TWO ESCAPES.

We have seen how very difficult the escape from the general tendency towards Malthusian 'misery' is likely to be. Yet looking back from the present, we know that, somehow, parts of Western Europe and then later other parts of the world did remove these apparently immovable obstacles. In order to understand how this happened, let us start by looking at the case which is universally agreed to be the first full escape from the old agrarian order, namely England. It is well known that the first industrial revolution, which laid the foundations for the liberation from much 'misery', occurred at least two generations earlier in England than anywhere else. How did England escape from the Malthusian trap and what consequences did this have?

During the 1960's, the systematic reconstruction of the population history of England was undertaken by members of the 'Cambridge Group for the History of Population and Social Structure'. The work of Wrigley, Schofield, Laslett and others provided an immense amount of data to suggest that somehow England had emerged from a 'crisis' to what Wrigley termed a 'homeostatic' or 'low pressure' regime well before the eighteenth century industrialization process began.

It gradually became clear as historical demography progressed in England and on the Continent that England had an unusual demographic pattern. 'Indeed, the more deeply the English experience is probed, the more unusual it appears to be.'[1] Wrigley lays considerable stress 'on the remarkable features of the history of nuptiality and fertility in England...'[2] 'At times, population growth was much faster than in the main countries of continental Europe, and yet real income per head probably grew significantly faster, than elsewhere...'[3] What is particularly significant is that 'it was before, rather than after, the industrial revolution that this contrast in rates of change was so pronounced.'[4] England was the first documented case of a 'low-pressure' demographic regime 'in which both fertility and mortality were modest by the standards of traditional societies in general, and even by those of contemporary western Europe'.[5]

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[1]Wrigley, Population, History, xxix

[2]Wrigley, Population, 453

[3]Wrigley, Population History, xxix

[4]Wrigley, Population, History, xxix

[5]Wrigley, Reconstitution (xerox), 184

A graph of English population from 1100 to 1800[6] shows that it grew moderately rapidly until the middle of the fourteenth century when bubonic plague first occurred. Although all estimates of population before the sixteenth century are subject to wide margines of error,[7] the graph of population after the Black Death is notable for three things. The absence of any dramatic 'crises' after the 1350's; the relatively rapid growth of the sixteenth and late eighteenth and nineteenth centuries, and the long level period between about 1600 and 1750. This combination led to a relatively rapid population growth in England. 'Perhaps the most distinctive feature of England was its much higher long-run rate of population growth. Between 1550 and 1820 for example, the populations of France, the Netherlands, Spain, Italy and Germany all appear to have risen by between 50 and 80 percent, whereas the population of England increased by about 280 per cent.'[8]

The absence of a 'crisis' regime in England was also noted by Hollingsworth, who drew a sharp contrast between the crises of subsistence in **ancien regime** France, and early modern England at the same time[9] By keeping their mortality low, the English were able to adjust their population growth rate by use of the fertility rate. In a long and interesting set of contrasts between England on the one hand and France and Sweden on the other, Wrigley shows how 'In Sweden the bulk of the acceleration in intrinsic growth rates between 1750 and 1850 is attributable to declining mortality rates...'[10] while in England it was equally caused by a rise in fertility. France 'represented a compromise between the English and Swedish extremes.'[11]

The central feature was that for much of the period population was held in check as much by lowered fertility as by mortality. England was the one well-documented and long-established exception to the Malthusian 'high-pressure' equilibrium trap for it 'patently did not conform to the high-pressure paradigm.' This equilibrium between population and resources was achieved 'not by sudden, sharp mortality spasms, but by wide, quiet fluctuations in fertility, which in their downward phase reduced fertility levels to the point where population growth ceased even though mortality was still low by the

[6]cf Wrigley, Population, 78.

[7] See Smith, Black Death, xerox,pp.48-9.

[8]Wrigley, Reconstitution (xerox), 184

[9]Hollingsworth, History, 165

[10]Wrigley, Population History, 247

[11]p.248

standard of other pre-industrial societies.' This is a total 'contrast to the mortality-dominated high-pressure equilibrium sometimes regarded as generally present in all pre-industrial societies...' England was exceptional in that it 'experienced a fertility-dominated low-pressure system.'[12] Figures for fertility and mortality for various European countries do indeed show England with consistently lower rates than most.[13] Yet as research continues, the complexity of the variations somewhat muddies the picture. For instance parts of the contrast between England and France have been challenged by Weir.[14]

His general argument is that while there were indeed differences, they were not as great as Wrigley and Schofield maintained. If Weir is right it makes no difference to the English case, but it does suggest that parts of France were less characterized by a 'high-pressure regime' than we thought. It seems likely that this would also be the case in other parts of north-western Europe, for example the Netherlands, Holland, parts of Germany. We may thus need to move further away to southern or eastern Europe, or to Asia, to find the full contrasts between high and low pressure equilibrium demographic regimes.

The new picture can be examined in more detail if we look more precisely at what has been found out about mortality and fertility rates in England.

