

Alan Macfarlane, *The Savage Wars of Peace, England, Japan and the Malthusian Trap* (Palgrave, 2003), pp. xxxv + 427 pp.

New epilogue to the paperback edition, written in 2003 by Alan Macfarlane

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The published reaction to the hardback edition of *Savage Wars of Peace* (SWP) was slight. It was expensive and not widely read. This is one of the reasons for making it available to a wider public in paperback form. Two audiences however, did appreciate the book. One was the Japanese. The book has now been published in a Japanese translation and a number of Japanese scholars have told me that it helps them to see their own culture and history in a new way.¹

Secondly, it interested a television production company who had been commissioned to make a six-part television millenium series for Channel 4 about the events that led up to the steam revolution. The series contained a number of arguments and settings based on the book, in particular in relation to tea and disease.² The original filming covered many other topics, for example toilets, Japanese weaponry and the Japanese practice of making small images in remembrance of aborted fetuses and placing them in shrines, which were finally omitted in the broadcast series.³

The few published reviews I have come across contain no serious criticisms of the book.⁴ The arguments have not been challenged. Indirectly, however, the framework within which the book was written in the mid 1990's has been subjected to serious rethinking in a series of books published since SWP came out.

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SWP is based on the assumption that there was something unusual about English and Japanese civilizations in contrast to many of the neighbouring continental Empires and that this divergence went back to the middle ages. Although not directly addressing this argument, events at the end of the twentieth century were seriously challenging any overtly Euro-centric vision of the world.

What many saw as the most significant event of the 1990's was the rapid growth of China and Chinese related economies. Talk spread of a new type of 'Confucian' world civilization, others remembered that the ascendancy of Europe had, in world terms, only been very brief, basically from 1830's to 1980's. A number of books came out lambasting the Euro-centric models of the world, arguing that not only China but also Japan were just as rich, powerful, and 'advanced' as Europe until at least 1800. From different angles, the work of Blaut, Goody and Gunder Frank are examples of this new wave.⁵ They argue that since we now know that rapid economic growth was occurring

¹ Shinyosha, Tokyo, 2001

² See Sally and David Dugan, *The Day the World Took Off* (2000).

³ Some of these may be seen, by those who have broadband access, on www.alanmacfarlane.com

⁴ Reviews by David Arnold, Peter Laslett, Roy Porter and James C.Riley may be seen on www.alanmacfarlane.com

⁵ J.M. Blaut, *The Colonizer's Model of the World* (1993), Jack Goody, *The East in the West* (1996), Andre Gunder Frank, *ReOrient* (1998).

outside the Euro-American zone, any idea that there is something special about Europe in terms of mentality, social structure, political freedom, must be mistaken.

While the attack is usually on Max Weber, by implication the whole Enlightenment problematic is seen as misguided, if not mischievous. There was no European miracle, there is no necessary link between freedom and economic growth. Look at China, Taiwan, Thailand, Hong Kong, South Korea, Japan, Singapore, Malaysia and you will see that what happened in the west was fairly insignificant. It was an accident that it happened there first. East Asia was always the world leader, and it just been temporarily delayed, probably by European imperialism, its wealth sucked away. If Europe had never existed, East Asia would quite soon have developed its own form of industrial civilization.

The one example of this new argument I have found related to Japan is by Susan Hanley. Her *Everyday Things in Premodern Japan* (1997) , mainly consists of revised versions of earlier articles on material life. As such it is a valuable collection of many of the articles which I used extensively as the background to SWP. Hanley shows convincingly in her book, as she did in her articles, the following. The material standard of most Japanese improved between 1600 and 1868; compared to most of Asia, the Japanese were well fed, clothed and housed through this period; compared to Europeans they were extraordinarily clean and enjoyed a high level of sanitation; there was no dramatic change in material culture at the Meiji restoration; the unusually high standard of material culture by Asian standards was a necessary, if not sufficient, background to rapid industrialization.

However, she tries to push the argument further. She argues that Japanese civilization was at the same level of material culture as Britain in 1800, and that fundamentally the differences between the two occurred after that date. This is less convincing. In her zeal to prove that the Japanese were not as miserable as many have portrayed, Hanley tends to omit the central fact of Japanese life when compared to Europe. This is that Europeans, especially the English, made very great use of non-human energy (wind, water and particularly animals) and that this lightened the labour load considerably. The Japanese had to achieve their extraordinarily high material standard of living (for an agrarian society) largely through enormous self-discipline, sophisticated social cohesion and incredibly hard work. They had taken the rice path to agricultural involution and without discussing this we cannot really understand why Japan was both materially so well off, and yet so far from the European experience. That she also omits any serious discussion of the other two components of the Malthusian trap, namely war and disease, also takes it in a different direction to SWP.

While Hanley's book is based on older research, to my mind the best of the new genre is the aptly titled *The Great Divergence* (2000) by Kenneth Pomerantz. The book consists of a detailed comparison of the economic situation in China (and to a lesser extent other parts of Asia) with Europe, particularly during the eighteenth and nineteenth centuries. There are detailed assessments of the standard of living, technologies, agricultural methods and yields, taxation regimes and other central indicators of economic performance. A very large amount of statistical information is gathered together to support a number of the basic conclusions. These may be summarized as follows.

