COMMENT/COMMENTAIRE

Capitalist Origins, the Advent of Modernity, and Coherent Explanation: A Response to Joseph M. Bryant[1]

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For many decades, there has been a "standard story" of the rise of the West. At some point after 1000 AD — whether it was with the medieval commercial expansion; or the early Renaissance rediscovery of ancient Greek thought; or the continental trade expansion based on the Hanseatic league, Champagne fairs, Bruges cloth trade, and Italian banking and Mediterranean trade; or the seafaring ventures of the Portuguese and Spanish; or the Reformation — not much later than 1500, "the West" developed a new dynamic institutional and cultural framework that began to lift it out of its post-Roman Empire torpor, and launched it on the path to modernity. Industrialization came as a later outgrowth of this earlier shift to capitalism or modernity, but it was a natural outgrowth of the earlier dynamism of Europe. This contrasted with institutional and cultural stagnation in the major civilizations of Asia — the Ottomans, India, China, and Japan — such that an increasingly advanced Europe was able to dominate and colonize Asian societies in the 18th and 19th centuries.

Against this view, a number of historians and historical sociologists of which I am one, and which I have identified as the "California School," have argued that whatever their institutional and cultural differences, there was in fact no significant divergence of material living standards in Europe from those in the advanced Asian societies until much later, c. 1800.[2] Despite the very different cultural and institutional frameworks

1 The page numbers here refer to Bryant (2006).

2 The original California School was the work of Frank (1998), Goldstone (1991; 2000; 2002), Lee and Wang (1999), Pomeranz (2000; 2002), and

of the major European states, the Ottoman Empire, and China, which admittedly took different approaches to governance, religion, and political organization, we argue that they nonetheless shared very similar overall political and economic dynamics until about 1850. The only exception is Great Britain, which, starting in the 18th century, embarked on a peculiar path of unique industrial innovations that gave birth to a modern world, which was quickly imitated and built upon by other European states and the United States in the 19th century, before spreading to the rest of the world in the later 19th and 20th centuries. Moreover, this peculiar British move to industrial innovation was not simply an outgrowth of broad European patterns of culture and institutions, but a contingent outcome of conditions that happened to come together in Britain in a way that did not happen elsewhere, and very conceivably would not have happened in Britain either if it had followed a "typical" European trajectory.

Joseph Bryant objects to this revisionist story as both "empirically suspect" and "analytically incoherent." It is neither; rather Bryant misunderstands the argument. What Bryant does exceptionally well is identify why the debate is significant, what evidence is crucial, and which elements of the California School causal story are suspect. It is thus with great respect for his essay that I respond.

Bryant states that the revisionists claim that "the major societies across Eurasia were all progressing along a comparable course of modernizing development" (p. 403). This is incorrect. Rather, the revisionist claim is that *none* of the major societies across Eurasia, including Europe, were progressing along a course of modernizing development. From 1500–1800 the major states of Europe, China, India, and the Ottoman Empire were all experiencing a similar course of advanced organic development, with absolutist bureaucratic states, highly productive agriculture, a sophisticated urban culture, and extensive long-distance trade in both luxuries and daily necessities. They all experienced periods of demographic expansion, price increases, and trade expansion from 1500–1850, interrupted by political and economic crises in the periods 1590–1660 and again from 1770–1850. Yet in all of them, the material standard of living c. 1800 was no greater than it had been c. 1500; no effect of cultural or institutional dynamics leading to a materially superior civilization in the West is evident. Quite the contrary; up to at least 1750, Asian trade and manufacturing were superior in quality and quantity to those of the West, Asian standards of agricultural productivity and consumption were higher than those in the West, and even Asian military

Wong (1997), four of whom were based in California. Other authors with similar views include Blaut (1993; 2000), Goody (1996; 2004), Leiberman (1999; 2003) and Hobson (2004).

technology was — at least in China and Japan — more than a match for that of the West.

