I do. But we are talking about the kinds of things that really matter like real wages and per capita income, and they were flat as a pancake in the really long run. Second Proposition, Institutions don't matter because they fix themselves. And if there is something wrong with the institution, sooner or later forces will be set in motion which will set them straight. Third proposition. The Industrial Revolution happened

because the right people had more surviving children. Now I think these are the three propositions which are central to the book. Now my co-panelists may disagree and I think that is probably reasonable. What I want to talk about is what is now known as the hockey stick phenomenon. You know the work of climatologist Michael Mann and this is what it looks like: (refers to slide). He was talking about temperature. But lots of things have the form of the hockey stick. For a long, long time it is flat and then it turns sharply upward. Now to be fair to Greg, he doesn't subscribe to the complete constancy of real wages before 1800, only that they were governed by the mortality and fertility behavior of the population. Of course people have been spending their careers on this. Does it work? And they find sometimes yes and sometimes not. This is Greg's real wage series from p. 41 of his book: (refers to slide). And what works nicely is the sharp turn upward that we attribute to the Black Death. It reaches a peak sometime in the middle of the 15th century because the Black Death is followed by a whole bunch of mini-me Black Death's and population kept being shocked by outbreaks of bubonic plague. It peaks up here, and then it starts going down, and eventually by the beginning of the 17th century it reaches where it was in the high middle ages. And I think this curve more than anything else is central to the first half of the book in which he makes his argument. Now you start looking at higher frequency data and little problems crop up. Now one I picked out, and picked on and I have been doing that for quite a while, and he wouldn't listen... One is the difficulty you have between Tudor and Stuart England, though you could pick any subset you want. Under Queen Elizabeth, real wages fell by about 40 percent and population increased by about .64 percent and under James, 1603 to 1625, wages increased by 10 percent and population rose at almost exactly the same amount. Needless to say that doesn't say that the story is wrong. But it requires more meat. It likely requires more empirical testability, and we aren't given any in this book. And that is somewhat disturbing. If you want to resuscitate this early 19th century argument-and it really is, it is straight out of Ricardo and Malthus- you have to not only look at the higher frequency response, but also he needs to rule out alternatives. He ignores data available while he was writing the book such as Patrick Holloway, Morgan Kelly, and others. And they all found that Malthusian models were inaccurate long before the Industrial Revolution broke out. They differ about the exact dating, and there are some difficulties there, but that is the finding. Even if you could find that mortality and fertility fluctuations respond to income shocks, that is not equivalent to a statement that the Iron Law of Wages holds in the very long run. And look at a more recent paper that he probably did not have access to. Esteban Nicolini in the latest issue of the *European Review of Economic History*, he uses vector auto regression which is the right way to do it if the data could bear it, which is a different matter ... And his conclusion is that maybe the world before Malthus was not so Malthusian after all.

The other issue which is the thing that I have worried about with a joint paper with Joachim Voth, and Joachim has other work on this, and that is the urban conundrum. The urban conundrum is, let me explain this as briefly as I can. Essentially the story that Greg tells is that Malthusian feedback requires if income goes up then nutrition improves, mortality declines, and population rises and diminishing returns set in and real per capita income declines. But most of these loops are actually more complex. If we have a world in which as income goes up the demand for manufactured goods goes up, essentially a

reflection of Engel's law, and if manufactured goods are produced in cities, a big if, therefore urbanization goes up, but we know urban areas are very unhealthy because of the urban penalty which was still ruling until deep into the 18th century, and so population may actually be stable or declining, and real wages stay high. That is essentially the story of the Netherlands. And it isn't so much a complete rejection of the Malthusian model but it recognizes that multiple equilibria exist. Now Greg despises multiple equilibria for some reason; most economists have slowly reconciled themselves that they may exist. But that is in fact something which must be taken into account because urbanization does throw a wrench into the works of the Malthusian story.

The other thing that you need to worry about a bit is that real wages are not the same thing as income per capita and certainly not the same thing as economic welfare. We need to worry about lots of in-between links which are glossed over. One is the issue of participation rate and number of hours worked. There are issues of income distribution. The changes in the consumer basket: improvements in quality; new goods certainly after the discoveries of the 16th century- a lot of new goods start appearing on people's table. And finally an issue my colleague Regina Grafe is worrying about is that a lot of wages are paid in kind. The proportion paid in kind is fluctuating over time, and this is not registered in the wage statistics, so you are not capturing complete compensation.

So why is there so little growth before 1860? The standard story is one of negative feedback. Growth carries the roots of its own destruction, and that is the Malthusian/Clark story. And I'm going to give you the alternative, which is the Willie Sutton story. I don't need to explain. Everyone knows the Willie Sutton story. It has become a cliché. [Transcriber's note: Sutton was asked why he robbed banks. He reputedly replied, "Because that's where the money is."] The point about history is that economic growth in preindustrial Europe doesn't in fact take place in what we would call today "economies". It is not the "English economy" or the "French economy", but regions. You get a couple of cities, such as Flanders between Bruges and Ypres, or a cluster of towns in Southern Germany and Bavaria. And these places grow. But the problems with these places are that as they get rich, they attract both from the outside and the inside what we would call today rent seekers. These come in all shapes and forms, sometimes as Spanish soldiers or local tax collectors. People go to where the money is. And in so doing they either destroy the goose that lays the golden egg, or they make the goose pay so much for defense that much of the investment has to go into navies to protect their trade. Finally, there is George Billings who said- not Mark Twain- that it is not what people don't know that is the problem. It is what they know that ain't so. This is something I have been harping on for a long time and there is no need to repeat it. Basically people don't know a helluva lot about why the technique they are using works, and therefore it is very difficult for them to improve it. And this institutional feedback is something we need to not overlook. And I don't see in Greg's book any attempt to distinguish between the demographic and the institutional feedback hypothesis. Consider Antwerp. Antwerp was a very prosperous town in 1560, but by 1620 was reduced to a small dusty provincial town which has to wait for another century and a half until the French finally opened the Scheldt and they can finally start trading again. And this has nothing to do with population. This has to do with jealous Dutchmen who closed the

river. I feel very contrite about this, but that is what happened. (Laughter.) If it is true that institutional feedback is more important than demographic feedback, in some sense this would explain the British success story much better. Britain never faced a serious threat of invasion as it was a big island and difficult to invade. Being an island is not enough. You could be a little island next to a big island and then you are in trouble. (Laughter.) But Britain was a big island. But what is more important is the Internal Willie Sutton effect. You can sort of see it receding after 1760 or 1770. This was a country in which for many reasons which I am not going to get into, rent seeking and monopolies and patronage, sinecures, all kinds of things started to fade away. And by the middle of the 19th century there is absolutely nothing left of it. I would say even by 1795 much of this is gone. And finally we do know that the Willie Sutton effect in the 19th century, at least within Europe is essentially gone. Predatory wars as we had them in the 17th and 18th century essentially no longer take place between 1860 and 1914. The little wars we have aren't really predatory, within Europe. Outside Europe is a different story.

