FERTILITY

We have seen that both England and Japan had escaped early from the periodic crises which the great thinkers of the eighteenth century had assumed were inevitable. In both these countries, war, famine and epidemic disease, which periodically decimated the populations of other agrarian civilizations, were muted in their effects. We have explored a number of the factors which lay behind this unusual passage from a world of periodic disaster.

At this point, with mortality well below the normal, the second part of the Malthusian trap will normally be sprung. The natural fertility of human beings and their usual patterns of marital and sexual relations will lead people to produce numerous offspring. A co-habiting couple is likely to produce an average of at least ten children over a life time. If crisis and endemic mortality were as low as they appear to have been in England and Japan, and if there was not massive out-migration, the population will double every generation, at least. At this rate, for instance, an English population of three million in 1500 would have been about three billion in 1800. Yet we know that it was in fact less then ten million. The growth from a higher base in Japan would have been even greater. In fact, as we saw in chapter three, one of the most striking facts about the populations of both countries is that in the very period when crisis and endemic mortality was relatively low, their populations were static for a period of about five generations in each country. How, then, was it that these two countries escaped from the second of Malthus' laws, namely that the passion between the sexes being constant, and human fecundity being as it is, if mortality is held down the human population will grow very rapidly? This was a world where there was no effective artificial contraception. How then did these two islands escape from the tendency towards rapidly rising population which soon wipes out all the gains made by escaping from high mortality?

Malthus likened food production to a tortoise and the rapid growth of population caused by the high human fertility potential to a hare. Having discovered that it is impossible to produce enough food for a naturally growing population, 'our next attempt should naturally be to proportion the population to the food. If we can persuade the hare to go to sleep, the tortoise may have some chance of overtaking her.'[1] How was the hare put to sleep on these two islands?

The answer to this question is as important as that to the question of the extraordinary mortality pattern - and of course it is related. A knowledge that mortality was relatively low was intimately connected to many of the features which we shall examine. Before looking in more detail at possible causes, it is necessary to establish a little more firmly that we are right in assuming that the fertility rate was indeed well below the theoretical maximum. Most would assume that in the pre-contraceptive age, fertility would be at the upper level which is normal in a 'natural' situation.
(APPENDIX - Fertility rates in Japan and England. a-fert)

In the English case, with perhaps somewhat higher mortality, the possibility of out-migration to the

[1]Malthus, Population, 2, 172

growing colonies, and the effect of higher mortality in London, the curb did not have to be quite as sharp as it clearly was in Japan. As a result, as we have seen, the crude birth rates and the total fertility rates were not quite as low as those in Japan. Yet considerable restraints on fertility were still needed if the population were not to grow very rapidly. How was this achieved and through what proximate mechanisms?

There are many ways to approach this problem. Here I will loosely adopt a framework proposed in a famous article by Kingsley Davis and Judith Blake. They used a three-fold classification of the ways in which human fertility can be affected. (ref. XXX, also to up-date) This framework usefully differentiates the three points at which female fertility can be affected; in allowing intercourse in the first place (intercourse variables), in allowing or preventing conception to occur after such intercourse (conception variables), and in allowing or preventing the result of any conception to be born and live (gestation variables). In the rest of this chapter I shall consider 'Conception Variables', for it is this bed-rock of fecundity upon which everything else is based.

Conception variables; factors affecting exposure to conception.

It is important to point out that I am not here talking about the genetic make-up of a population, in other words some intrinsic fecundity level. Thomas Smith rightly points out that 'It seems unlikely that Japanese women were relatively less fertile in any biological sense' [2] and the same is true of English women. What I am concerned with is the way in which cultural and other factors, for example breast-feeding patterns, nutrition or the work patterns of women, affect women's bodies so that the fertility rates are affected.

Psychological state and working conditions of women.

One of the four main factors which Davis and Blake identify as most likely to affect female fecundity is the working conditions of women. Women characteristically have three major roles in agrarian societies, as child bearers and nurturers, as house maintainers, and as workers in agriculture and other productive enterprises. The amount and nature of what they have to do will naturally affect their bodies and hence both their fertility and mortality. The first of these roles, feeding children was dealt with in chapter XXX above. There is no evidence of an unusually high pressure in the case of English women. Their conditions of giving birth, the fact that they tended to breast feed their own children for at least a year, the way in which they reared their children do not seem unusual. Apart from the contraceptive effects of lactation, there are few grounds for believing that English women's reproductive role singled them out from other pre-industrial populations.