Apart from the matter of shipping and international trade, there was no appreciable superiority of the west over China by 1800. The Chinese were as well fed, clothed, housed, lived as long, produced as much through their agriculture, as western Europe. It was only after 1800 that a divergence in standards of living and technical efficiency occurred.

There was no significant structural difference in the economies of China and Western Europe before 1800. They were both 'agrarian' and subject to the same structural constraints. There was no 'divergence' until the nineteenth century.

Since there was no difference in either quantity or kind in the economies at the two ends of Eur-Asia by 1800, we are left with the puzzle of why differences developed so quickly between 1800 and 1850. The reasons were relatively small and entirely fortuitous, and both were centred in the first period on England. England had good coal supplies and it had a huge set of 'invisible acres' in the Americas that supplied it with the wealth for its 'take off'. China's coalfields were in the wrong place (the northwest) and it had no vast empty acres to pillage.

In many ways this is a refreshing thesis. Yet the danger of this new argument is that it obscures as much as it clarifies. My criticisms are basically methodological. Although western writers have in their ignorance lumped 'China' into one entity, or lumped 'Japan' and 'China' together, when they are very different, it does not help to mirror this shortcoming. Pomerantz treats 'Europe' over its thousand-year history as if there were really no major differences within it. Thus when he needs evidence to show that yields, or ratios, were no higher in 'Europe' than in 'China' he is happy to draw evidence fairly indiscriminately from Portugal, Italy, France, England, Scandinavia. Of course, once one does this, one can prove almost anything. In particular, he lumps England and the Continent, until 1800 at least. Once one assumes there is no difference it is not relevant to look at the different political or social histories of different parts of Europe. The difference between English and French feudalism, for instance, is deemed quite irrelevant.

In fact this lack of differentiation between parts of eighteenth century Europe leads to a confirmation of the Enlightenment argument. Pomerantz provides detailed evidence and logical arguments which confirms the view that most of continental Europe had indeed hit the outer limits of the agrarian mode of production. There was no obvious escape from this, either in Europe, China, India or Japan. Unfortunately, however, by lumping England in with this picture until 1800, Pomerantz makes it almost impossible to understand how the situation was reversed.

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The second point is that Pomerantz concentrates on quantities, that is outcomes, rather than processes. It may well be that the yield per hectare from wet rice is much higher than from dry grains and this is interesting. But equally interesting is the way in which wet rice cultivation has all sorts of social and economic consequences, for example by reducing the number of animals, increasing the demand for labour (and hence increasing population), reducing the size of holdings (and hence altering stratification), reducing the need for grinding machinery. Thus, from a statistical point of view in terms of output per unit of land or even unit of energy input, there may be little difference between an acre of wet rice in the Himalayan village where I work and the huge arable fields where I live in England. But a little reflection and some detailed first-hand observation of the two processes brings home a vast divergence. This over-emphasis on quantification - one can only count what one can count - rather than quality runs right through the book.

The difficulty is compounded by an over-emphasis on cross-sections rather than dynamics. Pomerantz's basic point, that China was in many ways as affluent as much of Europe in the later eighteenth century was made by Montesquieu, Adam Smith and Tocqueville. But what the earlier writers who were living through the events also noticed was a difference in dynamics. They observed that the technology and sophistication of China when described by Marco Polo was enormous - but seemed to have changed little four hundred years later. There were a series of micro improvements and China had impressively maintained its standard of living with a larger population. Yet it was not

becoming materially wealthier. Smith observed the same phenomenon for much of continental Europe by the eighteenth century. Even the Dutch had halted. Nevertheless, over the four hundred years up to 1700 there had been enormous change and growth, and England and America were still growing. So the west had until recently been dynamic. If one compared the technology of western agriculture in 1000 A.D. and 1750 there was an immense change, particularly in the use of non-human energy (wind, water, animals and increasingly coal in England). There was a dynamic momentum, though Smith saw it halting. In China, fundamental technological and economic change had largely halted after the fifteenth century.

Although one must resist the attraction of the Rostovian metaphor of 'take off', it is important to look at momentum. The English industrial revolution did not happen from a standing start. We can see the build up of capital and technology over half a millenium. After the event we can see the results. This is one of the many reasons which leads one to be certain that neither China nor Japan were 'moving towards' industrialization before the impact of the west.

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Perhaps the deepest methodological weakness of Pomeranz's book, however is the narrow disciplinary foundation of the work. The problem of economic growth is far too important to leave to economic historians. The underpinning of growth in medieval Europe was not technical or economic, but rather political, the unification into nation states. Likewise, it seems likely that, if we are to understand the first industrial revolution, we will not get far if we stop at economic facts.

If we ask ourselves what information Pomeranz provides about the difference of social structures, the difference in political and administrative systems, the difference in religions and ideologies, as between China and parts of the west, the answer has to be 'practically nothing'. The rich, multi-stranded, Enlightenment vision has been abandoned. The problem is defined in purely economic terms and consequently it is not surprising that we find the answer in purely economic terms - coal and American resources. Yet the mind is not content with this, even at a superficial level. There was lots of coal in Japan, there was lots of coal in Germany and parts of France, so why was it not used? Many European powers had 'ghost acres' in various parts of the world, yet this often made them poor (Spain, Portugal) rather than rich. To proceed further we need to move beyond economic facts, though it is very useful to have them outlined so well.