The revisionist argument is therefore that nothing like a "course of modernizing development" can be seen anywhere before 1800, except perhaps in Britain from the early 1700s where the invention of the steam engine and new techniques for producing and casting iron provided the basis for an industrialization of society that would really only bloom after 1800. Bryant claims that more evidence is required for the above assertions, and I agree; the evidence provided in the works produced before 2005 depended on partial evidence and can fortunately now be supported by much stronger evidence from a wider range of researchers. I provide this in my forthcoming book (Goldstone, forthcoming), but will offer some of the key new findings below.

Bryant also claims that it is analytically incoherent to say that western society could make a sudden, contingent jump to modernity c. 1800; instead he argues that any social transformation on such a massive scale would require a prior period of preparation in which long-term social, political, and economic relationships are shifted and recast to allow and propel such rapid change. This latter charge, however, is a product of a "linear" style of thinking, in which change must be continuous, and large-scale changes must be grounded in substantial prior fundamental change. In fact, there is no reason why history cannot learn from the advances of physical sciences, in which quantum theory and chaos theory both argue that nature is not continuous, and that sudden and dramatic "jumps" can develop from slight tips or deviations in underlying functions or relationships. The revisionist view is precisely that — small deviations in Europe, and particularly in Britain, started processes that in the course of the 18th century developed suddenly and contingently into massive changes in the 19th century that produced a modern, industrialized society. However, if the small deviations had been absent, or tipped the other way (as they in fact did in many European states), such industrialization might not have occurred. One can argue over what those deviations were, and whether the case for their impact is plausible and well-supported, but the *idea itself* that sudden and massive change can follow from relatively small deviations is not "analytically incoherent." It is simply an argument for a different mode of historical causation.

Evidence

I lack space here to deal with all the comparative evidence of European vs. Asian superiority or parity c. 1800, so let me focus on one issue only:

Table 1. Evidence on Living Standards in Europe and Asia

A. Grain Wages of Unskilled and Skilled Building Workers in Europe, 1500–1799[1]

(in kg wheat/day)	*1500–49*	*1550–99*	*1600–49*	*1650–99*	*1700–49*	*1750–99*
Unskilled workers						
Southern England	10.1	6.3	4.0	5.4	8.0	7.0
Antwerp	8.8	7.2	7.7	7.4	9.8	9.6
Paris	6.8	4.9	6.0	7.2	7.2	6.0
Florence/Milan	4.7	3.4	4.4	6.1	5.2	3.3
North and West India		5.2 (1595)	4.5 (1640)			
Yangzi delta, China			4.5 (1550–1649)			
Skilled workers						
Southern England	16.9	9.4	6.9	8.0	11.8	10.6
Antwerp	15.3	12.6	12.7	12.2	16.3	16.1
Paris	10.7	8.0	9.6	11.5	11.5	10.8
Florence/Milan	8.6	6.8	8.8	11.8	9.9	6.2
North and West India		12.6 (1595)	8.3 (1637)			

B. Real Farm Wages of English Laborers, Day Wages Adjusted for Consumption, Index 1860–69=100, Decadal Averages[2]

1500–1509	110	1620–1629	64	1740–1749	75
1530–1539	89	1650–1659	66	1770–1779	68
1560–1569	87	1680–1689	71	1790–1799	72
1590–1599	66	1710–1719	64		

1 Data from Broadberry and Gupta (2006: 6).

2 Data from Clark (2006: 100).

material living standards, supplemented by a brief discussion of agriculture. It seems reasonable that if there arose in Europe from 1500 or earlier a "new dynamic," then the rise of a commercialized society (the Hanse, the Champagne fairs, the Bruges cloth industry, the Italian Renaissance trading cities, oceanic trade, commercialized agriculture) in the 13th–18th centuries should be expected to bring some *improvement* in material conditions. But we just do not see it.