Writing in the early nineteenth century, it was in fact Malthus who was one of the first to note that there was something unexpected and unusual about mortality in England. Firstly, he suggested that contrary to the view that agrarian societies were very unhealthy and disease-ridden, this was not the case in England. Particular parishes were surprisingly healthy. 'In the parish of Ackworth, in Yorkshire, it appears, from a very exact account kept by Dr. Lee of the ages at which all died there for 20 years, that half of the inhabitants live to the age of 46.'[15] He believed that the crude death rate in country villages was of the order of 20 to 25 per thousand.[16] On the basis of this and other figures he concluded that 'it appears from the clearest evidence that the generality of our country parishes are very healthy.'[17]

[12]Wrigley, Population History, 451

[13]Flinn, European Demography, xxx

[14] Weir, Life, 27-47

[15]Malthus, i, 243

[16]Malthus, i, 241

[17]Malthus, i, 240 or ii, 240

What was even more surprising was that while cities were growing and crowding increasing, the mortality rate seemed to be dropping. 'The returns of the Population Act in 1811 undoubtedly presented extraordinary results. They showed a greatly accelerated rate of progress, and a greatly improved healthiness of the people, notwithstanding the increase of the towns and the increased proportion of the population engaged in manufacturing employment.'[18] Malthus noted that in the **Observations** on this act 'it is remarked that the average duration of life in England appears to have increased in the proportion of 117 to 100 since the year 1780.' He believed that 'So great a change, in so short a time, if true, would be a most striking phenomenon.' He was somewhat sceptical, believing that part of the explanation lay in migration and military service, which would lead some deaths to occur abroad. On the other hand, he accepted that '...as the increase of population since 1780 is incontrovertible, and the present mortality extraordinarily small much the greater part of the effect is to be attributed to increased healthiness.'[19]

In terms of what happened, Malthus believed that there had been a major shift sometime in the eighteenth century. 'We do not know indeed of any extraordinary mortality which has occurred in England since 1700.'[20] Certain diseases had declined, others had risen. He noted 'the extinction of the plague' as one significant change. The other was 'the striking reduction of the deaths in the dysentery.'[21] On the other hand, 'consumption, palsy, apoplexy, gout, lunacy, and small-pox became more mortal.'[22] Nevertheless, the total balance had shifted towards a lower general mortality.

His views on the surprising changes of the eighteenth century were endorsed by those who worked on the figures in the middle of the nineteenth century.' William Farr, compiler of Abstracts to the Registrar-General joined with Finlaison in believing there to have been a marked reduction in the death rate during the eighteenth century.'[23] Finlaison himself, 'showed increases of between 20 per cent and 35 per cent (varying with age-groups) in the expectation of lives between the early eighteenth century and

[18]Malthus, i, 251

[19]Malthus, i, 245

[20]Malthus, i, 250

[21]Malthus, ii, 182

[22]Malthus, ii, 182

[23]Chadwick, Report, 14

the early nineteenth century.[24]

The first point to emphasize is that from at least the mid-sixteenth century, mortality rates in England seem to have been relatively low when compared to those for many agrarian civilizations at the time.

The latest research on the mortality patterns of early modern England are conveniently summarized by Wrigley and Schofield. They have shown that contrary to previous expectations, for most of the period between the sixteenth and nineteenth century England enjoyed extraordinarily low mortality rates for a pre-industrial population. Crude death rates fluctuated between 22.5 per 1000 and about 30 per thousand. Wrigley and Schofield are thus able to assume a constant rate of about 25 per thousand.[25] As we have seen, this is about 15 to 20 points lower than what we would expect to find from the experience of most agrarian societies in the past.

This relatively low crude death rate led to a reasonable expectation of life. For instance, in the period 1566 to 1621 it averaged 38 years at birth, reaching a peak of 41.7 years in 1581.[26] Even in the period 1820 and 1870, the expectation of life at birth was only about two years higher than that in the later sixteenth and early seventeenth century.[27] Much of the mortality, of course, occurred in the first year and in childhood. If one survived that, 'during most of English history between Elizabethan and Victorian times a young man or woman of 20 could look forward on average to a further 35-40 years of life.'[28]

The peculiarity of this escape from high mortality is emphasized when we compare England to her nearest neighbour on the Continent. In France for much of the period up to the end of the eighteenth century, crude death rates were about 40 per thousand.[29] The expectation of life at birth was on average about 28 in France, up to eight years lower than England.[30] As the work of Goubert on the

[24]Chadwick, Report, 12

[25]p.182

[26]p.234

[27]p.236

[28]p.453

[29]p.479

[30]4 52

Beauvais and others have shown, France was a country 'in which the positive check cycle was a major feature of the mechanisms keeping numbers and resources in balance.'[31] France was characterized by a 'high-pressure equilibrium between population and resources that trapped most men in poverty and misery.'[32] The experience of France was also true of Sweden and a number of other countries for which the evidence now exists. (xxx give refs.)