Finally, there is the matter of science or, as some would prefer to call it, reliable knowledge. It is revealing that a book which, in many ways, could be seen as undertaking the same task as Joseph Needham, in other words to increase our respect for the ingenuity and sophistication of China, hardly alludes to Needham's work. Indeed it hardly, mentions the scientific revolution at all. Now it has become fashionable to argue that scientific knowledge had no obvious effect on economic efficiency until the later nineteenth century. If we define science and efficiency very narrowly and confine ourselves to practical technologies that were developed in a laboratory and directly applied, this may be true. Yet, as Crosby has convincingly argued we need to define reliable knowledge much more widely.⁶ As Needham himself so forcefully demonstrated, while China was far ahead in terms of technology and reliable knowledge by 1300 A.D., there was not much major development in the following five hundred years.

Whatever we mean by the 'scientific revolution', it did not occur in China, but it did occur in Western Europe. That is to say a new attitude to truth, experiment, precision, measurement emerged and through long chains of causation influenced all sorts of

⁶ Alfred W. Crosby, *The Measure of Reality* (1997), now dates the 'great divergence' in thoughts systems even earlier, roughly in the period 1250-1450.

things. Without the embedded and increasing reliable knowledge much of the technology of the west, from weaponry, through navigation, to glass and iron and pottery and steam engines, would not have occurred. To write a whole book on *The Great Divergence* between the two ends of Eur-Asia and to completely omit all of this is, to say the least, bizarre. It is as bizarre as not considering seriously the difference between Christianity and the Confucian -Taoist- Buddhist- Shinto mixes of East Asia. Or as bizarre as failing to discuss the differences between social structures (class and caste and ranks), between kinship systems (agnatic, cognatic) or between political systems (monarchical and republican, imperial and centralized).

It may be difficult for many western historians to criticize the new 'Orient-centred' vision for fear of being accused of being ethno-centric. Having spent much of my life as an anthropologist working on Himalayan societies and in studying Japan I have the highest respect and admiration for Asian civilizations. Thus I am perhaps in a better position than many to warn of the dangers of a new form of historical political correctness. While doing us a service by reminding us of what Smith and his successors always stressed - that is to say the majesty and sophistication of east Asian civilizations - it would be sad if in doing this we also lost sight of the central question. That question is why the modern transformation to an industrial and scientific-based civilization occurred in western Europe and not eastern Asia. In answering that question we have to use a much wider canvas than the purely economic and material.

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The question of how and why the modern world, a compound of capitalism, individualism, industrialism, democracy and many other features, emerged and why it did so in western Europe is one I have pursued for all of my adult life. A brief account of the stages in this journey of exploration is given in the original introduction to SWP, printed below.⁷ This book is part of my answer.

SWP seeks to explain in some detail how the two islands of England and Japan broke out of the normal tendency whereby rising population absorbs increased resources and then overshoots to create a crisis through the intersection of war, famine and disease. This is what I called the Malthusian trap. It is a trap which does not absolutely destroy a civilization, but inhibits and undermines it. The solution to the question of why England and Japan early escaped from the Malthusian constraints turned out to lie in a combination of chance factors, in particular islandhood. Since finishing the book in 1996 it has become increasingly clear that the Malthusian trap is only one part of the story. Its power cannot be understood without looking at precisely those dimensions which Pomerantz and others tend to overlook, namely politics, law, social structure and knowledge systems. So in a series of subsequent books I have tried to look at the escapes from parallel traps, which combined in the past to make the Malthusian one so deadly.

In *The Riddle of the Modern World: Of Liberty, Wealth and Equality* (Palgrave, 2000), I looked at the work of three great thinkers who asked the same central question as that which lay behind SWP. This question is how was it possible to escape from a world of war, famine, disease and poverty into one of relative liberty, wealth and equality. Montesquieu, Adam Smith and Tocqueville all gave answers which help us to understand how England and then America escaped from a series of traps as vicious as that outlined by Malthus. This is the normal tendency for increased resources to feed not only into growing population and hence war, famine and disease, but also into increased social inequality and political centralization and

⁷ A longer and more detailed account of the attempt to solve some of these problems is given on www.alanmacfarlane.com

authoritarianism. These three authors outlined the way in which it was possible for something to occur which avoided the almost universal tendency which they had observed in every preceding civilization in history. They produced answers to these difficult questions by employing a wide and broad comparative method which placed Europe, Asia and America alongside each other so that they were able to note what was common and what different. So they provided a coherent story of the political and social under-pinnings of that material and demographic transformation described in SWP. Thus *Riddle* can be read as another part of the attempt to explore how our world came into being.