Japanese women, however, were unusual in two respects. Firstly, as we see under infant feeding, breast-feeding was prolonged, perhaps being twice as long as that in European populations. This may have had a direct contraceptive effect, but it would also have a more generalized effect on their health and strength. It was combined with a large amount of carrying of babies. A good deal of their work was

[2] Smith, Nakahara, p.11

done with a baby strapped on their back. The effects of this are complex. Dr. Namahira informs me that carrying babies was not seen as a burden for the mother. In fact it was an excuse for the mother to have a rest. Older women from agricultural villages said that the only time they could rest was when they stopped to give milk to their babies in the fields. They might do this once an hour, and unless chivied on by their mother-in-law or others, might rest for thirty minutes and have a nap. This was a protection against over-work.[3]

A second factor may have been the pressures of the economy and in particular the growing strain on women's bodies produced by the peculiar nature of Japanese agriculture and economic organization. Parts of the argument have been advanced in several recent publications by Saito. He suggests that 'peasants were so poor' and 'farming became extremely intensive' and that 'it is likely that this tendency had adverse effects on women's fecundity, and hence, fertility levels.'[4] In particular he argues that women's work-load increased in the later Tokugawa period and this may have led to a decrease in marital fertility.[5] The difficulty, however, is to show how, exactly, the causal connection worked. The only direct link he suggests relates to the fact that pregnant women worked until delivery, and soon after. "Case studies, moreover, have shown that even when women were pregnant, they usually continued to work right up to the week the baby was due, and then started working soon after the birth...'. [6] Somehow this was connected to 'high death rate of new-born babies.' Evidence concerning the rush to get back to work is given by the French doctor Pompe in the middle of the nineteenth century. 'When the child is born, there comes for the mother a period of real suffering; Japanese midwives have the idea that "rest" after the delivery is particularly harmful, and they do not even allow the woman in childbed the sleep which contributes so much to restore the forces spent during delivery.'[7] There may, however, have been limitations on the kind of work a woman could do. Folklore studies for nineteenth century Japan suggest that there was a taboo on working for three days after childbirth; this was because the woman was polluted. If she worked, she would harm the rice field. There was furthermore a thirty-day taboo on working. If a woman had to go out before this, she would wear a small umbrella or cloth on her head, so that her pollution would not affect the sacred sun.[8]

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[3] Dr. Namihira, Personal communication.

[4] Saito, Infanticide, p.378-79

[5] Gender, p.24

[6] Saito, p.24

[7] Wittermans, Pompe (xerox), p.42

[8] Dr. Hamihira, Personal communication.

Although the area may not be typical, the sort of situation Saito alludes to is described in **Silk and Straw** [9] The interviewee remembered how she 'saw Mother coming back down the road from the mountains, where she'd been chopping wood. She was carrying an enormous bundle of branches on her back...' She was also 'carrying a large round object wrapped up in her apron.' This turned out to be a baby. 'Afterward I realized she must have given birth to the baby alone up in the mountains, cut its umbilical cord with her billhook, and then carried it the five or six miles back home. She didn't want to leave all the firewood she'd collected...so she'd lugged it all the way back as well.' Another account based on a woman's memories of conditions before the Second World war gives the same impression. 'I had seven children. I didn't stay in bed for three days. No one said to me, "you did a fine job". Soon after childbirth I would carry a three **to** (1 **to** equal 4.76 U.S. gallons) sack to the watermill and didn't ask anybody to help me. When I was in bed I was given just a slice of pickle. That was enough'. [10] Indeed it does seem likely that the rate of foetal loss, which is usually very high in agrarian societies, often leading to termination of up to a third of all conceptions, would be raised by such work practices.[11] It also seems probable that it may have raised maternal mortality at child-birth and to have led, as Saito suggests, to 'high death rate(s) of new-born babies...'[12]

The problem with taking the argument any further than this is the fact that women very often work hard in agrarian societies. This may indeed affect their fertility. Yet it would be interesting if we could show that there was something special in the case of Japan. Having watched women's work in Nepal and studied it elsewhere, I think there probably are grounds for believing that many women worked harder in Japan than in almost any other Asian country, and certainly far harder than their sisters in Europe.

Some grounds for believing this to be the case are described in ch.xxx on 'Work', where it is shown that the relatively low technology, combined with dense population on infertile island, led to immensely hard work for both men and women. To this would need be added more general social and cultural features. The Chinese shared many features with the Japanese, yet they bound up their woman's feet, one consequence of which was that they could not do physical work in the fields. In England, the family division of labour was such that married women do not seem to have been expected to engage in much

[9] Silk and Straw, p.206.

[10] quoted in Hane, p.89

[11] Wrigley, Population, p.93; cf. also the interesting data on early C19 England referred to in Glass, ed, Population, 16).

[12]Saito, 24, see also Laslett, Illicit Love, 229

heavy physical work in the fields. In Japan, as we have seen, women had a quadruple role, normal housework, long feeding and carrying of children, field labour and work in the rapidly growing area of bi-occupations. It would therefore seem reasonable to argue on the basis of ch. XXX that while for most married women in England before the second half of the eighteenth century there was less work strain on their bodies than in many societies, in Japan there was more. A married woman, in the control of her mother-in-law, was in a very vulnerable position and this must have had an effect on her health and hence her fertility.

Nutrition, disease and fertility.

Another set of possible factors which affects fertility through biology is the inter-linked matters of nutrition and disease. Hanley refers to the work of Rose Frisch who has argued that a reasonable diet leading to a minimum level of fatness is necessary for menstrual cycles.[13] The general point is that unless a woman has a certain amount of body fat, she will not menstruate and ovulate. The nature of nutrition, however, is not the only factor, as Howell points out. 'Assuming that the fatness mechanism is important in suppressing the fertility of hunter-gatherers, knowing about their diet is not enough to predict its effects. We also need to know about their state of health, particularly the "load of parasites and infections that adults commonly carry in that environment". And we need to know about the division of labour in the society, specifically to what extent it is the women of reproductive age who are expected to do the calorically expensive work of the society.' [14] Thus all the factors are bound together.

Furthermore, recent work on the relation between nutrition and fertility has tended to minimize the influence of nutrition. There is obviously an influence in extreme cases. Thus 'When food supplies are so short as to cause starvation, there is little doubt that fertility is lowered.'[15] On the other hand, once above the level of starvation, at a level of severe malnourishment or above, the influence is much less. Menken states that 'When malnourishment is chronic and nutritional intake is above starvation levels, it is not clear that fertility is affected by any physiological mechanism determined by nutritional status.'[16] He concludes that 'the differences that appear to be due to nutritional level are slight, and would explain very little of the evident variation in fertility among populations.'[17] This general view clearly has to take

[13] ibid

[14] Howell, in Coleman (ed), Population, p.180-1

[15] Menken, Nutrition (xerox), 439

[16] Menken, Nutrition (xerox), 439

[17] Menken, Nutrition (xerox), 437; see also p.425 and (ed.) Diggory, Natural Human Fertility, p.137.

account of specific features of diet. For instance, we are told that soya beans contain 'Oestrogens (Active Agent)...Similar to female sex hormones (Effects)' [18] The Japanese ate an enormous amount of soya. What effect did this have? Yet, on the whole, it would appear that both English and Japanese diets were well above the level where they would drastically effect fertility.

In previous chapters, we have considered these factors in some detail. We have looked at the diet of the English and Japanese. In this area, the English had a relatively good diet with a lot of fats from their milk and meat products. The Japanese may well have been deficient here and this may have affected female fecundity. We await further research on the matter. In terms of disease load, on the other hand, the Japanese were, it has been argued, in a better position in general. The question is made more complicated, however, by the fact that as well as the general parasitic load, there are certain diseases which directly affect fertility in both men and women.

The four diseases which immediately spring to mind as likely to affect fertility are smallpox, typhus, malaria and venereal diseases. Jannetta writes that 'Smallpox checked population growth by lowering fertility. Recent research indicates that smallpox caused significantly reduced fertility in males who survived the disease.'[19] We have seen that since the medieval period, a high proportion of the Japanese population probably had smallpox in their youth, and this may be one factor that lowered fertility and helps to explain some part of the puzzling phenomena. Smallpox was also to be found in England and the West. It is reported that typhus has a 'known sterilizing effect on the male'[20]. Typhus was absent in Japan but its rise in England may have had some influence. Malaria was not common in Japan and this may be an important absence since it again is thought to affect fertility. Venereal disease on the other hand, was quite widespread, at least in some cities, and this again probably affected fertility, though how much we do not know.[21]

Returning to the more central aspects of diet, it seems unlikely that the dietary factor is one which needs concern us much in the Japanese and English cases. There are three reasons for ignoring it. The first is that Frisch's theory itself has been seriously challenged and is probably incorrect. Her results have been contradicted by findings in Guatemala and Bangladesh, for example.[22] The second is that, as we

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[18]Davidson, Nutrition, 230

[19] Jannetta, Epidemics, p.189; cf also Mercer, Transition, p.154

[20]McLaren, Breast-feeding (xerox), 383

[21]For a useful survey of the connection between disease and fertility, see Massie-Taylor, Disease (xerox), pp.42-4.

[22]Menken, Nutrition (xerox), 435

shall see, sexual relations in Japan and England commenced relatively late, usually after the age of eighteen or twenty. It is therefore only in a situation where menarche was delayed beyond eighteen would we be likely to see any effect on fertility. This third feature can be examined a little more fully, at least in relation to England.

The mean age at sexual maturity for women usually varies within the range of thirteen to sixteen, for men between fourteen and seventeen. Thus Pearl found that the mean of the means for women in 169 groups was 15.7 years.[23] It may be much lower, as in North America in the 1970s with a mean age for women of twelve,[24] but it is seldom much older. Contemporary observers in the seventeenth century noted considerable fluctuations: 'some (women) do not have children till they are 19, 20, 21...some at 14 or 15.'[25] Mrs. Sharp noted an instance of a five-year old girl who was menstruating.[26] But there was a consensus that the normal age was fourteen for women. Culpepper stated that first menstruation occurred 'usually in the fourteenth year of their Age, seldom before the thirteenth, never before the twelfth.'[27] Jorden thought menstruation usually began at 'about 14 years old,and in some sooner.'[28] Mrs. Sharp stated that while 'fulnes of blood and plenty of nutriment brings them down sometimes at twelve years...it was commonly in Climacterical or twice seven years they break forth.'[29] By church law it was assumed impossible for a male to procreate under the age of eight,[30] and it was a presumption by church law that consummation of marriage could not occur under the age of fourteen for boys, twelve

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[23] Nag, Factors, p.105

[24] Laslett, World, p.91-2

[25] Jorden, Weaknesses, p.57

[26] Sharp, Midwives Book, p.289

[27] Midwives, p.71

[28] Jorden, Weaknesses, p.1

[29] Sharp, Midwives, p.84

[30]4 rn, Ecclesiastical Law, i, p.110

for girls.[31] While stressing, therefore, that there were likely to be differences not only between different regions and socio-economic levels, but also over time, it can be assumed that fourteen and sixteen are reasonable ages. This is six to ten years before women actually tended to have their first sexual intercourse in most cases. Age at sexual maturity is therefore unlikely to have had any significant effect. We await information on this matter for Japan, but in its absence it seems reasonable to start with the assumption that a Japanese girl marrying at between eighteen and twenty-two was fecund.

What is perhaps more significant is the question of onset of the menopause and the end of fecundity. Again this age is likely to be dependent on the state of the woman's body, that is those biological pressures of child-bearing, nutrition, disease and work load which we have discussed. It usually lies in the range of forty to fifty, but is not necessarily closely tied to age at last birth,[32] for there is usually a gap of a few years between these two events. It is therefore impossible to deduce the age at menopause from the age at last birth.

It would appear that the mean age of women at the birth of their last child in the pre-1750 period in England was between one and a half and two years younger than in certain other European countries. In Belgium it was 40.9 years, in France 40.4 years, in Germany 40.0 years and in England 38.5 years.[33] I know of no explanation for this difference, but it is unlikely to be due to a difference in age at menopause. From what we have seen of English diet, disease and work patterns, English women on the whole seem to have been in a better position than most of their Continental counterparts. Furthermore, contemporary commentators suggest ages at menopause which are roughly in line with modern figures. Jorden placed the disorders associated with the menopause as occurring at between forty and fifty,[34] and argued that menstruation continued until 'forty, forty-five and sometimes till fifty before, they continue in very few women after the five and fiftieth.'[35] Cogan thought that 'the abilitie of getting children in the most part of men ceaseth at seventie yeares, and the possibilitie of conception in women commonly ceaseth about fifty...'[36] Petty also assumed that women over forty-five would be infertile, thus

[31] Howard, Matrimony, i, p.357

[32] Nag, Human Fertility, p.113ff, 187

[33] Flinn, Demographic System, p.29

[34] Jorden, Weaknesses, p.31

[35] Midwives, p.75

[36] Haven, p.248

recommending that, in order to increase population, 'Women of above forty-five yeares old may not use men, unlesse all under forty-five be provided with men',[37] thus, indirectly implying, that normally such intercourse was accepted.

I do not know what the situation was in Japan as yet, but there are two pieces of information which are consistent with the view that in some cases the age at menopause may have been unusually low, though each could be interpreted in other ways. The first is the very pressure on women's bodies which is shown in chapter XXX. The enormous drain on their energy combined with a rather energy-scarce diet may well have debilitated them. This is one way of reading the frequent comments, some of which are quoted in the chapter on work that women seemed to have aged very fast. The second piece of evidence will also be discussed at more length later, namely that the mean age at last birth seems to have been surprisingly low. Average ages of between thirty and thirty-seven have been found, some five years or so lower than West European populations. (see p.xxx) It is tempting to believe that at least part of this was due to biological factors, though, as we shall see, there were probably other causes as well.

Effects of breast-feeding on fertility rates.

(re-write, taking into account chapter xxx above)

(APPENDIX - fertility inhibiting effects of lactation: a-contr)

On the other hand, the loss in life was made up for by a higher fertility among the wealthy city women, whose inter-birth intervals were likely to be some six months or so shorter. They were thus examples of the 'high-pressure' regime - high fertility balanced by high mortality - but in this case concentrated around infant mortality. What is significant, however, is that this seems to have been a country where such a regime only affected a tiny percentage of women. The general situation in England was summarized by Wilson, as one where 'prolonged lactation kept both infant mortality and marital fertility at much lower levels' than one finds in many societies. [38] The same was probably true in Japan. Hanley notes a three year period of suckling and writes that 'Women who nursed that long would experience the maximum postpartum amenorrhoea, which would explain why there were so few children born within one year of each other.'[39] More recently Saito has written that 'Tokugawa Japan's...was a breast-fed population and this must have kept the natural fertility level lower than the theoretically

[37] Petty, Papers, ii, p.51

[38] Wilson, Proximate, p.225

[39] Economic, p.244

expected level.'[40]

Whether any of this was a conscious strategy to keep down fertility, we do not know as yet. Certainly by the early twentieth century the connection had been made in England. 'Suckling is often voluntarily prolonged at the present day as a result of the belief prevalent among many that pregnancy does not recur while lactation is carried on. This belief, which fails continually in practice, is still clung to by numerous nursing mothers.'[41] For the period up to the seventeenth century, Benedictow concludes that 'Both classical and medieval medical books often mention, generally in great number, methods of inducing abortion and of contraception. Not one of them mentions that breast feeding has a contraceptive effect.'[42] In the seventeenth century, however, 'William Petty wrote that, "long suckling of children" is a "hindrance to the speedier propagation of mankind".'[43] Fildes quotes seventeenth-century and later authors to show that they were aware of the contraceptive effects of breast-feeding and believes that this knowledge was both widespread and ancient.[44]In Japan, I am informed, there was a widespread folk knowledge, which is well documented, that giving breast-milk leads to no children being born. Thus there was a deliberate policy.[45]It would be interesting to know when these ideas originated.

Conclusion in relation to involuntary pressures on fecundity.

In sum, it would appear that we can explain a small part of the puzzle of relatively low fertility in England and Japan by biological factors. If we arbitrarily take a crude birth rate of 50 per thousand as the 'natural' one for a population, it would not be unreasonable if we add up the effects of work, nutrition and disease on the fecundity of Japanese women, to believe that they would have brought this down by up to ten points, from roughly 50 to 40 per thousand. In many ways, the Japanese population may approximate most closely to a hunter-gatherer model, where biological causes are very important. Only further research will find out how close they fit the description of the fertility pattern of the famous

[40] Saito, Infanticide, p.379

[41] Lane-Claypon, Hygiene, p.303

[42]Benedictow, Milky (xerox), 39

[43]McLaren, Breast-feeding (xerox), 380

[44]Fildes, Breasts, p.108.

[45]Namihira, personal communication

!Kung bushmen where "The !Kung fertility pattern depends very heavily upon the ... physiological control of fecundability through late maturation, early senescence, anovalutory episodes and lactational anovulation"[46] At first sight there are some grounds for believing there is a similarity.

In England, the checks which operated on the biological fecundity of women were less powerful. The pressure on women's bodies through performing their roles, particularly in relation to work, were less. Their nutritional position was better. Only in terms of parasitic infection was there a possibly higher pressure on English women. Thus it seems likely that the biological effects were probably much less in England, perhaps roughly accounting for a reduction of from 50 to 45 in the crude birth rate. We are told that "Economist Kenneth Boulding once summarized all the models of population regulation in animals by saying, 'There are two kinds of creatures in the world, fat things and thin things. Fat things are controlled by some other scarce resource, like nest sites or position in the group, while thin things are controlled by the food supply".[47] It is not, of course, as simple as this with humans. Yet if hunter-gatherers tend to be 'thin things', this may also have been the case with Japan. In other words, the sheer and direct pressures of their environment affected their fertility in a way which was more powerful than in the case of the 'fat things' in the English past.

Yet such involuntary conception variables only solve a small part of the puzzle. In both cases, there must have been many other controls which were strong enough to pull down the fertility rate much further so that these two populations escaped the apparently inevitable Malthusian nemesis.

The use or non-use of contraception.

I shall start by looking at the means available to prevent conception at all, first in England, where the evidence is fuller. Demographers were once convinced that some form of family limitation must have been practiced to keep down population,[48] And there is indeed some literary and other material to support their views. In the late eighteenth century, Place referred to the importance of 'Aristotle's Complete Master-Piece' a well known seventeenth-century book of advice containing information on intimate female matters.[49] In the middle of the eighteenth century the very popular 'Whole Duty of Man' asked its readers whether they had 'taken anything to prevent conception or cause miscarriages.'[50] In

[46] Howell (ed), Population, 174

[47] Quoted in Coleman, ed, Population, 158.

[48] Malthus, Population, 2, p.161

[49] Place, Autobiography, p.45

[50] Whole Duty, 1750 (22nd ed), p.495

the middle of the seventeenth century, Fuller believed that prostitutes were usually barren 'by many wicked devices.'[51] In the later sixteenth century the curate of Weaverham was accused, among other things, of teaching birth control to unmarried persons. [52] One can go back to Lollard tracts in the fifteenth century and even earlier references to similar practices.[53] It is less easy to know what, exactly, was available and how often contraceptive devices were used.

Starting with oral contraceptives, there are various mentions of herbs and potions in Himes' classic work (Himes xxx) though we do not have many explicit references to their use for early modern England. Some evidence of emetics and laxatives which would dampen sexual desire is provided by Schnucker, for example 'One emetic designed to purge the desire for intercourse consisted of radish root, agarick, and saram boiled in barley water, to be taken when cool.'[54] Other ingredients included 'rue calamine, castor oil, endive, sallow flowers, woodbine, cucumber...'[55] Most of the magical activities associated with child-bearing were designed to increase, rather than lower fertility,[56] though Lilly's adopted son was said to have sold astrological sigils at four shillings each, for use as contraceptives to servant girls.[57] Culpepper warned people to 'Avoid eating, or bearing about you, all such things as cause Barrenness; such as the Bone of a Stags-heart, Emeralds, Saphires, Ivy-berries, Jet...'[58]

There is some evidence of mechanical contraceptives. There may have been some knowledge of a female tampon or pessary supposedly first described by Fallopius in 1564 as a protection against syphilis. In John Darne's 'Catalogue of Imaginary Books' (p.26) was 'De pessario animato, et omni

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[51] Fuller, Prophane State, p.345

[52] Marchant, Church Under Law, p.222

[53] De Boulay, Ambition, p.106; Himes, Contraception, p.161,163,172

[54]Schnucker, Elizabethan (xerox), 657

[55]idem

[56] Thomas, Religion, p.188-89

[57] ibid, p.635

[58] Culpepper, Midwives, p.97

morbo feminis dando per Magistram Butler Cantab'.[59] We are told that 'A typical pessary to be inserted into the vagina was composed of bitter almonds blanched and ground. Another pessary used castoreum mixed with rue and the ground roots of lilies and mnenufar.'[60] But such pessaries may also have been intended for medical use, or even to increase fertility. Thus in the middle of the seventeenth century Culpepper explained that 'The Runnet of an Hare mixed with a little Cotten, and put up the womb as a Pessary, and remaining there a day, is an excellent remedy. But let it be done presently upon the stopping of the Menstrius, and tied up in a linnen cloth, and a string tied to it, that so you may draw it out again...'[61] There were also various ointments to put on the penis. Even though they may have had little direct contraceptive effect, as Schnucker points out, 'The use of such juices, oils, and ointments probably were effective to some extent, for it would be difficult to maintain an erection while the penis was bathed in a cool liquid, particularly, a slightly anaesthetic one.'[62]

Even the purpose of the male condom, or contraceptive sheath, is not absolutely clear; it had a double use, to prevent contraception and as a protection against venereal disease. The condom was supposedly first described in 1564 by Fallopius as a linen shield to give protection against venereal disease, and there are illustrations of its use in the seventeenth century.[63] Condoms were improved by substituting animal skin (probably dried gut of a sheep) for linen and were described by Casanova as 'the little shields which the English have invented to keep the fair sex from worrying.'[64] They were in quite widespread use among the gentry in the eighteenth century 'in different sizes and packed in different coloured wrappers...'[65] James Boswell used them as much to try to protect himself against venereal disease as to protect his partner.[66] He believed that oil was also an effective shield. They were

[59] letter from T. Munby

[60] Schnucker, Elizabethan (xerox), 657

[61] Culpepper, Midwives, p.97

[62] Schnucker, Elizabethan (xerox), 657

[63] Himes, Contraception, p.188ff; Bloch, Sexual Life, p.312

[64] quoted in Bloch, Sexual, p.313

[65] RAI Proceedings 1969, p.49

[66] Boswell, London Journal, p.49; In Search of a Wife, p.150,152,153

advertized for sale in London the later eighteenth century.[67] Examples off these eighteenth century condoms, made of sheep-gut, are to be seen in Eaton's Bookshop at Lilly's where they are described as 'Condoms (French Letters or Cap-Anglais).' McLaren gives some further description of their use in the eighteenth century.[68] It seems likely that it was not until the 1850s that 'all the basic processes of rubber manufacturing had been worked out and the manufacture of "questionable rubber goods" was booming at least in the United States.[69] However if we take all these chemical and mechanical methods together, it would seem that they were of very limited effectiveness before the late nineteenth century.

When we turn to Japan, the evidence, at least in so far as I have seen it, suggests a similar absence of any effective contraceptives. The major works on the subject by Taueber, Hanley, Saito, Smith and others do not mention any widespread contraceptives. Hanley remarks that 'After a child was born or aborted, women often tried to prevent becoming pregnant again. It was thought effective to drink a bowlful of salt water every night before going to bed. Urinating immediately after intercourse was supposed to prevent conception.'[70] The latter method was also believed to be effective in England.[71] Another hint, true or untrue, comes from XXX in XXX, who is quoted to the effect that 'The Chinese and Japanese girls, in the houses of prostitution, simply use rounds of oiled silk paper, which they insert in the womb, to cover the head of the duct.'[72] Finally, Dr. Namihira informed me as follows. 'There was a folklore belief that if a couple avoided intercourse in certain periods, they would not have children. A man called Ogino, basing himself on this idea, did surveys which showed the idea was correct and hence the Ogino method was originated. The idea was to avoid the 15 days from the commencement of menstruation. After that one could have intercourse. My mother's generation used this method. Ogino worked at the end of the Meiji period. This was linked somehow to the pollution of childbirth.'[73] Thus it would seem that there were few effective contraceptives available in either Japan or England before the 1850s. What then could people do to avoid conception?

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[67]Hibbert, The English, p.398.

[68]McLaren, Birth Control, 21ff

[69] Petersen, Malthus, p.204; cf also Mumford, Technics, p.260

[70] Hanley, Economic, p.234

[71] Wandering Whore, p.12ff

[72]Untrodden Fields of Anthropology, p.101.

[73]Namihiri, personal communication.

The most extreme action was to avoid or limit sexual intercourse altogether, not by remaining married but within marriage itself. There is some evidence of an anecdotal kind that a few people did this, a method which had been earlier ascribed to the medieval Italian peasantry.[74] Stories were told of miserly people who usually came to a bad end as a consequence of their action. Aubrey told of 'this Mr. Bonham's wife had two children at one birth, the first time; and he being troubled at it travelled and was absent seven years.' After his return she was delivered of seven children at one birth![75] Less extreme was the case described by Fleming of 'a barber in Northampton, being very lecherous, yet a miser, would not ly with his wife untill ye healf yeare, for feare he should get a child...' He subsequently had twins![76] If one wanted to avoid offspring, one had to go the whole way and live apart, or take other protective action. One could try taking one of the various drinks which a doctor listed to quench sexual desire.[77] Or one could try sowing up one's blankets to prevent temptation as in the ballad in the Pepysian collection titled 'The discontented bride; or a brief account of Will the baker who sow'd himself up in a blanket every night going to bed, for fear of enlarging his family' in which the second verse described

'Tho' he lay by his bride each night
A fair young pattern of beauty bright.
Yet he did nothing to please her, ease her,
As of his charge, And that his family would enlarge;
Full seven months he had layn by her side,
Poor creature, her patience in this was try'd.'

She tried hiding the blanket, to no avail, and then had an affair with a gallant.[78]

Such total abstention, however, is unlikely to have been widespread partly because it went completely against Christian teaching concerning 'conjugal duties', for instance the German theologian Bullinger warned that some people, fearing surplus children, 'wil not gene himselfe to labour.'[79] It also went

[74] Coulton, Medieval Village, p.244

[75] Aubrey, Natural History, p.71

[76] Fleming, Notebook, p.14

[77] Cogan, Haven, p.246

[78] Pepys Ballad Collection 4, p.119

[79] Coverdale, Matrimony, p.26

against the well known 'passion between the sexes.' It might, however, be a method used later on in marriage. As a Danish vicar noted in 1772 'moreover some married couples are living in abstinence because they wish not to have more children.'[80] If one's wife died, another option was to marry an older woman. Thomas Wright in the eighteenth century described how after his first wife, the mother of seven children died, 'some people advised me to marry an old woman that would have no more children.'[81]

This leaves just one final method, namely **coitus interruptus** or withdrawal of the man before ejaculation. There is considerable evidence that this was by far the most important form of 'contraception' in all societies before the later nineteenth century. A method to detect the widespread and effective use of contraception in historical populations was developed in the 1950s by French demographers. It involved looking at the gaps between successive children, particularly the last few, and how far this deviated from 'natural' fertility. Using this method, it has now been established that certain groups in Europe began to use some form of contraception from the later seventeenth century. The citizens of Geneva were among the first, and aristocratic families in France at about the same time.[82] Other areas such as parts of Denmark, Norway, Spain and much of France followed in the eighteenth century.[83] The method that was used seems to have been **coitus interruptus**. This is a method which is known in almost all societies, even the simplest.[84] We are told that 'a number of texts..."suggest the possibility that by the early fourteenth century the practice of coitus interruptus had spread quite widely among married couples in parts of western Europe".'[85] It was used to a limited extent in sixteenth-century Germany,[86] and was clearly known about in England.[87] Indeed, there were those who

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[80] Steensbert, Fertility and Esteem, p.43

[81] Wright, Autobiography, p.144

[82] Laslett, Lost World, p.101; Hawthorn, Fertility, p.36,38

[83] Lofgren, Peasant, 36; Daedulus, Fertility, 531; Drake, Norway, 70; see also generally Flinn, European (xerox), 45

[84] cf Nag xxx; Hopkins, Contraception, p.145

[85] Past and Present no.94, p.20

[86] Wrigley, Family Limitation, p.105; Helleiner, Urban Populations, p.60

[87] For a good description of 'withdrawal' in the early sixteenth century, see Wright, Camden Society, 1843, 97

thought that it was quite common. Culpepper in the middle of the seventeenth century suggested that **coitus interruptus** ('Onan's sin') was widespread; 'for this god slew him. I believe God hath been more merciful to many in England in the same case...'[88] There is some evidence of **coitus interruptus** in eighteenth century sources.[89]

It is clear that **coitus interruptus** was thus known about and used effectively over much of Europe in the nineteenth century to bring down fertility. 'In the West the entire fertility transition took place by means of traditional methods like **coitus interruptus**. In fact, in most of the West the distribution and advertisement of birth control methods was illegal until after World War II.'[90]

When we look at the many studies of English population, it now appears that **coitus interruptus** was not used widely enough before 1850 to have any discernible effects on fertility. One of the first reconstitutions, that of Colyton in Devon first looked as if it showed the distinctive pattern of birth control.[91] A few other local studies also seemed to reveal some birth control.[92] Yet subsequent studies of English parishes have not detected this pattern.[93] The **Population History of England** by Wrigley and Schofield only mentions **coitus interruptus** once, in passing, and hardly considers birth control before the late nineteenth century. Thus it seems likely that while there was some use of contraception among the aristocracy from the later seventeenth century,[94] [95] in general its use was very limited before

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[88] Culpepper, Midwives, p.70

[89]McLaren, Birth Control, 25ff

[90] Livi-Bacci, Concise, p.169

[91] Wrigley, Family Limitation xxx

[92]Levine, Industrialization, p.97,113; LPS 1, 20,23

[93]Flinn, Demographic system, 45-6; see also Wilson, Proximate (xerox), 206

[94]Stone, Sex and Marriage, 415ff; Flinn, European (xerox), 45

[95] Stone, Sex and Marriage, p.415ff

the nineteenth century. When there is evidence of some form of contraception, as in the first half of the fourteenth century, the information on how it was done is missing,though it may have been coitus interruptus.[96]Most were probably in the position of Thomas Wright who admitted that having many children added to difficulties, 'but as this is the common lot of humanity, and we cannot help it, we must endeavour to be as content as we possibly can.'[97]

When we turn to Japan in relation to evidence for **coitus interruptus**, the evidence from the growing number of family reconstitutions points in the same direction as that for England. Smith found that the study of age-specific marital fertility showed that 'the tests devised by Henry for family limitation did not yield a positive result', for 'the shape of its fertility curve is of the kind usually associated with the absence of such limitation.'[98] Hanley likewise notes that 'We have found no mention of **coitus interruptus** in Japan though it was a common practice in Europe...'[99] and concludes that 'There is no evidence that there was widespread knowledge of any effective birth control measures other than infanticide and abortion.'[100] It is worth noting that this tendency to ignore or avoid contraception is still a powerful force in Japan. As Coleman has pointed out, Japan is the only advanced industrial country which hardly makes use of modern contraceptive technology.[101]

[96]Smith, Black Death, p.72.

[97] Wright, Autobiography, p.146

[98] Nakahara, 14, p.108

[99] Economic, p.315

[100] ibid, Economic, p.215

[101] Coleman, Family, p.3