The pattern of absence of any 'extraordinary mortality', which Malthus had noted since 1700, was a much earlier feature. 'There were a few brief periods...when the relative tranquillity of English mortality was severely disturbed...but such occasions were probably less common and less severe in England than elsewhere in western Europe.'[33] England was not 'afflicted by many of the crises experienced abroad.''[34] The authors note "England's prominent exemption from the common experience of north-west Europe.'[35] Furthermore there is plenty of evidence that conditions in southern and eastern Europe were even less favourable than those in north-western Europe. (for the demographic disasters in the south,[36] Thus even within a relatively favoured zone, England was exceptional.

It is not easy to accept this discovery, for it runs against both intuition and sentiment. As Schofield observes, 'We must wait until 1870 before again finding as high a value for life expectancy as the 41 years observed during the 1580s. These surprising results have naturally aroused some scepticism. Is it really possible that during these somewhat remote periods, before the health transition was under way, life expectancy had reached the levels of the late nineteenth century? If this were really the case, would it not be necessary to revise completely our views of the factors which have generally been associated with the first phase of mortality decline?'[37] Dobson notes that 'it may occasion some surprise that individual parishes could boast expectation of life at birth as high in the 16th, 17th and 18th centuries as

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[31] p.479

[32] p.451

[33] p.453

[34] p.342

[35] p.341

[36] see e.g. Kamen, Iron, 44-5l; Kunitz, Speculations, p.XXX

[37] Schofield, Decline (xerox), 23/24

those attained nationally only about 1920.'[38] As Petersen puts it, 'The supposition that the stinking cities of early industrialism could be the sites of a longer average life was a notion repugnant not only to the "nature poets" and Engels, not only to Chadwick and Ruskin and the Webbs, but also to a very large sector of nineteenth-century British opinion of all political orientations.' Nevertheless, 'according to the universal judgment of modern scholarship life expectation rose appreciably during the development of the industrial system.'[39] Yet it did not rise from a very low base; it was not the case that middling misery replacing awful misery. What appears to have happened is that relatively low mortality rates, in the lower twenties per thousand, achieved by at least the later sixteenth century rose somewhat in the seventeenth century. Instead of continuing to rise, they dropped again from at least the middle of the eighteenth century. There are thus two things to explain. The basically low mortality rates before the eighteenth century and the fact that these became even lower as population rose rapidly and people crowded into the cities and factories.

There are still considerable uncertainties. One concerns the point at which the unusually low mortality rates began. The Wrigley and Schofield evidence only takes us back to 1541. It seems likely that the relatively low mortality found then had been established as a pattern a good deal earlier. For example, Loschy has argued that 'All available material indicate that a substantial fall in mortality occurred in the fifteenth or early sixteenth century.'[40] Others have argued for an even earlier change, namely that 'Wrigley and Schofield's discovery that national mortality crises were neither as frequent nor as severe in the early modern period as we previously believed could well also be true of the late fourteenth and fifteenth centuries.'[41]

Equally contentious is the dating of the **further** reduction in mortality in the eighteenth century. The general consensus now, based on Wrigley and Schofield's work, is that the major drop in mortality started in the 1740s or 1750s and continued until the 1830s, when it halted, only to progress again in the later nineteenth century. As Guha summarized the findings. 'The **Population History** also enables us to see that the improvement in mortality began from the 1750s, persisted to the 1830s, was checked for a quarter-century, and resumed after that.'[42] For example, we learn that 'Between 1740 and 1820

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[38]Dobson, Hiccup (xerox), 137/38

[39]Petersen, Malthus, 158

[40] Loschy, Early (xerox), 85

[41]Various, Review Symposium (xerox), 165

[42]Guha, Decline (xerox), 90/91

mortality improved sharply (rose from 31.7 to 39.2) and levelled off during the mid-century.'[43] Yet there are those who argue that the change occurred earlier, mainly in the first half of the eighteenth rather than the second half of the century.[44] The figures do suggest that it was in the 1740s that deaths began to exceed deaths in cities, as the dramatic graph of London mortality rates provided by Landers shows.[45] It may well be, however as Schofield has argued, that 'it was towards the end of the seventeenth century, and more particularly around the 1690s that a new mortality pattern emerged.'[46] What is clear is that mortality fluctuated up and down, with the middle and later seventeenth century as a particularly sickly time.[47]

Several further aspects of the eighteenth century change are worth noting. One is that a considerable part of the improvement in mortality took place in cities and in a certain age group, that is infants and young children. The point was made some time ago by McKeown and even earlier by Malthus in his pin-pointing of the decline in infant dysentery. But it has been given precision particularly by the work of Landers. Figures presented in a table 'suggest that life expectation at the age of 30 was relatively static throughout the period when compared with the experience at younger ages, the major change being a decline of some 2-3 years after 1700, followed by an improvement of some 5-6 years in the second half of the eighteenth century.'[48] The particularly important period was the first three months of life. 'In particular, the overall reduction from the early eighteenth-century peak is primarily a consequence of the great diminution of risks associated with the first 3 months of life.'[49] We thus need to look 'to innovations that account for lower mortality in the common diseases that had caused heavy losses among infants and children (the enteric diseases, especially dysentery and malaria.'[50]