Even at the end of *Riddle*, however, there were several unfinished arguments. One concerned the peculiar case of England and the nature of the bonds that hold people together in a capitalist civilization. Montesquieu, Smith and Tocqueville had pointed to the peculiar legal and social system in England, in particular its development of extensive associations or ‘civil society’ as it would not be called. Yet none of these authors had a sufficient knowledge of English history to be able to explore exactly how or why England had developed in this peculiar way. In *The Making of the Modern World; Visions from West and East* (Palgrave, 2002), I explored this theme through an examination of the greatest of English historians, F.W.Maitland (1850-1906). I considered his work as a contribution to political philosophy and social history rather than as legal history. Maitland explained with great clarity when and why English society, polity, family system and law diverged from continental systems. In his later work he outlined the origins of civil society and modern liberty through the elaboration of the device and concept of the Trust.

While Maitland outlined a satisfying answer to how our modern world emerged, I felt it would also be valuable to look at the answers provided by these European thinkers from outside. How plausible were their ideas when regarded from a non-European civilization? Since Japan is the alternative civilization described in SWP, it seemed appropriate to take a Japanese thinker, and in the second half of *Making* I analyse the life and work of the greatest of modern Japanese social thinkers, Yukichi Fukuzawa (1835-1901). Fukuzawa recognized the central essence of what thinkers from Montesquieu to Maitland had stressed, that is the combination of tensions and balances which created the dynamism and openness of Britain and America. He explained how this system worked and helped his countrymen to import many of its institutional underpinnings in education, commerce, clubs and elsewhere. So he helped to provide the right context for the importation of western science and technology. Within a generation, Japan had moved from being a relatively weak agrarian civilization on the edge of China to becoming the first industrial nation in Asia, powerful enough to defeat both China and Russia at war. If ever there was a demonstration of the accuracy of a set of social theories, this was it.

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So between 1996 and 2000 I tried to understand how some nations have escaped from two further traps which feed into the Malthusian one, the political (authoritarian centralization) and the social (hierarchical inequality). One further major trap remained unexplored however. This was alluded to right at the end of *The Riddle of the Modern World* in the following way. ‘There is still a large gap in the explanation of how the transition to the modern world has occurred. Overcoming the Malthusian

trap is part of the story, and I have tried to provide a theory to explain how that happened. Partially overcoming political, religious and social predation is another part of the total picture and this book [Riddle] has provided a theory as to how that may have occurred. Yet there is a third trap which needs consideration. In order to complete the picture we need a thorough examination of the conditions which lead certain societies to go through an industrial revolution, and others an industrious one, some to go through a wisdom revolution and others through a knowledge (science) one. Or, put in another way, why did technological and scientific growth occur so spectacularly and rapidly in western Europe between about the twelfth and nineteenth centuries and why, during the same period, did it slow down, cease and even partially regress in other civilizations which had previously been far more “advanced” than Europe?’⁸

Over the last few years, working with Gerry Martin , I have been trying to explore this last part of the puzzle. It is what one might call the Mandarin trap, in other words the tendency for knowledge systems to become more rigid and conservative with time. It is rather similar to the other three addressed above. Resources and wealth accumulate as a result of chance or invention. This not only feeds into population growth and political and social inequalities, but it also puts more power into the hands of the intellectuals. It tends to increase the control of the lay and clerical forces who guard the thought systems of a civilization. There is a very strong tendency towards conservatism, a looking to the past and the known truths, amongst the literate. The past is littered with examples of different examples of this tendency; the Christian Inquisition, the Brahmin control of thought in India, the Confucian education system, the dominance of mullahs at certain periods in Islamic civilizations. Religious purity, social status and political expediency all tend towards suppression of intellectual innovation.

Yet we know that, counter to this normal tendency, at some period between about 1200 and 1700 a radical break in systems of thought did occur. A number of revolutionary shifts in method and substance came about to which we attach rough labels such as ‘The Renaissance’ and ‘The Scientific Revolution’. An open system of understanding and representing the world was instituted, or re-instituted. This, in turn, was to provide the foundation for the new biology, chemistry, physics and medicine without which the escape from the Malthusian, political and social traps described in the earlier volumes could not have triumphed or been sustained.

To understand how and why this had happened is indeed a daunting task, to which many have devoted their lives without conspicuous success. How could one approach such a vast subject, the revolution in western paradigms of knowledge that led to the divergence of Europe from all other civilizations? Furthermore, if one did find parts of an answer, how could one present one’s findings in a brief and comprehensible form? Gerry Martin and I decided to focus our analysis on part of the problem, an exemplar or typical case and one which seemed to lie at the heart of any solution to the question of what happened to shake Europe out of its tendency towards the dogmatic slumber of which Kant spoke.

In a short book on the social history and effects of glass, we describe the great divergence between an increasingly glass-saturated western Europe and an

⁸ Macfarlane, *Riddle*, pp.293-4

increasingly glassless world outside Europe.⁹ We suggest that while glass alone is obviously not a necessary and sufficient cause for the transformation of the quality of reliable knowledge. Yet it did have an amazing effect. It created a revolution in human systems of knowledge when conjoined with some of the other demographic, political and social elements outlined in previous volumes and also the inheritance of tools of thought and accumulated information which flowed through Islam from Asia and the Ancient World. It allowed a major shift in vision and confidence.