Table 1 shows data on real incomes in major European cities from 1500 to 1850, real farm wages in the same period (these are from two different authors, none of whom were original members of the California School.) It is strikingly evident that there is no long-term trend in real wages for unskilled or skilled workers: in *none* of the most commercialized regions of Europe, the centres of the "dynamic structural changes," are real wages significantly higher in 1750–99 than they were in 1500–49. In Antwerp, they are about 5–10 percent higher, but in all other areas real wages are actually *lower,* often substantially lower, than they were two and half centuries earlier. In the most dynamic and advanced regions

Table 2. Life Expectancy at Birth in Selected Countries and Time-periods, in Years[1]

Country and time	*Life Expectancy (e_0)*
Roman Egypt, 11–257 AD (villagers)	28
England 1300–1348 (tenants)	less than 28
England 1750–1800	37
London, 1750–99	23
France 1750	28
France 1800	34
The Netherlands 1800	32
Rural Japan 1776–1815	33
Rural China 1300–1880 (Anhui, males)	31
Rural China 1792–1867 (Liaoning, males)	36
Beijing 1644–1739, males	27

1 Livi-Bacci (2007: 106) Lee and Wang (1999: 54); Clark (forthcoming: 114).

of Europe, the period from 1500–1800 was thus one in which real wages were stagnant or declined.

Nor is this a "fluke" of comparing extreme periods. In *every one* of these regions wages were falling over the course of the 18th century. Even if we take the much lower average wages of the period 1550–1599 as a base, real wages in 1750–99 were still only 20 percent higher 200 years later, hardly a great accomplishment. If we look at farm wages which were gathered from a more extensive base and are available on a decade-by-decade basis from samples all across England, we again see a remarkable lack of any trend across the centuries.

If we now compare these wage levels with those of India and China, where our data is admittedly much more sketchy, we find no great differences in the 17th century. In the first half of the 1600s, unskilled wages for India and China — which are not urban wages, but general wages more comparable to the data for Southern England than for Antwerp or Paris — were actually *higher* than those in England, for both skilled and unskilled workers.

Table 2 provides comparative data on another measure of living standards, namely life expectancy, for various periods. Life expectancy in mid-18th century France is comparable to that of Egypt in Roman times; life expectancy in rural China and Japan (range from 31–36) is comparable to that in France, England, and the Netherlands in 1800 (ranges from 32–37).

To take yet another completely independently obtained body of evidence, forensic anthropologists have been obtaining measures of stature from skeletal remains across Europe for many centuries. The latest report on those findings is that stature in Europe remains unchanged from 100 AD to 1800 AD, only rising after 1800 (Koepke and Baten 2005).

In sum, multiple measures of living standards all agree that real income per capita in Europe never exceeds the late 15th to early 16th century peaks for the next two centuries and was generally headed downwards from 1700–1800. There is no evidence of long-term growth or dynamism in Europe. In addition, available data on wages and life expectancy up to 1800 show no significant differences between levels in Europe and the leading regions of Asia.

Bryant dismisses this evidence by suggesting it is incomplete — that will always be the case, but if separate data from urban skilled wages, rural farm wages, forensic anthropology of heights, and reconstructions of life expectancy from genealogies *all* give the same results, namely no long-term growth in Europe from 1500 to 1800, it is increasingly difficult to doubt. This is not even mentioning the extensive econometric work on the growth of European economies in the 18th century, which has shown a striking absence of marked economic growth in that era (Crafts and Harley 1992).