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[43]Schofield, Decline (xerox), 3/4

[44]cf Razzell, Essays, 199/206

[45]Landers, Age Patterns (xerox), 34; more generally see Landers, Metropolis (xerox) and Chambers, Economy, 103

[46]Schofield, Decline (xerox), 33

[47]cf Dobson, Hiccup (xerox), 414-7

[48]Landers, Age Patterns, 56

[49]Landers, Age Patterns, 43

[50]Riley, Insects (xerox), 844

Secondly, it has been argued that it was not so much the incidence of disease that changed, but the case fatality. As Guha summarizes the situation, 'Riley's work indicates that this improvement in longevity was attributable not so much to a reduction in the amount of illness suffered by the population, but rather to a reduction in the number of cases with a fatal outcome.[51] This has implications for how we explain the decline. Decline in case fatality is 'a phenomenon eminently compatible with an explanation couched in terms of better standards of living.'[52]

There are thus at least three 'demographic transitions' to explain. A drop in mortality to unusually low levels by the early sixteenth century. Another further drop sometime in the eighteenth century, and finally the more familiar drop from the 1860s. In between there was one period of higher mortality from about the 1620s, to the later part of the seventeenth century.

If we turn to fertility rates, we may look firstly at the crude birth rates, that is the number of births per thousand population, not taking account of the age and sex composition of the population, in the majority of agrarian societies outside Europe before the 1950s, these were usually in the range between 45 and 55 per thousand. A rate of 45 per thousand was not unusual, despite the fact that more than half the females were aged under 15 years of age.[53]

The rates in historical Europe were probably not as high as this. By the middle of the nineteenth century, west European populations had crude birth rates of about 35 per thousand in comparison to the rates of 45 to 50 for developing countries.[54] Up to the middle of the eighteenth century, the rates were probably normally higher, of the order of 40 per thousand, as in eighteenth century France.[55] In England the rates were lower. It has now been established that during the second half of the seventeenth century and early eighteenth century, crude birth rates were well below the expected 45 per thousand of a 'normal' pre-industrial population. (XXX Fill in the English crude birth rates; I suspect that they fluctuated, given the number not married and age at marriage, around 30 per thousand or so - i.e. about 15 points below the expected level. Thus they were a little higher than average mortality - the surpluses

[51]Guha, Decline (xerox), 113

[52]Ibid, 106

[53]Goode, World Revolution, 114, Nag, Human Fertility, 174; Clark, Population, 2ff

[54]Coale, Malthus, 8

[55]Wrigley and Schofield, Population, 479

being killed off in cities, or emigrating. These low crude birth rates then rose during the industrial revolution to figures closer to those we would associate with an agrarian population. Expand and document, with Wrigley, Goldstone et al. XXX)

An eastern exception.

At first sight, Japan does not seem to constitute another exception to the Malthusian tendency. Until the 1960's, conventional Japanese historiography, based on a Marxist and crude Malthusian model, made the mortality regime the centre of the analysis. Malthus himself had thought that Japan's demographic pattern was identical to that of China's, having its population controlled by war, famine and disease. [56]The standard demographic history of Japan by Taueber endorsed this view and it has been supported more recently by Mosk.[57]

Yet it is worth looking a little more closely at the general patterns of population in Japan. If we start with estimates of the earliest known totals of population in Japan, it is suggested that 'The population of Japan, about 3 to 5.5 million people in A.D. 645, was much larger than European populations at that time.'[58] It appears to have indeed gone through a period of Malthusian 'crises', particularly famine and epidemics, between the eighth and eleventh centuries. Farris believes that this was a time of very high fertility and mortality, with crude rates of about 50 per thousand, consistent with a 'crisis' regime. But he admits that there are considerable inconsistencies in the data and is doubtful about his calculations.[59] 'Sawada Goichi estimated the population of Japan at 6 million in the eighth century, and it is unlikely that population grew significantly through the year 1050'[60] (Kiro 1983). Given the rocky and somewhat barren island with its inhospitable climate, the early eighth century population of about six million people was already extremely dense by any standards.'[61] It then fluctuated considerably. One guess is that in

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[56] Malthus, Population, book I, ch.xii.

[57] Taeuber, Population of Japan; Carl Mosk, **Patriarchy and Fertility: Japan and Sweden, 1880-1960** (Academic Press, London, 1983).

[58]see Farris book; ref. Jannetta, Epidemics, 41

[59]Farris, Population (xerox),pp.43, 45-6.

[60] Kiple (ed), Diseases, 380

[61]Jannetta, Epidemics, 69

1185-1333 it was 9,750,000, while in 1572-1591 it was 18,000,000.[62] This latter figure is probably too high; it is generally thought to have increased to between 10 and 18 million by the start of the seventeenth century.[63] It was thus even more densely populated by this time.