Glass made a new science and technology possible by providing the new instruments: microscopes, telescopes, barometers, thermometers, vacuum flasks, retorts and many others. At a deeper level it literally opened people's eyes and their minds to new possibilities and turned western civilization from the aural to the visual mode of interpreting experience. In the appendix to the book we examine twenty famous experiments which have changed our world, chosen at random. Fifteen of them could not have been performed without glass tools. Putting it in another way, the collapse of glass manufacture in Islamic civilizations and the fading away in India, Japan and China made it impossible that they could have had the type of knowledge revolution that occurred in western Europe.

The following sciences would not have existed without glass instruments: histology, pathology, protozoology, bacteriology, molecular biology. Astronomy, the more general biological sciences, physics, mineralogy, engineering, palaeontology, vulcanology and geology would also have been very different. Without clear glass there would have had no gas laws, no steam engine, no internal combustion engine, no electricity, no cameras and no television. Without clear glass we would not have had the visualization of bacteria, little understanding of infectious diseases which is at the centre of the medical revolution since Pasteur and Koch.

Without the chemistry which depended crucially on glass instruments we would have had no understanding of nitrogen and so no artificial nitrogenous fertilisers. Much of the agricultural advance of the nineteenth century would not have occurred without glass. There would have been no knowledge of the moons of Jupiter and no obvious way to prove that Copernicus and Galileo were right. We would have no understand of cell division (or of cells), no detailed understanding of genetics and certainly no discovery of DNA. Without spectacles a majority of the population in the west over the age of fifty would not be able to read this article.

So glass is both a giant and unforeseen accident and at the same time it follows a predictable pattern of movement round a triangle: deeper knowledge, innovation, multiplication of innovated artefacts which lead back to further knowledge. The movement round this triangle was confined to one region yet it was powerful enough to make the world we live in. It could only do so, however, as part of that package of demographic, political and social patterns outlined in the other books described above. If the modern world is like a garden barred by a combination lock, then unlocking the gate requires the accidental coming together of a series of different numbers which could neither be designed nor left entirely to chance.

⁹ The book was published in 2002 as Alan Macfarlane and Gerry Martin, *The Glass Bathyscaphe: How Glass Changed the World* by Profile Books in Britain, and as *Glass: A World History* by Chicago University Press in the U.S.

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Yet even at this point, the quest was not over. Returning to the most puzzling question behind SWP, the strange improvement in health in England and Japan in the early modern period, I have also had further thoughts.

Part of my explanation in SWP for this previously unexplained change was that the introduction of tea was a primary factor behind the hitherto unexplained fall in mortality in eighteenth century Britain. Hence tea drinking allowed the industrial and urban revolution to occur for the first time.¹⁰ The television series which featured the argument spurred a publisher to ask my mother (a tea manager's widow) and I to write a general book on the history and effects of tea.¹¹ Research for that book has deepened my conviction that the link between the transition from agrarian civilization to our modern industrial world does, indeed, to a considerable and surprisingly large extent hinge on the huge accident of tea drinking. The theme is explored in the new book which also contains a wider survey of the effects of tea on health. To my considerable surprise, recent work on the medical effects of tea suggests that a number of other diseases may also be influenced by tea drinking. These include several touched on in SWP, including malaria, influenza, bubonic plague and various skin and eye diseases. It has also been suggested with some evidence that tea drinking may lower the incidence and effects of many degenerative conditions which I did not deal with such as gout, stone, arthritis, teeth decay, heart attacks, strokes and various cancers.

It is worth singling out one of these for further comment. One of the most striking yet puzzling findings in SWP was that malaria seems to have more or less disappeared in Japan between the fourteenth and seventeenth century. Likewise, in Britain where malaria had been a serious endemic ailment in the seventeenth century, it seems to have receded rapidly after about the first third of the eighteenth century in England and southern Scotland.¹² For example, writing at the start of the nineteenth century, Thomas Place noted that 'The ague [malaria], too, had its victims in large numbers. Towards the close of the seventeenth century, nearly one in forty, of those who were buried in London, are stated to have died of this disorder, which is now but seldom heard of, and kills nobody. Even those counties, where it was most prevalent and most fatal, are comparatively free from it, it being confined to much smaller spaces...'¹³ I put forward various theories which experts have suggested in the past to account for this disappearance: better irrigation and land drainage which reduced the number of stagnant pools where mosquitoes breed, changes in livestock rearing which altered the relations between mosquitoes, livestock and humans; mosquito netting in Japan. None of these is satisfactory as a total explanation, even when they are united.

In light of the fact that some early writers from the seventeenth century argued that malaria could be cured or decreased in its effect by tea drinking, as well as the exact correlation between the growth of tea drinking and the decline of malaria in both these islands, it would seem worth re-examining this topic. It is known that

¹⁰ SWP, 132-153.

¹¹ To be published in early 2003 by Random House as *Green Gold: The Empire of Tea*, by Alan and Iris Macfarlane.