Finally we come back to Greg's book. Is there a "survival of the richest" kind of effect? That was the title of Bob Solow's review in the New York Review of Books. It is not really the richest- Bob got it wrong there- but it is really the middle class, people who bring about economic growth, traders and entrepreneurs, people with the Protestant work ethic. David Landes would love that section, though Greg wouldn't be happy about David being happy, you know ... (Laughter.) And then the question is of course is the fact that the middle class has more surviving offspring, and if that argument can be sustained, and there is an empirical basis, but there is probably more than one work needed there, I think. Did that cause everything? Now in Britain in 1700s there is overwhelming evidence that the middling classes as they called themselves, was quite large and quite important. We know from the work of Peter Lindert and others that the proportion of people we would define as belonging to the middle classes was unusually large, second only to the low countries. And you could argue that the preexistence of this middling class was important. And that is because they had- as my dear friend Deidre McCloskey will tell you in greater detail in a few minutes, they had something of a bourgeois culture. So what is it exactly about a bourgeois culture. This is something we should talk about and this is where I think Greg's work is important. It will stimulate us to reexamine our assumptions. Did they work harder as Joachim Voth has found for the late 18th century? Did they like material goods, and so send their wives and children to work so they could buy pots and pans as Jan De Vries, his new book is arguing. And there are other things. A new paper by Matthias Doepke and Fabrizio Zilibotti talking about what they call: patience capital, which is a way of delayed gratification. Maybe these people were more willing to take risks. And there is something that Greg doesn't touch upon, middle class buy middle class kinds of goods. This is what I call the clock maker's effect. Middle class people buy clocks. But people who make clocks are good at making lots of things- machines, instruments, etc. They are just good with their hands and Britain had lots of these. That played an important role which we need to examine. Finally, middle class- and this takes me back to Avner Grief's work- and really Greg cuts his own throat when he says institutions are not important. Middle class people are important because they behave differently. They care about the way they are perceived by society and so they will behave cooperatively in these repeated prisoner dilemma

games, and so we get societies capable of producing the private order institutions which support markets which form the basis for Avner's work.

The questions we need to ask Greg before he gets attacked as a Social Darwinist, which will happen shortly, I suspect. The fact that values are transmitted from parents to child doesn't say anything about genetics at all. Culture is passed on vertically from parents to children. And nobody- except for identical twins separated at birth- can separate out cleanly the two effects. But the main issue is that in the literature on cultural evolution- quite large and quite deep- that says we don't just learn from our parents but we also learn diagonally, we learn horizontally from other people from peers, from masters in apprentice or servant relationship. If you want to talk about dissemination of values, demographics may not tell you nearly as much as you may want to know. And so we don't know the answer to that, and I'm not totally sure that Greg and Gillian Hamilton's data will tell us.

Until then, as one would expect of a book written by a Scotsman, interesting, intelligent, provocative, fun, but, unproven.

Thank you.

George Grantham (McGill University): I will read a little bit and then I will try to get into it. *Farewell to Alms* is breathtaking in its audacity. From a thin time series of English agricultural wages and prices it infers the marginal product of labor from the middle of the 13th century to the middle of the 19th. From a sample of late 16th and early 17th century wills from East Anglia and London, and with some creative manipulation, it infers reproductive success of different people in different income classes. It explains everything that matters about the rise of the West, and the fall of everywhere else. And in my view it should have taken for its title something that would have been invented by the author's Presbyterian ancestors, and I would suggest: "Omnichron: The Riddle of the Universe Unriddled." Like that sprawling literature spawned by Luther's descendents, it bids us to have faith in what can't be seen. (Laughter.) And this is a work of great faith. It is of the kind that moves mountains, and according to the author, real GDP. The argument boils down to 5 points. At least I see them as 5, and not Joel's three. First, from the 13th to the early 19th century, agricultural technology was in stasis. Which meant that occupational specialization and urbanization were restricted to very low levels by the low level of agricultural productivity. Second, a Malthusian demographic regime maintained population at a level compatible with steady-state reproduction, and a constant real wage which has typically low. Third, a homeostatic equilibrium generated a natural selection of traits, rewarding the bourgeois virtues of prudence, hard work, diligence, orderliness and patience, which in the context of technological stasis conferred a slight but telling advantage in the reproductive race. Fourth, the spread of these traits was sufficient to stimulate innovativeness and responsiveness to economic opportunity that triggered and sustained the Industrial Revolution. Which is now explained not by institutional innovation or the complex narrative of technological invention but by the appearance of a new man Homo Economicus. The fifth is that his appearance in England

was due to the relative peacefulness of England which gave natural selection more time to carry out its work.

Now this is a truly amazing construction. It synthesizes the Malthusian narrative of preindustrial economic evolution originally proposed by Herbert Spencer with the cultural narrative espoused by Max Weber and more recently by David Landes in the *Wealth and Poverty of Nations*. Which about ten years ago was subject to a book review similar to this, and at that time I was on a similar panel and pointed out that Landes' logic is circular. It identifies the right stuff by economic success, and then explains that success by the presence of the right stuff. The same is true of *Alms* in my view. And to quote a cartoon that Greg inserted into the section on the institutional hypothesis. "If it made sense, that would be a very powerful idea." (Laughter.)

I want to see in what measure *Farewell to Alms* makes sense. I want to begin with where I agree with some of the facts and some of the assessments, and there is much that is agreeable. I agree that with the exception of the introduction of American cultivars in the 16th and 17th centuries, there were virtually no fundamental improvements in agricultural technology in the period he is studying. I would even extend that personally back to classical antiquity (Grantham, 1999). I also think the institutional hypothesis- as he presents it which I think is not totally fair- but narrowly defined as an improvement in the security of property and an improved mapping of private incentives onto social costs and benefits- was not an independent cause of growth. So I would agree with him on that basis. But I also think that his treatment of these institutional issues terribly underestimates the significance of financial, fiscal and monetary institutions on the organization and performance of these early modern economies. There is absolutely nothing in the book dealing with the things we often deal with in economics, which is to say market integration, monetary integration and monetary and fiscal disturbances.

And I also think that everyone here would agree that from the prospective of the statistical aggregates, the English Industrial Revolution was a long drawn out affair driven both by accelerated technological innovation and accelerated population growth, and a first mover advantage for England in the manufacture of mechanized cotton textiles. So I think there is a fair amount here that we can agree with. And I wouldn't disagree that family values get transmitted to children.

So what is not to like? Probably the most unlikable thing is the Social Darwinism. My friend the late Steven Jay Gould is probably rolling over in his grave, but whether from Laughter or sorrow it is hard to tell. (Laughter.) Possibly both. He would giggle at the sophomoric silliness of the hypothesis and be in sorrow that it would once again raise its ugly head like a perennial weed. That part other people will talk more about. I don't accept the Malthusian characterization of the premodern economy for reasons I am going through in a minute. I don't think the evidence supplied supports the argument for biological selection of more productive traits. I don't think that one can discern, much less identify the causes of the origins of the Industrial Revolution from movements in a statistical residual. And I think that the tool of the aggregate production function has been terribly misapplied in this book. I don't think the empirical evidence that it

implements bears the weight of the argument. Other things not to like but time will not permit me to go through are special pleading in every chapter to explain away inconvenient facts, and ignorance of facts which can't be explained away. And substitution of facts that aren't true (Laughter) for facts that other people know.

That was a start. But let me confine my main remarks to three points: the plausibility of the Malthusian hypothesis with respect to selection of economically productive traits, which Joel has touched on; the adequacy of the aggregate production function for measuring the pace of economic change on the basis of a single time series of real wages, which I think is a really important point which will go beyond this book, the degree to which you can use it to exclude hypotheses of the kind that Greg is doing; and something I won't have time for, but something I will mention, a discussion of how we might approach the timing of the Industrial Revolution as opposed to these broader causes.