The agricultural improvements of the sixteenth and seventeenth centuries, combined with administrative advances and particularly peace, meant that in the seventeenth century the population of Japan soared. 'Hayami estimates a population of no more than 10 million at the beginning of the seventeenth century, which grew rapidly to 30 million by 1720 (the uncertainty of the sources induces him to adopt a safety margin of plus or minus 5 million), maintaining an average annual growth rate of between 0.8 and 1 percent for over a century.'[64] More recently, it has been suggested that 'Although accurate statistics were not kept at that time, some demographers and historians place the growth rate in the range of 0.78 to 1.34 percent annually between 1550 and 1700...the country's total population grew from roughly 12 million persons to approximately 26 million to 30 million at the time of the shogun's census in 1721.'[65]hichever figures we take, there cannot be any doubt that Japan's population was growing rapidly during the seventeenth century. It looked as if it was heading straight into the Malthusian trap, even if very remarkable developments in urban infrastructure and agriculture had allowed this change to occur.

Thus the situation in Japan in 1720 was very similar to that in England in 1620. There had probably been a doubling of population in a little over a century and suddenly there were serious economic difficulties. In England there were dearths and a rising mortality rate in the 1620's as part of a Europe-wide recession. In Japan, a serious famine, occurred in certain areas in 1732. The population in Japan then did exactly what it did in England, it ceased growing for over a century.

The broad statistics are fairly clear. 'In 1721, the population was 26.1 million; in 1846, 26.9 million.' Moreover, there had been no dramatic fluctuations in between. 'The highest figure recorded in these surveys is 27.2 million; the lowest, 24.9 million.'[66] In fact, the change in the pattern seems to have occurred before the end of the seventeenth century. Hayami claims that the population of Japan was

[62]Taueber, Population, 20

[63]iv: 664

[64]quoted in Livi-Bacci, 66. For original estimates, see Hayami, Population Growth (xerox)

[65]4: 439

[66]Hayami, Population, 283

almost level from 1671 to 1851.[67] Furthermore, Kalland has noted that 'at least as early as 1690 the population was not allowed to grow freely, as the unbalanced sex ratio indicates. Consequently, population control was introduced early...'[68] Nakamura concluded that 'Population growth starts to slow down in some domains (han) from around the middle of the seventeenth century, and this change extends widely throughout Japan for the next century.'[69]

[Graph of Japanese population]

The stability at a national level masked considerable local variations. In particular, the population of eastern Japan dropped, while that of western Japan rose. 'Generally speaking, in the Kanto and Tohoku areas, population decline was the rule; in Kyushu, Shokoku, and Chugoku, increases predominated; and in central Japan, there was a slight population decrease in the Kinki region and an increase in Kokurku.'[70] Hayami suggests that this was due to economic forces. In the eastern Kanto area, the commercial economy had already reached its limit and hence population remained stationary. In the 'developing' area of the Inland Sea 'village industries and peasant by-employments were developing during this period...' and this allowed a modest increase.[71]

There were also regional differences due to climatic changes. 'In northeast Japan, however, long term climate change affected harvests so badly that people had to check the size of population to what permitted them to maintain their living standard. Abortion and infanticide were introduced, and the rural population decreased drastically.'[72] On the other hand, 'In southern Japan, on the contrary, population continued to grow but at a reduced rate, 0.2 - 0.3 percent. In this area, climate change did not affect the harvest at all, and people could enjoy a comparative advantage from cultivating and then developing various rural industries and by employments. Population growth became slower than that of earlier years through late marriage and migration to the urban area.'[73]Hayami summarized the situation as follows.

[67]in Laslett, Household, 477

[68]Kalland, Famines, 71

[69] Nakamura, Population (xerox), 233

[70]Hayami, Population, 291

[71]Hayami, Population, 301

[72] Hayami, Population Growth (xerox), 35

[73] Hayami, Population Growth (xerox), 35

'The population of Japan during the period 1721-1846, generally speaking showed decreases in the northeastern area, stayed level in the central area, and increased in the southwestern area.'[74]

It thus becomes apparent that Japan as a whole, like England, was exceptional in its demographic growth pattern, having a long period of stationary population for about six generations. As Spencer long ago noted, Tokugawa population stabilized 'when population was growing rapidly in most other parts of the world' and 'this is a rather remarkable demographic event in world history.'[75] In a survey of world demographic history, Hollingsworth makes the same point. 'Japan, as always, is an exception...The picture here is of a stable population, one of the very few pre-industrial stable populations that is well documented...'[76] Yet this unusual similarity of the demographic patterns of England and Japan could still be seen as the result of a different set of causes.

The second important impact of recent work in Japanese demography has been to suggest that the adjustments in population growth rates in Japan, as in England, were as much the result of fluctuations in the fertility rate as in the mortality rate. This emerged as a result of similar intensive work on registers of births, marriages and deaths and other demographic materials in Japan. The resulting change is noted by Thomas Smith. 'The rapid growth of Japanese population in the seventeenth century, followed by virtual stagnation from about 1700 to 1867, is a phenomenon that has long been of great diagnostic interest to historians; and until recently they were nearly unanimous in explaining it in Malthusian terms.'[77] In other words as the result of 'positive checks'. Now, however, it has been suggested that it was not 'positive' checks, in other words rising mortality, but rather 'preventive' checks, which were important. As Kalland and others have argued, the stable population was maintained 'mainly by a low birth rate'[78] The stability was 'not a result of high death rates, but rather of low birth rates.'[79]

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[74] Hayami, Labour Migration (xerox), 17

[75]Spencer, Asia East by South, 383

[76]Hollingsworth, Hist. Demog. 76

[77]Nakahara, 8

[78]Kalland, Famines, 71

[79]ibid, 34

What this suggests is that in Japan, as in England, a 'homeostatic' pattern was developing, in which the 'preventive checks' of lower fertility were at work. Fertility could be held down, as in the eighteenth century. On the other hand, if economic conditions altered rapidly, fertility could be unleashed from its previous controls. As in England, as proto-industrialization strengthened, the fertility controls weakened and the population began to grow. The population 'began increasing from the start of the nineteenth century' and 'after the 1820's, this trend of stable growth held true for virtually all localities.'[80] The growth was, however, modest until the middle of the century. Then 'In the bakumatsu period and following the Meiji Restoration, the population growth accelerated.'[81] As in England, this was not merely the result of a drop in mortality, as in the 'high-pressure' model, but 'stemmed mainly from an increased birth rate...'[82]

Thus, as in England, there was no real 'demographic transition' from a 'high-pressure' to 'low-pressure' model. As Hanley puts it 'In many ways demographic patterns in the eighteenth and nineteenth centuries were similar to modern Japanese patterns: a relatively high degree of urbanization, small families, deliberate population control through social practices and birth control...'[83] She continues that 'we believe that the concept of a 'demographic transition' in the sense of a transition from high fertility and mortality to low, should be rejected as inapplicable to Japan.'[84]

What happened was that in the burst into industrialization in both England and Japan fertility was allowed to rise. Then, when industrialization was achieved, the balance changed and fertility was again restricted. In England the restriction occurred about one hundred years into the industrial revolution, in the 1870s, mainly through the technique of **coitus interruptus**. In Japan it was effected about 80 years after the start of rapid industrial growth in the 1950s. The power of the preventive check in Japan was well illustrated then. 'When the 1950s ended, Japan's people had accomplished an all-time first among twentieth-century nations: in ten years they had cut their crude birth rate in half, from 34 births per thousand in 1947 to 17 in 1957, a level that they have maintained ever since.'[85] It was unique:'...no other

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[80]Hayami, 315

[81]Jansen, 5, 560

[82]Hayami, Population, 315

[83]Fertility (xerox), 127

[84]Economic, 314

[85]Coleman, Family Planning, 34

country can claim that it halved its birth rate in a ten-year period...'[86]

Again we may look a little more closely at the matter through an investigation of mortality and fertility rates. As in the case of England, it was long believed that people in Japan before the industrial revolution lived in that state of high mortality to be found in the majority of agrarian societies. It was assumed that mortality was high and population held back by the Malthusian 'positive checks'. Malthus himself thought that the Japanese population must have been held constant by the positive checks. He equated Japan and China, citing Kaempfer who showed 'the different mortalities, plagues, famines, bloody wars and other causes of destruction.'[87]

In the 1950's evidence began to emerge from detailed studies that perhaps the mortality rates were much lower than expected. At first the evidence was rejected as mistaken, since there was so strong an expectation of high mortality in such a society. In the first major western account of Japanese demography, Taueber wrote that 'Unfortunately for the validity of this inference from the records, both death and birth rates are so low as to be improbable. A "normal" crude death rate of 30 per 1,000 total population in Tokugawa Japan would mean that levels of mortality were as low as those achieved by such prefectures as Fukui and Ishikawa in the years from 1925 to 1930.'[88] Even in the 1980's, 'Estimated life expectancies for the same samples are higher than many Japanese scholars find believable...'[89]

Using the excellent census and vital registration records for Japan, a number of scholars have applied the techniques of 'family reconstitution', that is linking births, marriages and deaths. The results, published from the 1960's onwards, showed a surprising situation during the eighteenth and first half of the nineteenth century, even more extreme than that of England. In terms of crude death rates, the work of Hayami showed that in the village of Yokouchi crude death rates fluctuated between 16.4 and 25.5 per thousand over the period 1671 and 1871 while the average over the whole period was 20 per thousand.[90] In another study, of the village of Nakahara by Thomas Smith, the crude death rates fluctuated between 18 and 32 with a mean average of 26.5. (XXX reference) A third study of four villages showed 'death rates in the villages ranged in our samples from about 25 per thousand to 18 or

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[86]ibid, 207

[87]Malthus, i, 138

[88]p.29

[89]4:699

[90]cited in Hanley, Economic, 297

19, and these averages included famine years.'[91] As Hanley and Yamamura comment, such rates 'seem extraordinarily low for a premodern society.'[92]

Given the very low mortality, it is not surprising to find that the expectation of life was unexpectedly high. In two Japanese villages in the eighteenth century it was between thirty and seventy-five at birth.[93] Smith found the expectation of life at age one in Nakahara to be between 43.9 and 52.5 years, depending on the gender and size of holding.[94]

To emphasize the extraordinarily low mortality, a number of Japanese historians have contrasted the figure with those in Europe, arguing that seventeenth and eighteenth century Japanese figures in the pre-industrial period are roughly in line with those for the mid-nineteenth century in Europe, after industrialization and supposed improvements in health had occurred. Thus Hanley, having given figures of between 39.6 and 52.2 for life expectancy in western Europe between 1840 and 1900, states that 'These estimates look similar to those we have on Tokugawa Japan.'(RefXXX)

The impression from this work is that mortality rates in the second half of the Tokugawa period were even lower than those in England at the same period. This seems to have been true even in the cities. We are told that 'even in the city of Takayama, for which records exist for the century from 1773 to 1871, birth and death rates were similar to the village rates:[95] the average crude death rate for this century was 27.3 per thousand.' In another city of about forty-five thousand inhabitants in the eighteenth century, crude death rates were between 27 and 31 per thousand.[96]

It is likely that these general findings will need to be qualified in various ways. Firstly, there was clearly much regional variation. For instance, mortality rates were obviously a good deal higher in the remote and economically backward northern area of Hida where Bowman has carried out detailed studies based on temple registers. Yet even here the 'most extraordinary finding is the near-constancy of life

[91]Hanley, Economic, 325; cf also Hanley and Wolf, 212

[92]Hanley, Economic, 212

[93]Hanley, xerox, 137

[94]Smith, Nak, 121

[95]Hanley, Sanitation (xerox), 23

[96]Sasaki ed ed. Hanley and Wolf, Family, 137

expectancy at birth at a level of between 30 and 40 years from the late eighteenth century to the mid-twentieth century...'[97]

Secondly, there were enormous variations over time. One of the most interesting findings is that, as in England, there seems to have been a drop in mortality well before the famous late nineteenth century transition. But whereas this happened in at least two waves in England in the fifteenth to sixteenth centuries, and in the eighteenth, it happened much earlier in Japan. The period between the eighth and mid-eleventh centuries witnessed constant epidemics. For instance we are told that 'There are 34 epidemics for the eighth century, 35 for the ninth century, 26 for the tenth century (despite a marked decline in the number of records), and 24 for the eleventh century, 16 of which occur between the year 1000 and 1052.'[98]

Epidemics continued, but from about the twelfth century seem to have declined in severity. We are told that 'The era from 1050 to 1260 marks a time of declining importance of disease in Japan. There were 50 epidemics over 210 years, an average of one outbreak every 4.2 years, compared to one epidemic every 2.9 years in the 700s and one every 3.8 years in the poorly documented 900s.'[99] Thus 'by 1365 neither infection nor famine nor war was restricting the growth of Japan's population.'[100] The situation by the seventeenth century, when there was another spurt of population, seems to be one where, as early European accounts suggest, the densest settled population in the world had emerged in a relatively disease-free environment. The unusually low later Tokugawa figures give us a glimpse of the end of this process.

Finally we should remain cautious about the figures. Many of the calculations are based on records which tend to ignore deaths in very early infancy. Furthermore, it is often difficult to distinguish **de jure** from **de facto** populations in reconstitution studies. For both these reasons, Hayami among others would push up the mortality rates somewhat, finding, like others, the life expectancies suggested by Hanley and Yamamura and Smith to be 'inconceivably high'.[101] On the basis of some unusual estimates, Hayami guesses that in fact something like 20 percent of infants may have died in the first six months.[102]

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[97]Bowman, Two Centuries (xerox), 426

[98]Kiple (ed), Diseases, 377

[99]Kiple (ed), Diseases, 381

[100]Kiple (ed), Disease, 384

[101]Hayami, Myth, 7

[102]Hayami, Class Differences, 11

and hence guesses at infant mortality rates of up to 200 per 1000, which would place it on the level of England at the same time.[103]

Yet even if we push up the crude death rates from the low to the high twenties, we are still dealing with a very unusual situation which needs explanation. It places Japan in the same league as England or Holland, namely as a nation with normal mortality well below those of most agrarian societies. The Japanese case is all the more surprising given what we know of the densely packed countryside and large towns and cities. For Japan to have achieved mortality rates by 1600 which would not be improved on until after the Second World War is a considerable achievement. In both England and Japan, the start of the industrial progress found a population whose death rates were relatively low. Both had somehow overcome the 'hump' of high density-dependent mortality. To proceed further in understanding how this happened we need to break down the crude figures of mortality into their constituent elements of particular disease patterns.