¹² SWP, 196

¹³ Francis Place, *Illustrations and Proofs of the Principle of Population* (1822:1930), 251

certain plants contain substances that are effective against malaria, for instance the Neem tree in India and Artemisia in China, as well, of course, as cinchona bark or quinine. Perhaps there is something similar in the tea camellia. It would certainly be worth further research. For instance, an epidemiological study might confirm whether after the introduction of tea drinking into Assam after the 1880's, or into India from the 1920's, the levels of malaria declined even without spraying or netting. Or whether countries which are tea drinking, such as China or Japan have lower incidence than those without tea. Even within a population, for instance Sri Lanka, there are considerable differences in the incidence of malaria; does this coincide at all with the incidence of tea drinking? It would be very good to see whether experiments showed any effects of tea on malarial parasites.

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Although I hardly dealt with China in SWP, in so far as I did so, I assumed that it more or less conformed to the Malthusian 'crisis' model of high mortality (epidemic and periodic) and high fertility through young age at marriage for both males and females. Recent research has suggested that my assumptions were wrong. In particular the work of James Lee and his associates suggest the following characteristics of Chinese demography over the period from say 1700 to 1900.¹⁴ Mortality was usually fairly low, roughly in line with that in England or Japan; famine and subsistence crises were not widespread; marital fertility was lower than that in Europe and roughly in line with Japan; while women married very young (in their early teens), men married late (in their late twenties or later) and many never married at all; female infanticide rates were very high, averaging between ten and twenty per cent of all livebirths. In this re-appraisal, Chinese demography turns out to be different from both Europe and Japan, but certainly not a simple high-mortality and high fertility regime.

In the context of health, what is particularly interesting is the low mortality rate. Like Japan, much of the best land in China was densely populated and there were very large cities. As in Japan or later eighteenth century England there is the intriguing question of how mortality, particularly that caused by water-borne diseases, was kept in check in a situation where we would expect there to be increasing problems of dysentery, typhoid and other ailments. In *Green Gold* we have widened our argument, suggesting that the spread of tea drinking in China from the eighth century onward may be an important factor in the rise of the T'ang and Sung Empires by allowing dense population without serious water-borne disease. This, we argue, may be due not only to the universal use of boiling water in China, but also because of the anti-bacterial substances in the tea. If, as we suggest in the same book, tea may also inhibit a range of other diseases, including influenza, malaria and possibly even bubonic plague, as well as common diseases such as strokes, heart attacks and cancers, the reason for the surprisingly good health of the Chinese population may be connected to tea drinking in a much more dramatic way than merely the boiling of water.

¹⁴ James Z. Lee and Cameron D. Campbell, *Fate and fortune in rural China: Social organization and population behavior in Liaoning 1774-1873* (Cambridge, 1997) and James Lee and Wang Feng, 'Malthusian Models and Chinese Realities: The Chinese Demographic System 1700-2000', *Population and Development Review* (25:1), 1999. See also William Lavelly and R. Bin Wong, 'Revising the Malthusian Narrative: The Comparative Study of Population Dynamics in Late Imperial China', *Journal of Asian Studies* 57, no.3 (August 1998).

Certainly this was the opinion of the Chinese themselves. As we quote at some length in *Green Gold*, both the Chinese themselves from the eighth century onwards, and the missionaries and diplomats who visited China from the sixteenth century, believed that the longevity and healthfulness of the Chinese was largely to be accounted for by tea drinking. Just to quote one among many examples, in a herbal by Li Shih-chen, published in 1578 but thought to contain material from a much earlier period, Li stated that tea would ‘promote digestion, dissolve fats, neutralize poisons in the digestive system, cure dysentery, fight lung disease, lower fevers, and treat epilepsy. Tea was also thought to be an effective astringent for cleaning sores and recommended for washing the eyes and mouth.’¹⁵

A further way in which further work on tea drinking fits into the theses advanced in SWP is also worth mentioning. There is a good deal in the book on work, on the immense toil of pre-industrial life. In order to sustain the dense populations of Japan and China, very intensive wet rice cultivation was necessary, often on a very meagre diet without much protein or even much vegetables. In *Green Gold* it is suggested that tea drinking, by providing extra energy through the effects of caffeine on human muscle co-ordination and endurance, may have played an important part in making such agriculture possible. Furthermore, it is known that green tea contains high levels of vitamin C, and it may also contain enzymes which help the body to extract the maximum of this vitamin from fruit and vegetables (and help, among other things, to reduce scurvy). All of this is an important part of the health environment explored in SWP, just as the stimulating effects of the caffeine in tea, combined with the energy in sugar, we argue, are crucial to understanding what happened when enormous demands were put on generally ill-nourished workers during the British industrial revolution.

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. Since completing the book in the summer of 1996 I have learnt one more thing about tea which alters one argument in SWP. As noted, I argued that the polyphenols in tea destroyed harmful bacteria in water, for example those associated with dysentery and typhoid. This added to the effects of boiling the water to make tea and reduced water-borne disease. Yet I remained puzzled when I wrote the book as to how tea drinking by the mother could have protected breast-feeding infants, for one of the most striking facts about the sudden decline in water-borne dysentery in the middle of the eighteenth century in England was that it occurred not only among those who drank tea for the first time (mothers and fathers), but equally among infants in their first months. Trying to understand this, I suggested in the book that the link was a negative one. The mother was less likely to have dysentery so her nipples and hands and clothes would have fewer harmful bacteria. So the infant would be less likely to get the disease.