On the Malthusian interpretation. It rests obviously on the familiar time series of prices and wages and on the fact that at the middle of the 18th century the English population was roughly the same as it had been in the 13th century, and that a real wage index computed from the price series moves inversely to the movement in population density. And that pattern does support the classical hypothesis of diminishing marginal returns to labor working on a fixed supply of cultivable land. This is obviously old wine in very old bottles. But we must consider a few things. The obvious question is was the preindustrial demographic regime strongly homeostatic. And here I think I have to draw on- I went through the bibliography and it was not a very solid one in this area. Joel has referred to some later work. But I just went back to Ron Lee's work. Lee went through all of the data that were available at that time. And Greg's data are not vastly different from the traditional price and wage data. There are some small differences but they are not dramatic. Lee finds that in a cross-section of European countries possessing data similar to the kind worked up by Clark, the average elasticity of the real wage with respect to population, which Greg associates with the marginal productivity of labor, was minus 1.6. That is to say that a 10 % rise in the population would produce a decline of the real wage of 16 %, at least in a statistical sense. For England alone it is much lower, minus 1.2. This would tend to support the hypothesis of strong diminishing returns. But as Weir (1991) pointed out at one time, it proves too much. He is using a Cobb Douglas Production function and it is impossible to get the elasticities of labor's marginal production less than minus 1. In other words, inconsistent pieces of evidence which happens all of the time, but which need to be explained. And in Lee's sample, another point which it struck me as at least worth considering was that for the land abundant countries like Germany and Austria, at least in this time series, have very low coefficients like -2.4 and -2.5. Italy which we expect to be land constrained has an elasticity of -1.0. So here we have a set of data which suggests that the more land you have the more strongly diminishing marginal productivity is imposed on your production function. It is hard to swallow.

Now, the other point of Lee's work- a large set of articles now 15 years old- these population dynamics are not strongly homeostatic. It's not the case that there is no constraint here. Clearly the evidence supports the fact that when population doesn't grow

over very long periods of time, or grows slowly, there are some adjusting mechanisms. But what Lee found- and he's the expert here- is that there are too many other mechanisms at work. And the ones which are suggested by Greg are far too strong and not supported. I was also going to make some reference to David Weir's work on French demography and price statistics and Jean Michele Chevet on the same which also show that the Malthusian constraint is not there in the data. I will have to skip this.

Now part of the problem with Greg's data are that they are heavily dependent upon threshing wages. I wish Greg was here because he doesn't understand this. The threshing wages were picked out because it is a homogenous task which doesn't change much over time so that if you measure piece rates on that set you will be measuring something that actually picks up productivity. But that's not the case. Although the actual practice of beating something with a stick doesn't change. But productivity also depends upon the relative prices of livestock and grain because the straw was used as fodder. The amount of grain that was left in the sheaf depends upon grain prices and if prices go down you left more in the sheaf and your productivity goes down. Greg notes in his book this very anomalous drop in the productivity of threshing labor between 1820 and 1860. And there is a reason for that, Comrades, as we used to say in my socialist reading group. (Laughter.) And the reason is that as the relative price of grain fell- there is a very nice article by John Walton (1999)- they selected out plants which gave a higher proportion of straw- obviously a lot harder to thresh- and also, they threshed out a lot less of the grain. They did this because they were feeding the straw and the grain to their animals. These data are not self-explanatory. The point is that there is a lot of information in these data which is left out.

This will take me to the last point, the use of the standard aggregate production function as the tool of analysis. Now we all use this and I think we have to. It is a great tool. But Greg uses it to exclude a lot of hypotheses on the grounds that it doesn't fit the model. We can consider a discussion of, sort of a Fox news debate: The moon is made of green cheese. And on this side we have the person who says it's Gorgonzola, and on the other side the person who says no, it's Roquefort. And we can go back and forth with it. (Laughter.) Greg's use of that model has a lot of that character to it. I'll give you the basic point. You have one thin time series. And you are using it to detect the productivity of the economy over a very long time period. You are putting a lot of weight on the analytical model which is being used to interpret that data. First you assume that you have an integrated economy so that those wage rates are picking up something about the production function- the first derivative of an agricultural production function. I don't think that that's true, and I've argued in numerous articles that agriculture in this period operates in a state of underemployment, very close to what Jan De Vries has argued in a somewhat different context. And if you look at the 13th century data, which is a period of very high productivity in some places, productivity of farms both in yields and in labor productivity, as Eona Karakacili (2004) showed. It is as high in some parts of Northern Europe as it was in the very best farms in England at the end of the 18th century. This suggests that there was a lot of room for improvement at given levels of technology. It does not look like an economy on its production function in the neoclassical sense. And this is a point I want to make about the use of that tool. The

other thing is, where do we find the periods of high productivity? Not where the population to land ratio is low, but rather when it was high- when Europe was in periods of urbanization. I obviously go with the multiple equilibrium story of these economies. They were too disintegrated to support a single equilibrium. When you look at the data, periods and places where agricultural productivity is high is where urbanization is high. Productivity can't be high everywhere because of warfare, fiscal and monetary collapses due to no central banks, or banks at all. These are very disorganized economies but they are disorganized not in the way we think of mortality shocks. They are disorganized in what we might think of as the economic policy end.

That's it. Thank you.

Jack Goldstone (George Mason): I am not as witty as Joel who is inimitable, nor as good an economist as either Joel or George or Deidre. I'm a sociologist and I am going to be unapologetically a sociologist today. That is not always the case. (Laughter.) I'll cut to the chase. Like everyone else on this panel I think, I find the thesis that Britain succeeded in concentrating a critical mass of people with the right skills to launch the Industrial Revolution by biological selection unprovable, implausible and inconsistent which much of the reasoning and data that Clark himself provides. The reason we are here though is that this book does have a lot of good data in there. Much of it has little to do with the thesis it advances. But there is a lot of good data in there. And the problem is that Clark will produce a lot of interesting and valuable data that points to a lot of interesting questions and then haul in other data on the side and suggest that it provides an answer. And he does this so often that it is easy to get confused as to what is the good data, what is the bad data, what is the data that supports the argument and what is the kind of fun data. So I am going to give you a few examples of the latter just to alert you to the kinds of errors that lurk everywhere if you look for them.

At one point Clarke justifies his assertion that Asia was poorer than Europe by looking at the distribution of lactose intolerance. Clark has to argue that Asia was poorer than Europe for a long time because his model says income rates depend essentially on birth and death rates and nothing else. He grants that mortality is lower for a given income in Asia because of better hygiene so that means income has to be lower to suppress the birth rates and bring things back in balance. It is a silly idea, but it appears plausible. Europeans: cheese, milk, animal products, that's whole food stuff and it is expensive. (Laughter.) Whereas poor Asian rice eaters were poor. But in fact the reason lactose tolerance spread in the West- as well as portions of Africa and central Asia, though Clark doesn't mention it- is there were large populations of nomads. The areas where there was grasslands or rough forest, areas in short where it is impossible invest in settled agriculture, had to convert grass to useable nutrition by using animals. So goatherds and shepherds, Kazacks and Mongol nomads were all lactose tolerant. On the other hand in monsoon regions where fertility and ploughability of the land was easy because you had heavy soaking rains and a lot of river overflows it made much more sense to simply plant grain and use lower cost sources of meat like fish ponds, pigs and chicken. I am now quoting a review I did of Clark's book in *World Economics*. "Shepherds, goatherds and the like were always poorer than those who had access to rich farmlands. They were

hardly the rich cheese and butter eaters of Clark's anachronistic image."- Those of you who have read English literature or European folktales always have the image of the poor sheepherder sitting by the side of the road nibbling his bread and cheese.- "But the congress of wealthy Chinese or Japanese merchants, luxuriating in silk robes, eating from ornate porcelain bowls with lacquer utensils, reading poetry and painting landscapes- but not eating milk or cheese- would have recoiled in disbelief that they were poor while Kenyan and Kazack tribesmen- lactose tolerant all- were rich." (Laughter.)

Another example of this type of data play- and this one is very important- Clark points to the huge growth- the hockey stick phenomenon- and he says, "I want to explain this by a gradual mechanism, the gradual accumulation of bourgeois virtues over time." But he recognizes that it is a problem that the shift in growth is so large. And he says that's kind of an illusion. What is really happening is a modest increase in GDP per capita in the late 18th and early 19th century that's compounded by the growth in England's population, that's kind of an accident. And the fact that the population is growing so fast added to the small increase in income per capita, that is what makes the effect look so large. I don't have to explain that large effect; I only have to explain the small effect. Now this is again more sleight of hand because something exogenous caused the population to increase. He misses the point that if you are in a Malthusian world population increase lowers income. That's his model. If the population grew dramatically and income still goes up that is indeed evidence for something dramatic happening. But he says population grew- he has to stretch for something outside his model- because the risks of death from child birth fell. This is something that women would recognize, and as the risks of childbirth decreased, women might have had more children, and this would have pushed the growth rate up which is kind of working on the side. But in fact the statistical change in the death rate he is pointing to is trivial. It is a change from 1 ½ per hundred to ½ per hundred and it happened over almost 200 years. And it is something we can reconstruct only with difficulty from the data. It is hard for me to imagine in a preliterate age that across annual 5 to 10 percent grain price changes, the flow to urbanization, the change in markets. Oh yes, the illiterate women of Britain were aware that in the last 50 years there had been a 1/3 of a 1 percent decrease in the risk of death in childbirth so they were going to go out and have more children. Again it is one of those cases where he needs some data to make a point plausible and save the model and he grabs it, but if you look closely at it really doesn't hold.

Lastly Greg was really focused in this book on an article he did some years ago, and it was really interesting, on the low productivity of laborers in India who were working in textile factories that were using British textile machinery and often British managers. And yet he found the labor productivity was extremely low. Why? They would bring their whole families to work. They would stop for food breaks. They would take their family on trips. They had a very leisurely attitude to the factory. They wouldn't work their fingers to the bone like recruits from English villages. **(from the audience:** or college professors- tenured ones.) But Greg overlooks what seems to me a significant fact. Cultural differences between Indian workers and their British overseers would have something to do with the fact that the country had been colonized for over a hundred years. And it might have been that the Indian laborers didn't want to work their hardest

for their overseers and English factory owners. It is very likely they would have taken a great deal of their habitual customs of their workday from the village to the factory. The reason is the Indian factories had to recruit male workers with their families for their factories because they couldn't simply pull women and child laborers the way it was done in England. The English preferred to recruit women and young children, 12 to 15. Why? Because they could be pressed into factory discipline. For the most part male laborers could not be pressed into that discipline and could only be pressed into overseer and higher paid labor positions. The Indian economy did eventually adjust, just as the European economies adjusted but it took some time. And now as Solow pointed out, you can't fault the productivity of Chinese or Indian laborers. They are doing very well in the world markets. They have always done well when they emigrated. It really was an institutional story. And a long story of adjustment and resistance to colonization, the nature of the local labor market, who is being recruited, all of these little details Clark overlooks in his focus- as George pointed out- of simply assuming that wage rates tell you everything you need to know about the marginal productivity of labor.

I am not going to talk any more about Clarke's book. It is easy to criticize. We can all have fun with the *faux pas*'s in it. But I do think it raises critical questions- and that's why we are all here in the room. We do want to know: What caused the Industrial Revolution? That is a big change in world history, and I think Clark is right in calling attention to the critical nature of the change in the 19th century. And I think he is also correct to criticize- and I think he is driven to some of these outrageous claims- by his correct criticism of some of the mechanisms economists have put forward to explain the rise of the West. The two paths of explanations that economists have usually taken are to focus on incentives and institutions. Now incentives are good for looking at small scale movements in efficiency and for looking at accumulation. What we really need to explain is innovation, not simply accumulation, incentives alone don't get you very far. Genoese and Venetian traders certainly had incentives to invent airplanes rather than boats to carry their goods more quickly to ports. They didn't do so. They didn't know how to do so. They knew how to make incremental changes in their boats, and they did. George Grantham has done more than anyone else to point out that for much of the time in preindustrial economies people needed incentives even to get to the existing production frontier. Only when there was urban demand or growth of trade did people invest in the new technology. What do incentives do to bring us beyond the frontier, to create real leaps in knowledge? There the institutional story comes in. People say that predatory or orthodox institutions which actively worked to prevent increases in knowledge. And I think that is true. There are issues in Europe and Asia and China which have to do with waves of reform and institutional response. But I don't think institutions tell the whole story. There is a sleight of hand that all economists perform- ALL ECONOMISTS -- that if economic models do pretty well to tell stories about accumulation. But now we have to tell a story about innovation. How do we take our tools which are good at accumulation, and turn it to innovation? Here's the trick. You treat knowledge as a good, and you turn your models to say how do societies accumulate knowledge. Then you can make knowledge accumulation stand in for innovation, and you can use all of your tools of incentives and institutions.

But that is still not the whole story. I agree completely with Joel that the key turning point is the change in the accumulation and utilization of knowledge in the 18th century. That however, I would say, doesn't get you to the point of- What kind of knowledge? Content matters. Why were specific kinds of knowledge about how to overcome specific problems developed at a particular point in time. The key issue for me is the energy barrier. What I do think kept societies from progressing beyond a certain point- Clark ignores wealth accumulation, societies which were rich enough to build pyramids and medieval cathedral, huge navies, had lots of capital. Why didn't they use it to improve productivity more dramatically? Clark makes these crazy comparisons between hunter gatherers and English laborers. Yes, they were all poor. Fine. In 17th century England, only about 1/3 of the population lived at the level of agricultural laborers. In hunter gatherer civilizations, everybody did. But if 2/3 of the population has 3 to 5, and a minority has 20 or 30, or 1000 times the average income, there has been a lot of wealth accumulation going on. Why doesn't it keep going and create a rapid advance? I think the answer is: Photosynthesis. All societies, human and animal depended on photosynthesis to get energy from the sun. Either wind and water or usually nutrition and animal power. And that was a significant barrier. Solar energy through these channels has its limits. And the breakthrough from those limits was first the invention of steam engines which allowed people to use the untapped energy of coal reserves- this was Wrigley's arguments which I think is still correct about the shift from organic to inorganic societies- and then Vaclav Smil's argument about the development of inorganic fertilizers. So between inorganic power and inorganic fertilizers human beings became the first species on earth to break free from photosynthesis and allow themselves to reproduce and do all of the wonderful things to take over the world.

Why did this happen? Here I think you have to be a sociologist and look into the details of why did certain types of knowledge change in certain societies at certain times. And you will have to get my forthcoming book to get all the details. It is called, *A Peculiar Path, the Rise of the West in a Global Context*. It think it really was a peculiar path. What is striking if you look at world history, is that between the 5th century BC and the 7th century AD, most of the major civilizations of the world developed around a core of traditions and sacred texts. And those had huge staying power to the point that in the late 16th century, late into the Renaissance, the most esteemed texts, the basis of everyone's curriculum was still Botany, Physics, Astronomy, Geometry, Medical Texts developed a 1000 years or so before. It's not that there was a Dark Ages in between. It was that there wasn't any way to discover new knowledge that surpassed the knowledge of the Ancients. The way people gained knowledge was close observations of nature, mathematical deduction, logical reasoning, and in some cases revelations based on the traditional sacred texts. And the thing intellectuals spent much of their time doing was trying to reconcile the various sources of knowledge and come up with a creative synthesis. So whether you are looking at China which had a neo-Confucius synthesis in the 13th century, or Europe and the work of Thomas Aquinas, or the Islamic world and the accumulation of work by various scholars which started to become scientific but got wiped out by the Mongols, and then drifted back in the general global direction of the affirmation of the sacred texts, everyone is kind of locked in. But Europe from 1500 to 1800- it takes a long time- systematically turns away from and overturns its classical

texts. And it does so by inventing a new way of developing knowledge, largely with reasoning based on instrument driven experiments rather than unaided observation of nature. And this new method of discovering knowledge and testing ideas turns out to be very powerful and once it gathers momentum takes off. And there is a second story of new networks of disseminating this knowledge so that it becomes useful for production. And I think this is something Joel actually has correct! **(from the floor: whoooa)** But I think the economists can only get so far by pointing to knowledge as such. And part of the story has to lean on sociologists and historians of science to find out what kinds of knowledge, and how were critical breakthroughs made. And this is one Clark pays no attention to and still needs to be told to get this story of the breakthrough of the Industrial Revolution right.

Deirdre McCloskey (Univ. of Illinois, Chicago): I hope that in 2009 there will be published by the University of Chicago Press a volume 2 of –God help me, and you!--- *five* volumes I am writing on middle class society and its rise and prospering. You can see it in draft on my website, deirdremccloskey.org: the volume 2 is called *Bourgeois Deeds: How Values Made Modernity, 1700-1848*. There, and in my last book, *The Bourgeois Virtues* (2006), you can see that Greg and I agree on one thing: that bourgeois virtues are important for the rise of the West

But that's the last of our agreements! Isaiah Berlin in an essay of 1953 distinguished between foxes and hedgehogs. A fox knows a great many small things, a hedgehog knows one big thing. Greg is a fox, and darned good one at that. But recently he learned from some theoretical articles by Oded Galor and Moav Omer one big thing, that Breeding Tells. So he decided to become a hedgehog.

And the problem is that the one big thing he thinks he knows ain't so. (Laughter.) Now I don't want to discourage you-all from doing what one might call "pumpkin thinking," which Greg has done in his book. You know a pumpkin. It's big. (Outlines broadly with her hands the profile of a pumpkin.) I too am trying to write big books, pumpkin books. That's good, though it's not so easy when you try earnestly to confine yourself to actual historical facts. We all should be aiming for that sort of *histoire totale*. We're historians here at the Social Science History Association, not economists or sociologists or demographers whatever our training might be. We are *historians* because we're interested in the past, as most people are not. The past is not well captured by little, foxy arguments in the absence of pumpkin thinking. Go, hedgehogs!

But really, and this is the lesson I think you all should take away from the session, to do big, hedgehoggy, pumpkin history you need to *listen* to other scholars. Greg in his book, and in a lot of his other work, shows that he doesn't listen, really listen, to anyone, except perhaps the latest dubious economic theorist propounding a new version of eugenics. On this panel today is one of the great agricultural historians of the world, George Grantham, and one the great historical sociologists of the world, Jack Goldstone, and one of the great historians of technology of the world, Joel Mokyr. And even little me! But Greg has not listened to any of them, or anyone else. He's like my old friend, David Landes, satisfied with being *contemptuous* of other views. Landes' books are full of footnotes

where he dismisses alternative hypotheses to his own racist and eugenic version of European history with exclamation marks, as though that were argument. Greg does the same in his book, though without the exclamation marks.

Greg admits that ideologies may transform a society. (You only have to remember the Great European Civil War, 1914-1989, to see that they can.) But his heart isn't in such an obvious fact, not at all. And he has no scientific interest whatever in the *causes* of ideologies, unless to claim that they arise from his neo-Darwinian notion of the social inheritance of acquired characteristics. He has not cracked a book on the history of the Enlightenment or the scientific revolution or the Reformation or any of the political changes in the period he is talking about.

Greg is in fact an orthodox historical materialist, which is why he thinks questionable samples of probate inventories suffice for doing history. You may omit the ideas. Many of you, like Greg, are orthodox historical materialists, vulgar Marxists. You need to get over it. (Laughter.) The notion is, as a couple of famous 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?" This is nonsense, as Marxists like Lenin and Gramsci, and even Marx and Engels, admitted in the end.

Clark views the Reformation, the Scientific Revolution, the Enlightenment, the Age of Discovery, and all of the other things which interest other students of the matter as *dei ex machine*. That's what he calls them. That is to say, they are incidents of no fundamental interest. He believes, in other words, in a methodological doctrine---and, I assert, so do some of you---that reigned in historiography from around 1910 to 1980, namely, that ideas or arguments never matter, only material interests do. If you have known me a long time, or have read my early work, you know that I too once was a historical materialist. I spent the first half of my wild career attacking on materialist grounds the entrepreneurial hypothesis that sociology had anything to do with the economy. It appears that I am doomed to spending the last half of my career celebrating the importance of entrepreneurship and sociology. As I am fond of saying, with Mae West: I was Snow White. . . but I've drifted. (Laughter.) We were all historical materialists in those days, all we historians and social scientists and even literary folk. For example in 1912 the great French sociologist Durkheim argued that religions were merely rituals whose latent function was to make society cohere. The problem with that interesting hypothesis---there is not much evidence for it, but it's an interesting hypothesis, a feature it shares with Greg's book---(Laughter) is that it ignores what religious people say all the time: that the doctrines matter, that the ideas matter, that for example my Lord and Savior is Jesus Christ. Such ideas---weirdly, the historical materialist would say---have an effect on people's behavior. (Laughter.) Greg denies they do. Ideas he regards as wholly endogenous, in accord with the materialist hypothesis. Cheap talk, we call it in game theory. He says that we need to look behind the ideas to their causes, and since he is a

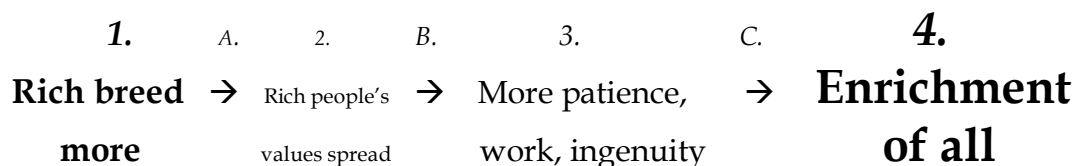
historical materialists he supposes without evidence that the causes always have to be material.

Greg's essential point, as the other commentators have noted, is certainly bold. And it was bold a century and a half ago when it was first proposed by social Darwinists and vulgar Marxists. It is eugenic: English people became by virtue of their rate of breeding a race of *Übermünchen* living in an *Übergemeinschaft*. As Jack Goldstone said, the book is filled with excellent, ingenious compilations of facts, but as Jack also noted most of the facts don't have anything to do with the fundamental, eugenic argument.

There are great many things wrong with the eugenic argument that English people are special. As Bob Solow pointed out in a review, for example, non-European places have grown very smartly, thank you very much. Indeed, when non-Europeans moved to Holland, or England, or the United States, they miraculously became non-Confucian and non-confused, and started making lots of money. Greg's home country of Scotland, which had an Industrial Revolution dated sometimes from January 1, 1760---bear this in mind kids: the lighting of the furnaces at Carron Ironworks, Stirlingshire. And yet until very recently Scotland had had nothing like the long, tranquil history Clark assigns to England and which he claims is essential for his eugenic factor to do its work. Partly the Scots had a turbulent history because tranquil England kept attacking it. My own cousins, the Irish, came across the Irish seas from a non-bourgeois and institutionally challenged island---which also kept being invaded by the English---and miraculously turned into the disciplined factory workers whom Clark praises. They went to Lancashire, these O'Malleys and McCloskeys, and suddenly became industrial workers. What about their bad familial and biological genes?

But the main failing of the argument, oddly, in a book filled with hundreds of very ingenious calculations, is that Greg doesn't calculate enough. As Jack Goldstone said, the book is filled with excellent, ingenious compilations of facts, but as Jack also noted most of the facts don't have anything to do with the fundamental argument. Here's the argument:

**The Clark Hypothesis:
Rich People are Better and Drive Out the Poor**



What we all here object to is that Greg makes it look like the large amount of evidence he has on the last State 4 adds special credence to the argument. No it doesn't. We all know here in this room that there was an industrial revolution---although many people outside don't, and one good effect of Greg's book is that more of those people have now been put in the know about the chief fact of world history. Everyone in this room knows the "hockey stick" fact, that things like population and incomes per head went along for a very, very long time without changing, then

suddenly in the 18th and the 19th century transformed, like the abrupt curve of a hockey stick. It's how I always start my classes on economic history, and I'll bet you do, too.

Greg's got a fair amount of evidence on State 1, "Rich breed more." This at least is relevant to the truth of his argument. He has a little on State 3, "More patience, work, ingenuity." He has practically no evidence on State 2, "Rich people's values spread." Trouble.

But the real troubles is that for the *connections A, B, C* between the three states 1, 2, 3, 4 Greg has no evidence at all, and in particular no calculated, quantitative evidence. This is a man who thinks with Lord Kelvin that "when you can measure what you are speaking about, ... you know something about it; but when you cannot measure it, ... your knowledge is of a meager and unsatisfactory kind." He insists, as I did when I was young and foolish, that only quantitative arguments count. We fools assembled here, Mokyr, Grantham, Goldstone, and McCloskey, actually read what people wrote in the 15th through 19th centuries, and think, "Gee, that's interesting." He'll have none of that. He wants to see how tall the English were, how many children they had, what price of grain they faced, only. States 1, 2, 3, and 4.

But what about the connections? Those who live by the sword die by the sword. Greg has, shockingly, no quantitative information on the connections between the four states. The connections of causation between the states are . . . (**From the floor**, "Economic history." Laughter.) Yes, that's right, the connections are called "economic history."

Greg hasn't got information, for example, on *how much* rich people's values spread on a account of their greater fertility, or *how much* more patience, work, and ingenuity happened because of rich people's values spreading. Consider the case of the Indian textile workers detailed in the book. They work less efficiently than my hard-working Irish cousins in Lancashire. But not *that* much less efficiently. We are trying to explain, after all, a factor of 15 or 20 in real wages nowadays---and even in the early 19th century a factor of 5 or 6. South Asian casualness about how hard one works the spinning machinery or how frequently one takes a break for tea is not going to explain such factors of productivity difference. And so Greg is hoist by his own petard, to use Joel's expression: he insists on measurement, and the rocket flies away with his argument. Or to change the metaphor, he's nailed his flag to the mast of quantification. And the mast has fallen overboard.

Greg has a tiny bit to say about the last connection *C*. As Jack said, he wants it to be a capital accumulation story. Economists do. In chapters 2 and 3 of the wonderful forthcoming book I mentioned, *Bourgeois Deeds*, I inspect the accumulation argument as one finds it in Smith and Marx and Rostow and now the new growth theorists. The problem with accumulation, as Greg realizes, is that it was *always* possible---the pyramids, Roman roads, the cathedrals are evidence of how much saving could do in earlier eras. If accumulation of anything were the key---knowledge, bricks---we would have industrialized in 3000 B.C.E. in Mesopotamia, and Iraqis would recently have invaded the United States.

But the main thing Greg doesn't prove by measurement, and could easily do so supposing that his mechanical idea of how ideology is formed were correct, is connection *B*: Rich people breed more; rich people's ideology spreads. That's a mere calculation, at any rate under his primitive idea about ideas. He doesn't make the calculation. But it's routine in actual eugenics, that study of improving races by selective breeding which was once such a popular policy proposal.

Francis Galton, the great English statistician and advocate of eugenics, showed how in 1901: "The number and variety of aptitudes, especially in dogs (Laughter) is truly remarkable. So it is with the various natural abilities that go towards the making of civic worth in man. The brains of a nation lie in the higher of our classes. Dr. Farr, the eminent statistician endeavored to estimate the money worth of the average baby born to an Essex farm laborer. Dr. Farr, with accomplished actuarial skill, capitalized the value of the child's worth at birth at 5 pounds." One is reminded of Jonathan Swift on the selling of Irish babies for meat. "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 vast fortunes for themselves. Others of these class X" ---he includes himself, of course---"whether they were rich or poor are the guides and light of the nation. Improving the race of a nation depends on the power of increasing its best stock."

The Galton argument, which is the heart of Greg's book, was fresh and new in 1901. And it was still influential after the Great War, resulting in places like Sweden and Norway and the United States in compulsory sterilization programs, which, by the way, were brought to an end only in the 1970s. It even survived its mass application in Germany. It still attracts the quantitative and mechanical mind. It's neat. It's formalizable. It's calculable---though I repeat, Greg has not done the calculations that Galton himself pioneered.

But it doesn't make any sense. It depends on measures of aptitude, that like height, are influenced by more than inheritance. And, unlike height, the measures of aptitude have no natural units invariant to society. What made people rich in 1600 had very little to do with what made them rich in 2000. A graceful way with sonnets and a good leg for bowing at court were not similar to a Harvard MBA and a knack for computers. What mattered for modern economic growth was not a doubtfully measured alteration in the abilities of English people, but a radical change, 1600 to 1776, measurable in every play and pamphlet, in what England wanted, what England paid, what England valued.

OPEN DISCUSSION

Mokyr: I want to open this to the audience.

Hi, I'm **Bob Hanson** from Texas A&M University. First, I am a little surprised that the book got published at all. So maybe Joel could comment in a moment why his comments were not an apology for publishing the book. Second thing I would say is more from the point of view of development economics, and that is the panelists with small exceptions are pretty much in the mainstream of development economics in which institutional factors are the dominant though not the only factor. But there is an unorthodox position which published a few years ago, and was called *IQ and the Development of Nations*, and

there was a follow up published just a few months ago, by two eminent Finnish psychologists, and they find quite an amazing correlation between internationally measured IQ, and GNP per capita. I know there are responses to this, but it does exist, and in the spirit of consulting other authors, these are authors who should be consulted, but they too agree that institutional factors have a role in the residual.

Mokyr: I want to respond to your first comment because I kind of resist it. I am not going to apologize for publishing the book. The reason we are all here, many of us have read the book; the book will be assigned for many courses. The book has been reviewed far better, and far more widely than almost anything in economic history that's come out in my career. This is a book which will be read by people. The only reason for publishing a book that I can think of is: Does it have scholarly value in stimulating debate, in getting us to rethink our positions. I think the book more than fulfills that task. I never said as editor of a series, I would only publish things that I agreed with, or that I thought totally watertight. You start doing that, and you're going to have one book in your series and that's your own. (Laughter.)

McCloskey: On the IQ point that depends on believing that IQ is something like height and can be measured independently of culture, and that's a serious problem. It's the same point in Greg's book.

Price Fishback (Univ. of Arizona): I just want to say having read Greg's book and listened to your comments, as someone who actually believes institutions do matter, Greg's descriptions of institutions are quite wacko as well as your own descriptions of everything else. The other thing about this, it seems that Greg is going for one thing; everybody's going for one thing. But we all know that one thing is not going to explain everything. It's a combination. And actually I grew up at the University of Washington where they told me that the Industrial Revolution was a slow gradual thing, and not this hockey stick that you guys love so.

Goldstone: Well I think there is this truth that the Industrial Revolution as a change in living standards does not happen on the first of January 1760. But if you see the Industrial Revolution as a radical change in trajectory which is going to take society to a very different place within a century or two- which is actually how most political revolutions happen, the French Revolution didn't make France into a stable democracy until a century later- if you take the revolution as a vector change and not as a scalar change in growth rates, it is still a revolution and it still needs to be explained.

Mokyr: I am always surprised at how many things start to changing very quickly at around 1750, 1760 in a fairly short time. It is not GDP, because if you know anything about economics you know that is not possible. It is not just population. If you look at Rick Sullivan's little table of the number of patents taken out- and I've been as critical of patents as anybody- but they triple within a decade. This is really unbelievable. You look at the number of turnpike trusts; the number of books published. There is a whole bunch different, ... Clearly, something between 1750 and 1760 is changing very dramatically,

and 60 years later it starts showing up in income statistics. That is exactly what you would expect.

Fishback: Dates for the Industrial Revolution range from 1750 all the way to 1860, and Greg dates it all the way back to 1300. So ... You talk about this revolution, but that's not the point I'm trying to make. The point I'm trying to make is the single, the monocausal cause is just totally wrong.

(from the floor): We all totally agree.

Mokyr: We all agree about that. But you publish six books each with monocausal themes, you put them all together (Laughter.)

Elyse ??? (Leyden University): I would like to say that I like all of your comments very much. I have a question for you, Jack. How would you explain Europe's particular path. Certainly I will buy your book, but I would like to hear some of that. Another question on Greg's book, how does he deal with social mobility. If you want to look at non-intergenerational accumulations of wealth, the fact that people themselves moved up during their lifetime...

Goldstone: The question is a good one. And you can only answer it in a world context. If you look at England by itself, and Scotland, and people forget that Scotland had its own industrial revolutions that was even more dramatic and startling from its origins, and I think its partly because Scotland was in the vanguard of embracing the new knowledge. Scottish universities were the places where modern science and engineering were the source before going over to Europe- (McCloskey: except for Leyden) -Except for Leyden where unfortunately it died out in 1720s and 30s as the Dutch Reform Church tightened its grip. Many things. In my Why Europe I'd like to say there are six, but if I can't remember them all, that's ok. There's an intellectual change that starts a little bit in the 15th century, but really builds in the 16th and 17th century. And that's leading to voyages of discovery and the scientific revolution. There are institutional changes at the level of government that put parliament in England in a more leveraged, not superior, but leveraged position against the king that breaks down the single hierarchical patronage network and leads to a diversity of social avenues. There is a network effect between the royal society and manufacturers and money people and merchants so that ideas start circulating down to the level of people who can actually seek employment from entrepreneurs who want to hire engineers because they think that instead of controlling their market they can actually make more money by making better products or making them more cheaply. That's a new idea. And then there are changes in the extent of market trade that allow them to profit from that by exporting. There are a few other things too, but they all have to come together which is why I call it a "Peculiar Path". Many of these ingredients are evident in other places across the channel or in Asia, but they only all come together in a way that manages to break down the old patterns of knowledge and production in 18th century England.

McCloskey: I would add one more cause, that is going to be in *my* book (Laughter), which is that there was an ideological change. It connects the first and second of Jack's causes. Shakespeare praises no middle class person---with the conceivable exception of Antonio, but he is a suffering love fool. By the 18th century in England the plays, poems, essays, and above all novels and philosophical treatises from people like Hume and Smith are praising the middle class.

Mokyr: Well, since we are along that line, in MY new book- (Laughter)- there is one thing that Jack and Deidre left out, and that is the impact of the 800 pound gorilla that's been in this room and the 18th century. We all knew about it, and we never paid attention, and that is the Enlightenment. See Mokyr 2008.

George Alter (ICPSR): In the interest of full disclosure I should say Greg and I are writing a chapter together, but the editors have told me that they are counting on me to control the outrageous bits in there. While I agree with everything that people have said, and I've got my own beefs with some other parts of the book. But it occurs to me that after having read it, the Social Darwinian part of the book is really a very small part of what he does. It comes up in a lot of places. But most of it is really about how economic historians- most of us in this room- look at the industrial revolution. And if any group comes off badly, I think it is modern growth economists. And it seems to me that students reading this book will learn a lot about how to apply economics to history. I guess my question for the panel is, considering all of these things, would this book have gotten anything like this attention if it hadn't had this part that most of us disagree with? And secondly, should people be reading it despite that?

Mokyr: I know something about the history of this book. I am the one who has read earlier versions of it. The stuff that we now call social darwinism- that's not a term Greg uses- was actually not present in earlier versions. And because there were logical gaps that I pointed out, he rewrote part of it, and some of this clearly was influenced by a paper that was published by Oded Galor and Omer Moav in the *Quarterly Journal of Economics*, which is acknowledged in the book. Clearly there is a literature which is fairly recent and Oded is the main player, and Greg has taken that on board. It was not present in the early versions, and this book has been 10 years in the making. It is almost like it is tacked on, as an afterthought. That may be a bit harsh, but that is the way historically it went.

McCloskey: But the editor should have stopped it. (Laughter.) I completely agree with George. And as I said I've long thought that Greg is a very good foxy economist. He's very clever, and not just clever. It's often sound---often wrong, too---but often sound. Actually, it gives me an idea for my own book. I'm going to do a sober, serious attempt to show that ideology changed, and that the change is one of the main causes of the industrial revolution. That's my claim. But I'm going to add in, "And I hate Jews," every 10 pages (Raucous Laughter). I'm going to say, "I hate Jews and they should be exterminated." And that will get me a lot of reviews. Come on. We are serious scholars here. We are trying to find the truth. We're not rushing off, whoring after some

economic theorist in the *QJE*. *We're* the scientists. They're a bunch of bad theologians. Now, actually I admire theologians, good ones. (Laughter.) I abhor game theorists.

Grantham: I was just going to say that I keep coming back to what the empirical core of this book is, and that's the wage series that he published in last February's *Economic History Review*, and that should have been included in this book as an appendix. It should have been like what Phil Hoffman did in his book. There's a huge long appendix. If you don't agree with the stuff, if you want to see what he did, you can find out. That should have been published. I want to come back to the fact that he's using winter wages. It's not just the threshing. It's that winter work was jointly supplied with summer work. And there is no reason to think that necessarily those wages represent the marginal product of labor, or that there is a constant ratio of that wage over the summer wage over the period. This is pretty much straightforward economics. We don't know enough about how those labor markets worked to make the claim that you can simply apply the dual to that data. It's not a big data set. It's not homogeneous across time. It's thin in certain periods and thicker in others. It is an awful lot of weight to put on a very thin data set.

McCloskey: If he had read the contemptible cultural sources he would have known that winter follows summer. (Laughter.)

Simone Wegge (CUNY): Finally, there is the most dangerous city of the 1970s, which is now the safest city in the United States, safer than any place you guys live in, and it's called New York City. And I am really happy that Greg reminded us of how important violence is. And the downturn in violence. None of you commented on that. I think Deidre did a little bit. So I am happy about that. Now question number two, what bothers me the most, if Greg is going to pin his hat on the hockey stick, if he is going to rely on genetic arguments, I can't imagine those, DNA or genetics changing in a few generations. Scientifically or biologically speaking ...

McCloskey: Well that's the point. That's the arrows, the connections, point. They can be calculated. They either work too fast for his argument or too slow.

Wegge: So it's a timing issue.

Goldstone: The timing is terrible. The urban mortality issue is awful. If the brightest merchants and entrepreneurs are drawn to London. Fine they have more kids. But if their kids drift down the social ladder, they die. So it's got to peter out after a generation. There's no way it can accumulate once you take the urban death rates into account.

Ann McCants (MIT): I think there is much to dislike about this book. Obviously much has been said. But the thing that upset me the most hasn't been said, and so let me get it out there. And that is the basic claim that the material standard of living is implicitly, or even explicitly in some places in the book, equivalent to quality of life. And of course it depends on lots of people dying, especially your children. (Laughter.) I actually think having your children die young is a detraction from your quality of life. And one of the things that worries me about this book, especially in deciding to assign it to

undergraduates, which I have been toying around with, one of the reasons I don't want to assign it to undergraduates is that it so casually, maybe even condescendingly glosses over that, as if "We're economists. We understand what is really important. And that is the material standard of living. And all of you other people who worry about quality of life, like suffering watching your children die, or you husbands or brothers or whomever ..." I'm not sure I want to give that message to undergraduates.

Goldstone: I have a different response. I think in some sense the book does make the argument that hunter gather societies need to be looked at seriously. They weren't all that awful. The happiness literature, at least what it says to me, is that the amount and the quality of your leisure, and the amount and quality of your social relationships are much more important than material income for happiness. What I worry about in this book is even the equation of agricultural wages with income. What George didn't tell you, all that carefully constructed effort going into the wage index overlooks the fact that monetary wages were very stable and sticky. They barely changed. It wasn't what workers were being paid that changed; it was the prices. So all the effort is really going on the price side. Yeah, I think the book is probably correct that between early times and 18th century, a factor of 2 or 3, maybe 4 or 5, in the overall quality of material life. Not orders of 100 that you get in the next century. So there is something there. But the way it glosses over all these issues, no capital accumulation, nothing about wealth as opposed to income, nothing about varied sources of income, nothing about the stresses of inequality and the nature of social mobility and hierarchy.

Mokyr: I want to respond to what Ann said. I don't think what you said about him being callous is quite fair. I think that if Greg were here, he and I talked about this particular topic specifically. He basically is saying this exactly is the paradox of a Malthusian economy. As Lenin said during World War I, the worse it gets, the better it gets. He doesn't mean it in a callous way. He says it as an inherent paradox in a society that is governed by the demographics that he is talking about. He fully realizes that things like infant mortality are part of the standard of living, and no economist in his right mind would ever deny that. So if that is your concern about your undergraduates, I think you can explain it to them rather than accusing Greg of being callous.

McCants: There is a way of making that argument that I basically agree with, that is rhetorically sensitive, and then there is Greg's way of making it. (Laughter.)

Mokyr: That's why they have you!!! (Raucous laughter.)

Grantham: I have a quote that I was going to have in my talk, and it fits right in. I will leave it to you to identify the author. "The dear God once again makes it like that. He suddenly casts the masses of humanity onward and each one has to look after himself and how he gets through. One person takes something away from the other and the only thing you can say is that the stronger wins. After all that is the most sensible order of things. Life is horrible. Coming into being, existing, and passing away. There is always a killing. Everything that is born must later die, whether it is through illness, accident or

war. (Mokyr: Well, cite it now.) As the late Molly Ivins once said about a speech by Patrick Buchanan, "It sounded better in the original German." (Laughter.)

(silence)

Mokyr: Well, we will leave that for our homework assignment.

[Transcriber's note: The quote is from Ian Kershaw's biography of Hitler, Volume 2. *Nemesis.*]

Roger Ransom (UC Riverside): I just want to very quickly comment on Simone and on Ann's comment, about quality of life and how to measure these things, and on the other 800 pound gorilla that no one has mentioned, and that is violence, not in New York City but worldwide. I say that in two respects. There's a lot of work, and no one's mentioned war. And yet if you look at 18th and 19th century that's what it is all about. War, sex and economics. That's not my next book. (Laughter.) That's not true my next book is "Gambling on War from Bismarck to Bush." But the point I want to make, Jack Goldstone touched on it, colonialism and imperialism, that's violence; that's war. If you strip out from Napoleon on, it's the industrial countries that are basically tearing up the world, killing more people by war in that century, than not only anything else, but more than in any other century. And it would be very close, depending on how far back you go, to the previous centuries. I continue to be- Richard Sutch once introduced me as our Wartime President- I continue to be bothered by the absence in all this stuff- graphs, and gradual changes and so forth- I believe, and have believed for some time, but like Deidre I went through mid-life crisis, I went from economics to history. **(McCloskey (dryly):** Mine was somewhat more spectacular. (Very raucous laughter.)) Very few activities have more power to change things in a hurry than wars on the scale of Napoleon, the Civil War, World War I, World War II, and so forth. And yet I did not hear any of those mentioned. I confess, and I'm not sure I'm going to change this, I have not read Greg's book. Yet.

Mokyr: Ok, any responses from the panel? Ok.

Phil ???: Talking about the material standard of living. I've got to think, what's this got to do with hookworm or malaria. Malaria particularly, in 17th, 18th, early 19th century Britain, vivax is throughout Britain and what you have is waterborne diseases. So to combat waterborne diseases you don't drink water. You mix it with alcohol, and you heat it, or both. And if you are talking about what is happening in the 17th and 18th century, it is the drainage of the fens. You are getting more land less conducive to infestation with malaria and other waterborne diseases. All of these things are happening. In terms of economics, strictly economics, the marginal product of labor is shifting to the right simply because people are less sick.

McCloskey: That's certainly true. I've always loved the following fact. One third of the medieval grain crop went into beer. So one can sustain a Monty Python vision of drunken peasants wandering around helplessly. (Laughter.) You are quite right, Phil. As

we certainly know from Bob Fogel's work, among others, the quality of the water is extremely important.

Goldstone: There is a wrinkle on that. Some of it is accidental. If you drain the fens for agriculture, you reduce the environment for malaria. But even increasing the health and longevity of workers doesn't bring us to why did the steam engine create not just a fivefold or a tenfold but a hundredfold increase in the efficiency of workers. Plus, things like getting rid of cholera, which was the real urban killer, that was the result of experimental work that convinced people that waterborne diseases. **(from the floor:** it wasn't experimental. It was empirical.) Well, what you would call empirical, I would call a different way of presenting truth about new knowledge that basically identified new water sources, some that were polluted and some that weren't, and identified the distribution of disease according to the transmission of where people got their water. That was empirical, but it was a new kind of empirical that wouldn't have been undertaken before or we would have learned about cholera a lot earlier than we did.

Mokyr: We could conduct the following experiment. Suppose that the vaccination process against smallpox had occurred two hundred years earlier when we were still in the paradoxical Leninist world in which the worker gets the rent. In fact, it would have been a bad thing. But in 1798 there has been a change in regime in which what had used to be a bad thing now has become a good thing. And that may in fact be the essence of the industrial revolution. And I think by pointing that out Greg has made a very big contribution. And I once learned from my dear friend here, and one of the things she has NOT renounced in early middle age, in economic history, we do not seek for a truth with a capital T. We are having a useful conversation. This morning, these last two hours, we have had a very useful conversation, even if Hamlet isn't here. (Laughter.) Thank you all very much.