If we turn to Japanese fertility, we find that when the results of detailed studies began to emerge in the 1950's the crude birth rates were 'so low as to be inconceivable.'[104] Hayami was among the first to show the sort of figures. The birth rates for Yokouchi between 1671-1871 fluctuated from a low of 20.1 in 1776-1800 to a high of 39.8 in 1701-1725. The average for the whole period was 26.3. For a pre-industrial population to achieve a rate of 20.1 for a period of years, less than half that of most pre-industrial countries, is indeed difficult to believe. Yet Smith's study of Nakahara supported these findings. 'Compared to rates in underdeveloped countries today, which run consistently in the 40s and 50s, the Nakahara average is distinctly low...'[105] though it was 'about the average for the Japanese communities.' The adjusted figures between 1721 and 1820 fluctuated between 25 and 43 per thousand.[106]

Hanley and Yamamura made detailed studies of four villages over periods from 1693 and 1871. In Fujito, the Crude Birth Rate fluctuated between 15.4 and 33.1, with a mean of 24.2; in Fukiage, between 19.4 and 31.9, with a mean of 26; in Numa, between 15.7 and 24.9, with a mean of 19.6; in Nishikata, between 16.7 and 19.9, with a mean of 18.5.[107] As the authors conclude, this shows crude

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[103]Hayami, Class Differences, 11-12

[104]Tauber, Population, 33

[105]Nakahara, 39

[106]Nakahara, 40

[107]Table 8.4, 211

birth rates which 'seem extraordinarily low for a premodern society', for 'If we envision preindustrial societies as resembling many of the underdeveloped countries of the mid-twentieth century, then we would expect birth rates nearly double those calculated for these Tokugawa villages...'[108]

Crude birth rates are indeed crude. Let us examine some other features of the fertility situation. Firstly there is the question of age-specific fertility, that is rates which take into account the age and sex structure of the population in question. Thomas Smith found that the results of his study of this index for Nakahara showed that it was 'low compared with all of the European parishes'[109] with two interesting exceptions, Colyton in England in 1647-1719, and a parish 'in the region of puzzlingly low fertility in southwestern France.'[110]

A second feature, is the gap between childbirths. If we take France in the seventeenth and eighteenth century as a fairly typical pre-contracepting population, then we find birth intervals which varied between 19 and 28 months in three different parishes.[111] In the parish of Crulai, there was normally a birth interval of 29.6 months, but only 20.7 months when the preceding child died before reaching its first birthday.[112] It would therefore seem reasonable to see an interval of between 20 and 30 months as 'normal', depending on the birth order and whether the previous child had died. (For other European figures, see Flinn, European (xerox), 33, table 3.5 who gives birth intervals of XXX, and for England in the seventeenth century McLaren, Fertility, 384, who shows figures of XXX). The English intervals were markedly longer than most European countries, which has led Wilson to conclude that the lower English fertility must be related to the 'factors which caused the intervals between births to be longer in England than elsewhere.'[113]

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[108]Economic, 212; cf also Hanley and Wolf (eds), Family (xerox), 212

[109]Native Sources, table 4.1 and fig. 4.1

[110]Native Sources, 105; for Eurpean figures, see Flinn, European (xerox), table 3.3, 31

[111]Glass, Population, 617

[112]Wirgley, Population, 124

[113]Wilcox, Priximate (xerox), 210

It may well be that the intervals were at least a year longer in Japan. One author states that in Japan they were about three and a half years.[114] Another claims that 'there typically were about three years between each child.'[115] If it is indeed the case that there was between six months and a year longer gap in Japan, this may provide a clue to the mechanisms of the preventive check.

The result of the low birth rates was a smaller number of children ever born. The completed family size in four out of the five French parishes which Smith tabulated, lay between 8.2-10.4 live births.[116] In England, the figures for Colyton 1647-1719 were much lower. For instance, for those who married at under 24, the mean completed family size varied between about 5 and 7.3.[117] But Japan was even lower still. For instance, in Yokouchi 1701-1750 it was 5, in 1751-1800 it was 4, and in Yokouchi after 1800 it was 4.2. Other villages were higher, but none exceeded 7. Nakahara, for instance, was 6.5 in 1717-1830.[118] The study of four villages by Hanley and Yamamura has found figures in line with those for Yokouchi. 'The number of children ever born averaged from just under three to between three and four for all of the villages. While the average was around three, the modal number of children born was sometimes only two, as was the case of Fukiage between 1773 and 1801.'[119] Elsewhere Hayami reports completed family size of under 4, except in the highest class.[120] To achieve an average of between three and six live births per marriage, with long periods at around three or four is unprecedented.

[114]Feeney, Rice, 24

[115]Kalland, Famines, 54; what says Smith and Hanley XXX

[116]Table 4.1 Native

[117]Wrigley, Family Limitation, 97

[118]Table 4.1. 106, Native

[119]Economic,228; cf also Hanley and Wolf (eds), Family (xerox), 217

[120]Hayami, Class Differences, 13