Within a day of finally completing the book my first grand-daughter, Lily, was born. I watched at close quarters the effects of breast-feeding on Lily. When her mother drank coffee she would not sleep. When her mother ate baked beans, Lily suffered badly from wind. So I wondered whether the phenolics could be passing through the mother’s milk. A doctor friend confirmed that it was indeed the case that

¹⁵ Jill Anderson’s *Introduction to Japanese Tea Ritual* (1991), quoted in Bennet Weinberg and Bonnie Bealer, *The World of Caffeine* (2001), p.36.

what a mother eats or drinks will almost immediately be passed on to the infant. If this is the case, then the anti-bacterial polyphenols in the tea will pass easily into the mouth and stomach of the baby. Hence the tea drinking of the mother could well have given the breast-fed infant direct extra protection. This would explain why it was both maternal and infant mortality from water-borne disease that simultaneously declined in tandem. It is yet another argument against feeding infants with dried milk products in those many societies which suffer so terribly from water-borne infections.

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So a further part of the answer to the question of how the modern world came about is now in place. During the last five hundred years one civilization, and then others which have copied it, have, at least temporarily, deviated from the normal tendencies and traps which halt the increase in the wealth of nations.¹⁶ The Malthusian link between production and reproduction has been weakened. The almost inevitable connection between increasing wealth and increasing political and social predation has been partially suspended. The powerful tendency towards intellectual rigidification has been temporarily lifted by developments in the methods of generating and transmitting accurate knowledge about the world.

This is not, of course, to say that these tendencies will not re-assert themselves in the future. What has happened was the result of chance rather than design and there are plenty of examples of reversals. Not least among them are that in the middle of the twentieth century most of the nations on earth, including most of those in Europe, as well as China, Japan and Russia, were governed by people who were explicitly trying to destroy the liberty, equality and openness which earlier thinkers had believed to be so valuable. History has certainly not ended. Indeed, many of the tendencies, for instance the continued massive onrush of population, the spread of new and old diseases, the spending of huge quantities of money on weapons and aggressive 'defence' systems are all too obvious.

It is my hope, however, that this inter-connected set of volumes, of which SWP is one essential pillar, will give a broad outline some of the dangers which history reveals to us and the underlying patterns and tendencies which have again and again caused infinite misery and the collapse of civilizations. James Riley in his review of SWP suggests that other nations were not in a position to emulate the English or Japanese model which allowed an escape from agrarian poverty.¹⁷ This is obviously true of the eighteenth and even much of the nineteenth century. But we now live in a different world where ideas, technologies, cultures and social systems can move very quickly. It does not seem beyond the bounds of human creativity and rationality to be able to learn a little from our past and to build on this knowledge a safer, wealthier and more just future, based on an understanding of what those structural tendencies are which we must avoid, and how they have successfully been evaded from time to time.

¹⁶ It is a failure to analyse these normal tendencies, and hence to see the peculiarity of the deviations from them, which is among the reasons for the failure of interesting books such as David Landes, *The Wealth and Poverty of Nations* (1998) or Jared Diamond *Guns, Germs and Steel* (1997) to provide a convincing account of the development of civilizations.

¹⁷ For the review, see www.alanmacfarlane.com

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SWP was in many ways the most difficult and laborious of the fifteen books which I have published. This was partly because of the difficulty of the subject. To comprehend the medical history of two civilizations over a period of a thousand years is a large task. Furthermore, to solve the problem of why, for the first time in history, mortality started to fall in a sustained way in societies which were rapidly urbanizing and where the level of nutrition may have been decreasing was very difficult. The fact that most of the data as well as the basics of medicine and biology were new to me at the start of the task made it even more difficult. It required the absorption of new data and techniques of analysis. I also had to re-think the theoretical framework and concepts of cause and effect which I had absorbed over the years as a historian and anthropologist. I had to elaborate new multi-dimensional, non-teleological, models to explain change. These are first elaborated in the last chapter of SWP and further refined in the subsequent volumes.

The difficulties of researching and writing SWP had two consequences which can be explored in relation to this paperback edition. One effect of the difficulty of the task was to make me very conscious from an early point that I was on an unusually long and complex mental adventure. So I decided to keep a diary of the writing of the book. I kept the papers, plans and daily diary entries and from time to time while writing the book took stock of these. This helped the writing and research itself, but I began to realize towards the end of the three years it took that I had accidentally also created what I facetiously refer to as 'An Autobiography of a Book'. In other words, alongside SWP I was writing an account of how a book is written and how intellectual problems are solved. This was written during the creative process itself and not afterwards.

There are a number of accounts of creative work written by poets, novelists, painters, mathematicians and others. There are also a larger number of accounts written with hindsight after a creative act, for example Crick and Watson's separate accounts of the discovery of DNA or Goody, Geertz and Levi-Strauss's accounts of their intellectual work in anthropology based on reconstructions after the event.¹⁸ What I have not found is a full-length book written by a social scientist or historian describing what happens as the problems are actually being posed and resolved, rather than after the discoveries have been made.¹⁹ Without such an account, almost all those who are being trained to undertake research in the arts, humanities and social sciences absorb a distorted and confused image of how they should proceed, as I did myself. By reading only the final outcome of work in the shape of a finished and polished monograph or article, people assume that this must bear some resemblance to how a book was originally written or a discovery made. This is far from the case.