Bryant also dismisses the data as not "historical," because it lacks a story. That is, a rich descriptive-narrative literature points to so many distinct qualities separating Europe from Asia that surely there *must* be differences in economic performance. Bryant points to eleven characteristics of Europe and ten characteristics of Asia that have been developed in the comparative/historical literature that he believes are well-established. The problem with most of these, however, is that they are not truly factors that distinguish "European" from "Asian" societies. Many of them are either found in *both* Europe and Asia, or only in exceptional parts of Europe, or only rarely in Asia, and are thus not a sound basis for broad contrasts. For example, Bryant first points to "distinctive patterns of civil urbanization" in Europe, contrasted with "urban centers under the sway of imperial governors and officials, and whose ruled inhabitants lacked legal-juridical status as citizens," in Asia (pp. 406, 408). This outdated contrast has been invalidated by numerous studies. In fact, by 1750 almost all the major cities of *Europe* — London, Paris, Berlin, St. Petersberg, Vienna, Madrid, Naples — were administrative capitals, whose representation in Parliaments had either lapsed for centuries or was corrupted and controlled by patronage (e.g., pocket boroughs in England that had more representatives than Manchester or Birmingham). In *Asia* there were many major cities that were mainly thriving commer-

cial centers — Osaka, Hangzhou, Surat, Izmir, Jingdezhen — focused on production for market or long-distance trade, and with a rich autonomous merchant culture.

Similarly, Bryant notes the importance of "the onset of a vibrant and popular print culture" in Europe, but omits the enormous evidence for a vibrant commercial publishing industry in China on an even larger scale (Brook 1998). He condemns "state monopolies" in Asia, but prizes the impact of the British and Dutch East India companies, which were no less state monopolies that ended up being transformed wholly into government agencies. Bryant notes many reports of extreme poverty in China, but omits to mention the stories of Thomas Hardy and Charles Dickens that depict extreme poverty in England.

The problem with history as stories is that without the testable baseline of data, stories can blossom into "just-so" stories that rationalize preferred interpretations. For example, Bryant lauds the productivity of British agriculture, noting that in the 18th century farm output doubled while the percent of population in agriculture fell by half. That is true, but it is not because people were released from agriculture due to higher productivity. Rather, control of land by primogeniture combined with population growth meant that most of the population added in the 18th century had to leave the land and search for work in cities or rural crafts. Overall farm output in Britain barely kept pace with overall population, even if the productivity of the farming population *by itself* did increase. Yet as farm wages and urban wages remained unchanged or declined in the 18th century, only commercial farmers and landlords benefited from the rise in productivity. Meanwhile, thousands of families, lacking the land to feed themselves, turned to desperate wage work as weavers on home looms. In the early 18th century, it was common for children under age 10 to work twelve-hour days. Bryant notes similar conditions in China, quoting stories of women who had to work long into the night at the loom to support themselves, because they lacked access to land. When discussing China, the conditions of overall agricultural output just keeping pace with total population, plus the need of landless families to work long hours at craftwork, are presented as a story of "involution" and poverty; when discussing 18th century England, the very same conditions are described as "dynamic" and "progress." Without the discipline of hard facts, stories can wander. The hard facts show no real increases in material welfare in Europe before 1800.

After 1800, things changed very fast. Conditions in Asia deteriorated sharply, as continuing population growth ran into the traditional energy and land limits that constrain all organic societies. Indeed, it is reasonable to think that Europe and Asia had similar material conditions

because prior to industrialization *all* societies were limited in what they could produce by the ability of farmers to produce food with organic inputs and muscle power, and of manufacturers to produce products with organic raw materials and wind and water power. By 1900, material conditions in Asia and in many parts of Europe had declined as population outran the capacities of organic societies and precipitated a return to crisis conditions, as they had in the 14th and mid-17th centuries. By contrast, northwest Europe launched itself onto a new growth path in the 1800s, starting slowly but accelerating quickly, so that by the mid-1800s the gulf between Asia and the advanced parts of Europe had grown large, and by 1900 had become a chasm.

Analysis

To say that there is no evidence of change before 1750, but also noting (as the revisionists agree) that there *was* a very sharp and rapid divergence after 1800, of course leaves open the critical question of how that could have occurred. Here Bryant's criticisms have substantial weight, for the California School is far from united, and thus far from coherent, on how the changes occurred. For Frank, China was suffering a temporary reversal due to internal conflicts in the late 18th through early 20th centuries that allowed Europe to temporarily overtake it. For Pomeranz, the contingent combination of coal and colonies provided Europe with resources that it managed to lever into a modernizing leap. For Wong, technological improvements in key fields of production in Europe in the 18th century opened a new pathway for progress, which the technological improvements that China made in other fields (hydraulics, botany) did not provide. For myself, I argue that a combination of changes in methods of scientific investigation and social networks of entrepreneurs and engineers, which emerged mainly in Britain in the late 17th and early 18th centuries, catalyzed a shift to an innovation-driven and energy-intensive economy that marked a sharp departure from the limits that had previously bound all organic economies.[3]

It would be inappropriate for me to try to defend all of these diverse views of what underlay the "great divergence." Some of these may be vulnerable to Bryant's charge that they are "ahistorial and non-sociological." I myself find Pomeranz's argument —that coal and colonies were the key factors — lacks necessary explanations of why Britain was

3 The distinction between "organic" and industrial economies, the latter depending on energy from coal harnessed for transport and manufacture instead of wind, water, and muscle, is from Wrigley (2004).

able to exploit its coal more effectively than Belgium, Silesia, or the Beijing and Jingdezhen regions in China, where coal was also mined for many centuries, or why colonies did not lead to industrialization in Spain and Portugal, both of whom kept their colonies in the Americas longer than Britain.

In probing explanations for the divergence, Bryant (pp. 410–411) poses three specific questions that deserve answers:

> If, as alleged, decisive European advantages in social capabilities only arose in the wake of industrialization, how are we to account for the preceding three centuries of European encroachment and conquest, and the increasingly manifest incapacity of the Asian powers to repulse the predatory intrusions of an unwelcome interloper?

This phrasing, objectifying "Europe" and "Asia" as wholes, with the latter bending to the former, is simply false. Europe and Asia were comprised of many different countries with a range of capabilities on both sides, and the history of their encounters is *not* one of continuous European victories. China and Japan, even Persia and Thailand, were able to repulse the Europeans and avoid colonization altogether. This is because they remained reasonably integrated societies during the period of European expansion. Until the 1840s, both China and Japan were in complete control of the European presence in their waters, and both confined Europeans to small and distant trading posts where they could be easily monitored and controlled (Macau and Canton in China, Nagasaki in Japan). Both the Portuguese and the Dutch were easily driven off of Taiwan by Chinese fleets, and, in the 17th century, it was the Chinese wars junks of Coxinga that controlled the south China seas, not Europeans.

The one area in which Europeans had marked success was in the Indian Ocean and then in India itself. The reason for this was straightforward — the Indian continent was highly fragmented under disintegrating Mogul rule by the time that Europeans arrived in force. The Portuguese were never able to penetrate the interior or make significant territorial gains; they built and occupied trading posts because the Moguls did not care much about the coasts, having a land-based empire, and the Portuguese often had to struggle to defend even these. The Dutch occupied the East Indies, a highly fragmented and disparate series of isolated island princedoms, and the British occupied India, using a combination of better artillery, vastly superior field tactics, but most of all, the treachery and complicity of Indian allies who turned against their rulers thinking that the British would help them.

The Europeans certainly had some striking tactical advantages in superior artillery and drill (Parker 1996), but these did them absolutely no good against the Japanese (who developed superior firearms in the 16th century) or the Chinese (whose shore defenses were more than a match for European ships until the era of the steam gunboats). They succeeded in India much as the Vandals had succeeded against Rome, or the Mongols had succeeded against China — relatively small groups of warriors, using superior battle-tactics and bent on plunder, have often conquered much larger, richer, and more sophisticated civilizations *if* those civilizations were undergoing their own processes of internal division and decay.

Why then, one might ask, didn't the Chinese or Indians come to plunder Europe? The answer is that one has to ask where the riches are, where plunder can be found. In the 18th century, the richest producer of cotton cloth in all the world was India, particularly Bengal. The British noted with amazement that cloth merchants in Calcutta gained even more silver from their internal Asian trade — with Persia, Central Asia, and southeast Asia — than they did from trade with the Europeans. Similarly, the riches of gems, spices, silks — plunderable luxuries — were all found in the East, not in Europe. China, in fact, had sent huge fleets of armed ships as far as the coast of Africa before the Europeans had even ventured into the south Atlantic. But those ships hardly found anything to justify the expense of fitting them out. Only by going from Europe to Asia could one find goods whose value justified the cost of long-distance shipping; and Europe would not even have been able to profit from that by bringing luxuries home if they had not found abundant silver in the New World to finance that trade.

Thus, from 1650–1850, we see mainly European expeditions of plunder and two significant cases of conquest in Asia: India and Indonesia, both fragmented or disintegrating states where Europeans found ready local allies to oppose regional powers. At the same time, we see four Asian countries: Persia, Thailand, China, and Japan, that successfully resist colonization, the latter of which remain firmly in control of their local seas and of European trade until the mid-19th century. So the notion of "three centuries of European encroachment and conquest" is a rather gross oversimplification and distortion of the more complex range of Europe/Asia relations.

> [If] the major Asian economies were no less technologically inventive and commercially vibrant than those in Europe up to the end of the 18th century, why were the Eastern imperial states incapable of channeling a measure of that prosperity into greater military preparedness and effectiveness?

Japan certainly did. Its firearms production was extraordinary in the 16th century, its quality surpassing that of Europe in reliability; its shore batteries kept Europeans at bay until Commodore Perry's modern steam-powered fleet came to "open" Japan to trade in the 1850s. China under the Qing also greatly increased its logistic and military capacities, although these were turned to what the Qing considered *their* main threat — the Mongols and other Central Asian nomadic warrior kingdoms, not the few traders from far away that showed up on its coast. In the 18th century, China was busy doubling its size with new conquests in northern and central Asia, while not losing anything to the missionaries and traders from Europe.

If one asks "why didn't India repulse the British" the answer is that "India" as a whole neither existed at the time, nor saw the need to do so. By the 18th century, the Indian subcontinent was a patchwork of feuding sultanates, princedoms, and rajastans, in which the British were welcomed by some in the hope of overcoming others. The British skillfully made and broke alliances, obtained official titles and supports for their early conquests, and then unexpectedly acquired others by taking advantage of revolts or local defections from current rulers. As for the bulk of the Indian population, they were rather used to changing overlords and tax collectors — India had been a crossroads of Hindu, Persian, and other conquerors from Alexander to Nadir Shah — so they saw no great reason to oppose the British displacement of their former greedy overlords until the burden of colonialism grew dear in the late 19th and 20th centuries. The British only had to displace specific Indian rulers, not overcome determined nationalist resistance. Where there was determined resistance and favorable terrain — as in Afghanistan — local fighters cost the British dearly and even into the 18th and 19th centuries made it impossible for the British to maintain full control.

> [P]erhaps most crucially, if there was no long-term dynamism within the West — i.e., if the societies of western Europe were simply on a developmental par with the pre-industrial civilizations of the East — how could an abrupt breakthrough to industrialization even have been possible, absent a preparatory process that altered the social relations of production, yielded the advanced technological capacities and skills required for machine-based manufacturing, or created the circuits of financing and exchange that provided the capital for sustained investments?

The answer is that little capital investment was required to set up machine-based manufacturing. The major capital suppliers of the 18th and 19th centuries funded states, foreign trade, and mortgages on land — *not* industrialization. The funds for building the first generations of

collieries, cotton mills, and iron smelters came from family funds, usually raised in domestic trade, and from reinvesting profits. Most firms remained quite small — 20–50 employees — well into the 19th century.

As far as the "advanced technological capacities" for machine-based manufacturing, these were engineering breakthroughs that began in 1712 with the steam engine, and continued up through the 1820s with the invention and improvements of more efficient steam engines and their harnessing to smelting, spinning, brewing, and other activities. Throughout this period, Asia remained superior in its technologies for producing silk, cotton cloth, ceramics, and cast iron. What Asia lacked was steam power, which in the century from 1750 to 1850 went through a period of sustained development — from the simple Newcomen engine, to the far more efficient Watt engine, and then the even more efficient and compact high-pressure engines developed by Trevethick, Stephensen, and others. This development increased the available energy per person in Britain by a factor of ten (Nuvolari 2004; Goldstone 2002). It was an abrupt change; the application of this ten-fold increase in available energy per person to transport and manufacturing, which occurred mainly after 1830, is what then created the great divergence. The sudden appearance of steam-powered gunboats in Asian waters, and of steam-powered factory production of thread, then cloth, then a variety of goods from steel to paper in the middle third of the 19th century is what suddenly changed the balance of military and economic power between Europe and Asia.

The steam engine, however, was not made possible by prior accumulations of capital, or technical skills. Rather, it was made possible by unique European advances in empirical science, which do have a long history going back to the 16th century in new discoveries in geography and astronomy, followed by new theories of matter, energy, and motion.

I would never claim that European superiority "came out of nowhere" in a sudden flash. But I strongly claim that it did *not* come out of long-standing commercial, technological, or material superiority. Rather, it came out of intellectual developments in the means of empirical discovery through instrument-driven experimentation, which rather suddenly led to a host of new discoveries about atmospheric pressure and the measurement of heat and energy in the 17th century. These then more slowly led to new manufacturing and transport capabilities in the 18th and 19th centuries, although these new capabilities had little impact on material or military balances between Europe and Asia until the mid-19th century. At the beginning of the 1800s, even Europeans generally acknowledged the superiority of Asian manufacturing and the wealth of Asian societies, and had made only minor encroachments on inland Asia. At the end of that century, Europeans scorned Asian technology

and controlled much of Asian wealth. The "sudden" difference was due to the application after 1770 of Europe's prior scientific and engineering advances from 1500 to 1770, which previously had been mainly small-scale and academic, to mining, manufacturing, transport, and military ends on an unprecedented and exponentially widening scale.

The revisionists do claim that there was dynamism in China, but only in the exploitation of the possibilities of an organic economy. China did have an agricultural revolution as profound as that of Britain, at about the same time, and this revolution decisively shifted resources *away* from the state and into an expansion of manufacturing and trade. The spread of double cropping and new crop rotations in the late Ming and early Qing increased productivity and released labour for major increases in silk and cotton manufacture. What China lacked was an energy revolution, which made it impossible to increase manufacturing beyond what water and muscle power would support, and hence left a ceiling on productivity that population growth eventually hit.

On p. 432, Bryant again poses the "Europe vs. China" contrast in ways that miss the actuality of Europe. He asks: "How can a society that remained overwhelmingly agrarian, increasingly overpopulated relative to resources and technologically stationary, and whose key social players were peasants, rentier landlords, merchants, and a stratum of government officials whose training was literary rather than technical, have been open to the developmental possibilities of a society that was increasingly urban-based, effectively harnessing new scientific knowledge … and whose key social players were … capitalistic farmers, proletarians, industrialists, and parliamentary representatives?"

Although Bryant clearly has China in mind as the former society, it's also a perfect description of 18th century France or Germany. Britain was the *only* country in 18th century Europe that was not overwhelmingly agrarian, and whose key players included parliamentary representatives. It was also the *only* country harnessing scientific knowledge to manufacturing, and where government officials showed evidence of technical training, at least in the basics of Newton's laws and rudimentary mechanics (Newton was not even taught in schools in France until after 1790).

So the key question is actually "Why was Britain so different and able to diverge from Europe?" more than "Why was Europe able to diverge from Asia?" That is why my forthcoming book is entitled *A Peculiar Path* — that is Britain's path, and it leads through cracking the energy barrier and applying empirical science to engineering, rather than through Italian trading prowess or French sugar-slaving or Portuguese plundering. We will never understand the causes of the great divergence

by looking for generalized differences between Europe and Asia, nor by washing out all differences between these regions. Rather, the answer must be found in looking at the particular conditions and trajectories of specific countries, and even sub-national regions, across Eurasia, to identify the specific trajectories that led to modern economic growth.

REFERENCES

Blaut, James. 1993. *The Colonizer's Model of the World*. New York: Guilford.
—— 2000. *Eight Eurocentric Historians*. New York: Guilford.

Brook, Timothy. 1998. *The Confusions of Pleasure: Commerce and Culture in Ming China*. Berkeley: University of California Press.

Bryant, Joseph M. 2006. The West and the rest revisited: Debating capitalist origins, European colonialism, and the advent of modernity. *Canadian Journal of Sociologie/Cahiers canadiens de sociologie* 31(4):403–444.

Broadberry, Stephen and Bishnupriya Gupta. 2006. The early modern great divergence: Wages, prices and economic development in Europe and Asia, 1500–1800. *Economic History Review* 59(1):2–31.

Clark, Gregory. 2007. *A Farewell to Alms*. Princeton: Princeton University Press.

Crafts, Nicholas F.R. and C.K. Harley
1992 Output growth and the British Industrial Revolution: A restatement of the Crafts-Harley view. *Economic History Review* 45:703–730.

Frank, A.G. 1998. *ReOrient: Global Economy in the Asian Age*. Berkeley: University of California Press.

Goldstone, Jack A. 1991. *Revolution and Rebellion in the Early Modern World*. Berkeley: University of California Press.
—— 2000. The rise of the West — or not? A revision to socio-economic history. *Sociological Theory* 18(2):173–94.
—— 2002. Efflorescences and economic growth in world history. *Journal of World History* 13(2):323–89.
—— Forthcoming. *A Peculiar Path: The Rise of the West in World History, 1500-1850*. Cambridge, MA: Harvard University Press.

Goody, Jack. 1996. *The East in the West*. Cambridge: Cambridge University Press.
—— 2004. *Capitalism and Modernity: The Great Debate*. Cambridge: Polity Press.

Hobson, John M. 2004. *The Eastern Origins of Western Civilization*. Cambridge: Cambridge University Press.

Koepke, Nikola and Joerg Baten. 2005. The biological standard of living in Europe during the last two millennia. *European Review of Economic History* 9:61–95.

Lee, James, and Wang Feng. 1999. *One Quarter of Humanity*. Cambridge, MA: Harvard University Press.

Lieberman, Victor, ed. 1999. *Beyond Binary Histories: Re-imagining Eurasia to c. 1830*. Ann Arbor, MI: University of Michigan Press.

Lieberman, Victor. 2003. *Strange Parallels: Southeast Asia in Global Context, c. 800–1830*. Cambridge: Cambridge University Press.

Livi-Bacci, Massimo. 2007. *A Concise History of World Population* (Fourth edition). Oxford: Blackwell.

Nuvolari, Allessandro. 2004. *The Making of Steam Power Technology*. Eindhoven, Netherlands: Technical University of Eindhoven.

Parker, Geoffrey. 1996. *The Military Revolution*. 2nd Edition. Cambridge: Cambridge University Press.

Pomeranz, Kenneth. 2000. *The Great Divergence: China, Europe and the Making of the Modern World Economy*. Princeton: Princeton University Press.

—— 2002. Beyond the East-West binary: Resituating development paths in the eighteenth-century world. *Journal of Asian Studies* 61(2):539–90.

Wong, R. Bin. 1997. *China Transformed: Historical Change and the Limits of the European Experience*. Ithaca: Cornell University Press.

Wrigley, E. Anthony. 2004. *Poverty, Progress, and Population*. Cambridge: Cambridge University Press.

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