Until now it has been very difficult to publish a parallel account of a large piece of creative work. The commentary will only take on a meaning when placed alongside the finished product, and will only appeal to a specialist audience. This may help to

¹⁸ Francis Crick, *What Mad Pursuit* (1989); James D. Watson, *The Double Helix* (1968); Jack Goody, *The Expansive Moment* (1995), ch. 8; Claude Levi-Strauss, *A World on the Wane* (1961); Clifford Geertz, *After the Fact* (1996).

¹⁹ What there is, has been mined in a number of interesting general works on creativity, including more general works on creativity such as Arthur Koestler, *The Act of Creation* (1964) and Margaret Boden, *The Creative Mind* (1990).

explain why such an account has never been published. Now, with the advent of a reasonably priced paperback, in conjunction with the entirely new dimension of the internet, it becomes possible for the first time to attempt something more ambitious to be done. So, on my website I have put some of the background thinking and experience that went into the writing of SWP in the hope that it will interest some readers to see what a chancy, uncertain yet exciting business it is to write a long book.²⁰

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There is another consequence of the laborious nature of SWP, combined with the fact that for a long time I was very unsure as to where to proceed. As all those who try to do so will know, almost always when one writes or creates in other ways, one produces too much. There is usually about a quarter or a third of the writing which has to be left out of the final 'published' version. In the case of writing, this is a necessary process, even if it feels wasteful. This extra writing creates mental scaffolding round the object in creation and allows one to build it, but it will finally be dismantled and vanish when the final object appears. Most of it is of interest to a few of the readers who want to go down the bi-ways of the subject, or into some matter in greater depth. Some of this may go into an appendix. On the whole, however, constraints of cost and attention from the 'average' reader leads to the abandonment of nearly all of this invisible writing.

As with all my books, this process occurred when writing SWP. Yet it was on a much larger scale than I recall in any other instance. This was partly because it was in the end a very long book, roughly 160,000 words in its published form. Even cutting out a quarter from the original on the normal expectation would in such a case mean losing some over 40,000 words. Yet the amount that disappeared was much greater than this. The original text was made even larger because I was not sure where clues and arguments were fruitful and I needed to explore them in depth, partly because I needed to explain to myself many areas bordering on the central theme which, in the end, were not absolutely essential. So I wrote many drafts, which became longer and longer. They reached a peak of over 260,000 words in the summer of 1995, before the work began to shrink again. So perhaps 100,000 words have been omitted from the published version.

These omitted sections may be of use to some specialists who want to pursue topics touched on in SWP in greater depth. There are thirty-six 'appendices'. The first third, to give an idea of their nature, are as follows: abortion methods in England, Japanese adoption, irrigated rice cultivation tasks in Japan, air-borne disease, domesticated animals in Japan, the bath in Japan, beri beri in Japan, views of maternal breast-feeding in England, the carrying of infants in Japan, the effect of breast-feeding on fertility, milk drinking in England and Japan, the nature and classification of disease. All thirty-six are now available on the web site.

Retrieving these omitted passages is worth doing for another reason, for they add another significant dimension to the account of how a book is written. They illustrate, as has seldom been done before, how much material and of what kind tends to be

²⁰ For this account, see www.alanmacfarlane.com

squeezed out of a book when it is published. They are, to paraphrase the title of a book by Max Muller, ‘chips from an English workshop’. That these chips can now be added back to enrich the book is, of course, another fruit of the internet revolution. To have distributed them as a CD with the original book or paperback copy, as I had previously considered, would be expensive and complicated and it was for this reason, among others, that I decided not to do so. In any case, most readers would not want all or even any of the extra material. Yet for those who do want to go down some of the paths I took while writing the book, and then abandoned in the published version, it is now possible to see this material.²¹

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So the republication of the book in paperback form gives me the opportunity to create an unusual set of materials. The central text is the ‘stand-alone’ book which you have in your hands. This is a retrospective and edited account of an adventure or exploration, the published account of the voyage of discovery written after it was finished. Alongside this there is a web-site which contains various contextualizing materials. It contains a fuller account of why and how the book was written in the very moment when the search for solutions was in progress. If one carries on the metaphor, they are the diary or log of the voyage as it happened, interspersed with various tentative plans and sketch maps of possible ways to go. There are also descriptions of a number of the paths down which I strayed and on which I found curious facts, but which were finally left out of the final published account. Finally, to give some sense of the author and his search, there are twelve short film extracts. In these I pursue the puzzles narrated in the book on location in Japan, Nepal, Australia, Venice and England. More widely, the whole adventure is, as described, but one voyage which fits in with the others to understand the inter-linked nature of the unlikely escape into the modern world.

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(8,300 words)

²¹ As well as some 45,000 words cut from all of the text, there are specific sections on the following: