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DRINK

In the search for the elusive cause for the pattern of decreasing mortality in eighteenth century England, McKeown eliminated all other causes except nutrition. By this he meant changes in food intake. That he almost totally ignored drink is explained by his belief that there was no possibility that drinking habits could have much effect before the later nineteenth century. 'The only successful personal measures - boiling or chemical treatment of water - were unknown at that time.'[1] Yet, we should not stop there. In England, we know that Malthus and others thought that the fall in the number of cases of dysentery was one of the most significant features in the eighteenth century mortality decline. Dysentery is characteristically spread through contaminated water. We also know that the relatively light incidence of the water-borne diseases of dysentery, typhoid and, for a long time, cholera, in the crowded island of Japan is likely to be related to drinking habits. The subject deserves closer attention.

Drinking unboiled water is always dangerous. 'Pure water does not occur in nature except perhaps as rain water as it leaves clouds. All other waters...contain some inorganic and organic substances which can support some form of microscopic life.'[2] The most directly and obviously transmissible diseases have been outlined - cholera, typhoid and paratyphoid, various forms of dysentery. But many other micro-bacteria harmful to man can also be carried in unboiled water. Yet 'All vegetative bacteria and many spores are killed by five minutes boiling' of water.[3] The danger increases as the population becomes more dense and the amount of refuse and manure, human and animal, accumulates in a crowded environment. If the transmission through drink can be halted, as in modern customs of sterilizing or boiling water, then an immense amount of illness can be avoided. Most civilizations until recently drank polluted water. Are there any grounds for thinking that there was something special about either England or Japan?

Drink in England

One of the facts that most struck foreigners about the English between the fourteenth and eighteen centuries was that, partly because of their affluence, partly because of their agricultural surpluses, partly because of their preferences, they were a people who did not, like others, drink water. When Fortescue in the fifteenth century compared England and France, one of the differences he noted was in the drink. Many French peasants were miserably poor: 'The people being with these and diverse other calamities plagued and oppressed, do live in great misery, drinking water daily. Neither do the inferior sort taste

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[1] McKeown, Food, 233

[2] Clegg, Man Against Disease, 131

[3] Clegg, Man Against Disease, 135

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any other liquor saving only at solemn feats.' The English, however, were an affluent people: 'the men of that land are rich...They drink no water, unless it be so that some for devotion, and upon a seal of penance do abstain from other drinks.'[4] In the middle of the sixteenth century, John Aylmer noted the contrast between people in continental countries and the English that 'They drink commonly water: and thou good ale and beer.'[5] Those most likely to have to drink water were the poor and the less powerful, in particular women. Thus Fynes Moryson in the 1620s reported of France that 'Women for the most part, and virgins alwaies (except by stealth they offend against the customs) use to drinke water, except it be in the Provinces yeelding Perry and Syder, which all sorts use to drinke without exception.'[6]

The continued avoidance of water in England is well shown by comment of De Saussure in 1726. 'Would you believe it, though water is to be had in abundance in London, and of fairly good quality, absolutely none is drunk? The lower classes, even the paupers, do not know what it is to quench their thirst with water. In this country nothing but beer is drunk, and it is made in several qualities. Small beer is what everyone drinks when thirsty; it is used even in the best houses, and costs only a penny the pot. Another kind of beer is called porter, meaning carrier, because the greater quantity of this beer is consumed by the working classes.' He then proceeds to describe ale, a superior clear beer, and ends by noting that 'It is said that more grain is consumed in England for making beer than for making bread.'[7] A country which uses much of its grain for making drink and never needs to drink water is rich indeed.

There seem to have been two major reasons for drinking beer rather than water. One was undoubtedly to avoid illness. The sixteenth century doctor Andrew Boorde drew attention to the dangers of water; it was not wholesome if taken neat. The order of goodness of water was rain water, running water, river water, well water, bad standing water.[8] Henry VII pronounced that the water of England was said not to be drinkable.[9] The danger of drinking water was widely recognized in the sixteenth century.[10] In the seventeenth, Robert Hooke for instance believed that 'fluxes' and 'spotted

[4]Learned Commendation, vols. 81-81v, 85-85v

[5]Aylmer, Individualism, 178

[6]Moryson, Itinerary, iv, 142

[7]De Saussure, 158

[8]Boorde, Regiment, 253

[9]Shrewsbury, Philistines, 69

[10]cf. Drymmond, Food, ???87

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fever' comes of drinking 'dukish water'.[11] It has been recognized by most peoples in the world that disease and drinking water are linked. The difficulty is to do anything about the situation. One solution was to boil up water with oats and to make a drink called 'water-gruel' which was safe and nutritious. But much better was to make a pleasure of necessity by substituting a drink which the English liked for the dangerous substance.

The history of beer drinking in England is a large and complex one. As Drummond notes, 'The importance of ale and beer in the everyday life of these times can be judged from the fact that the list of acts, ordinances and regulations aimed at protecting the customer against fraud and bad quality is nearly as extensive as the corresponding list relating to bread.'[12] We can only observe a few of the outstanding features.

Hops which were the special ingredient that made beer different from the earlier ales, were 'certainly known in very ancient times' and were, for example, mentioned by Pliny in his **Natural History** as being used by the Germans to preserve their ale.[13] According to Braudel hops were used in the monasteries of the eighth and ninth centuries. 'The first mention is 822; hops are recorded in Germany in the twelfth century; in the Netherlands in the early fourteenth; and reached England later, in the early fifteenth century.'[14] In fact, we are told that '...there is no doubt the hop was known in England before the Conquest, and passages in contemporary writers show that some use was made of the plant by the Saxons in their primitive process.' It was the 'date of its practical introduction for brewing...was most probably the middle of the 15th century.'[15] The rhyme 'Turkies, carps, hoppes, picarell and beere, Came into England all in one yeare' refers to this earlier arrival from Flanders in the fifteenth century.[16]

The two drinks of beer and ale existed alongside each other from the fifteenth century. Beer grew into

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[11]Diary, p.7

[12]Drummond, Food, 43

[13]Chambers, Encyclopedia,s.v. 'hops'

[14]Braudel, Structures, 238

[15]Chambers's Encyclopedia, 35

[16]for the introduction of hops, see Drummond, Food, 44

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the ascendant and was described by Harrison in the later sixteenth century as the national drink. 'Our drink, whose force and continuance is partly touched already, is made of barley, water, and hops, sodden and mingled together by the industry of our brewers in a certain exact proportion.'[17] It was very cheap, he thought, '...so that for my 20s I have ten score gallons of beer or more...'[18] which made it available even to the poor. By the early seventeenth century, Fynes Moryson could boast that 'The English Beere is famous in Netherland and lower Germany, which is made of Barley and Hops; for England yeelds plenty of Hops, however they also use Flemish Hops. The Cities of lower Germany upon the sea, forbid the publike selling of English Beere, to satisfie their owne brewers, yet privately swallow it like Nectar. But in Netherland, great and incredible quantity hereof is spent.'[19]

People drank beer principally because they liked it. Yet it was also of considerable importance for general health. There are three ways in which it was an improvement on drinking water; because of its nutritional properties, because it stopped people drinking unboiled water, and possibly because it contained an anti-bacterial property.

Many people have drawn attention to the nutritional value of beer. Made out of barley and femented, it added a great deal to the dietary intake. Drummond summarizes the position, writing that 'it seems probable that this "small beer" had a calorific value of about 150-200 Cal. per pint. This meant that a young boy drinking about 3 pints a day would get some 500-600 Cal. towards his daily needs of about 2500.'[20] In other words, the energy value of beer is about 30 to 60 Kcal per 100 ml., about the same as milk.[21] As well as the calories, 'beer would have supplied a modest amount of calcium and appreciable quantities of ribo-flavin, niconinic acid, pyridoxin, panthonenic acid and perhaps other vitamins.' Drummond concludes by saying that it is certain 'that home-brewed beer was a good, sound, healthful drink and one which could not possibly do any harm to children when drunk in reasonable amounts.'[22]

The fact that beer and ale prevented people from drinking what was widely considered a dangerous

[17]Harrison, Description, 135

[18]Harrison, Description, 138

[19]Moryson, Itinerary, 166

[20]Drummond, Food, 114

[21]Davidson, Nutrition, 206

[22]Drummond, Food, 114

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substance, namely unboiled water, has already been alluded to. Campbell noted that 'Some kind of drink was held both necessary and healthful; for contemporary hints to health warned especially against the bad effects of drinking water.'[23] She then gives a list of the possible drinks. Because England was not a wine country the yeomen 'drank chiefly beer, ale, mead, cider, and perry, drinks that were brewed in their own homes or could be bought at the village alehouse.'[24]

If beer was to act as a substitute for water, then enormous amounts would be needed. On average people drink several pints of water a day. Can it be possible that as much beer as this was brewed in England? It appears that it was. The excise duty on beer in 1684 suggest that 'each member of the population, man, woman and child, consumed...nearly a pint a day. But allowance must also be made for the beer brewed privately on which excise was not charged: Gregory King estimated that in 1688 this came to a further seventy per century of the original total.'[25] In other words, it would appear that every man, woman and child consumed an average of nearly two pints of beer a day. This would appear to be enough, along with lesser drinks such as ale and perry, to supply all the drinking needs of the population, though clearly some would drink more than others. The existence of a vast industry to produce such quantities is widely attested.[26] Just to take one example. In Derby in 1693, there were 694 houses or families, with 120 alehouses and 76 malt-houses or breweries. In comparison, there were only 20 bakers.[27]

The side-effects of this enormous consumption of beer are obvious. The centre of English social life was the ale house.[28] Anyone who has visited an English village or town will know about the pub, which was only one amongst the assembly of inns, ale-houses and other establishments. As Stubbes fulminated, 'every countrye, cittie, towne, village, and other places, hath abundance of ale-houses, tavernes, and innes', which were patronised, being 'so fraught with maultwormes, night and day, that you

[23]note, T. Venner, Via Recta, 22

[24]Campbell, Yeoman, 250

[25]Thomas, Religion, 18; cf Houghton, Husbandry, iv, 299 which gives the number of barrels on which customs were paid in 1684-1694, which works out at a pint per head.

[26]see e.g. Clark, English Alehouse; Mathias, Brewing Industry XXX

[27]Houghton, Husbandry, i, no.39

[28]cf Peter Clark REF

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woulde wonder to see them.'[29]

In relation to health, we may ask whether there was something in the beer that gave it particular medicinal value? Nothing special may have been meant when Henry VI in 1436 commended the new drink of beer made from hops as 'notable, healthy and temperate'[30], yet it may already have been noted that the practice of adding a bitter herb, hops, to the drink, made a real difference to health. We are told that 'Hops gives beer a bitter flavour and are useful both as an antiseptic and a preservative.'[31] Could it be that a germicide is contained in hops? If this were the case, it would be extremely important. Beer was widespread in the very areas of northern Europe, namely Flanders and later Holland, which were economically among the most advanced, densely settled, yet healthy, from the fifteenth to seventeenth centuries. Could the health of the population there have been one of the factors in this economic success?

When hop-based beer was brought to England, there was a period when the health of the nation improved considerably. The second half of the sixteenth century saw one of the healthiest periods in English history when mortality was relatively low and the population grew. If a herb had been introduced which killed off some of the numerous bacteria in the mouth and stomach and thus produced not only a nutritionally rich, but medically safe, drink, this would have been of very great importance.

Recognition of the medical value of beer is shown in an eighteenth-century book by David Davies, quoted by Dugald Stewart. Davies wrote 'Time was when small beer was reckoned one of the necessaries of life, even in poor families'... 'it seems to have been designed by Providence for the common drink of the people of this country, **being deemed a preservative against some of its worst diseases.**'[32] Hence, 'Were the poor able to afford themselves this wholesome beverage, it would well enough compensate for the scarcity of milk.' It will be important to see what diseases it could have been a preservative against - and also what views the medical profession and others had on the subject.[33]

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[29]Stubbes, Anatomy, 113

[30]4 mmond, Food, 44

[31]Ferguson, Drink, 10

[32]my italics - Stewart, Collected Works, 319

[33]see Andrew Boorde and Thomas Cogan, sixteenth century doctors considered the medical virtues of ale, beer, cider etc. q.v. Regiment, 254; Cogan, Haven, 200ff and see other doctors on.

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Once we begin to examine the process of beer-making, and particularly the role of hops, we begin to see that much of the method was concerned, as Pasteur was later to realize, with the problem of keeping infection by the wrong bacteria at bay. Briefly, beer 'is the popular term applied to an infusion of malted barley which has been boiled with hops and afterwards undergone fermentation.'[34] In a little more detail, the process is as follows. The barley is mixed with water, ferments and turns to malt. It is thoroughly dried and then crushed to make it amenable to further soaking. Boiling water of over 150oF is added and the malt is mashed. The central process, the fermenting of the malt through diastase, which converts the modifield starch of the malt into sugar and dextine(??) takes place. At this point there is a very considerable danger of infection by unwanted bacteria, which would lead the beer to go stale very quickly. So the extract is washed and boiled for two hours with hops, which act as some form of bacteriocide. The liquid is cooled, fermented for at least forty hours, and then stored for some weeks. If it is necessary for the beer to keep for an especially long time, or in a hot climate, as in export ale, further hops are added. Throughout, the water has to be of the finest and everything kept very clean.

What is needed is a selective bacteriocide, that will kill off unwanted bacteria. It looks as if very early on various peoples realized that what was needed was some form of vegetable antibiotic. Among the Nubians, we are told "Antibiotic activity would have been advantageous to the brewing process, since tetacycline kills off competing bacteria but allows fermentation by yeast. Modern German breweries take advantage of this fact by introducing tetracycline-impregnated filters into the brewing process. It is likely that over time the Nubians realized the adaptive nature of contaminated grain to the beer-making process, if not also to its effect on their health and disease parameters.'[35]

The Germans hit on a specific herb, wild hops. Thus we are told 'The hops exert a purefying, a preservative, and an aromatic influence over the wort. The tannin precipitates the excess of albuminous matter, thus ridding it of a certain source of after trouble, while the constituents of the hop in different ways play their preservative part.'[36] Thus there appears to be a natural 'tannin' present which acts as a bacteriocide. This has been more recently described thus: 'Hops not only impart a distinctive bitter flavour to the brew but also the perpenes present in them are thought to have antibiotic properties - against chance contaminants.'[37] Thus it may well be that the widespread drinking of beer by the English over the period between about 1530-1730, and to a certain extent before and after, was of central importance for general health. It may not only have given a nutritious and prefectly safe drink, but have

[34]Chambers's Encyclopedia, s.v. 'beer'

[35]Anthropology of Medicine, 228

[36]Chambers, Encyclopedia, s.v. 'beer'

[37]Davidson, Nutrition, 206

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contained considerable amounts of some antibiotic or bacteriostatic substance in the 'tannin', which would go into every beer-drinker's mouth and stomach and act as a general disinfectant or protection against many kinds of bacterial infection.

It would appear that up to the eighteenth century 'small beer' was sufficiently cheap for the whole population to drink. Yet, just about the time that De Saussure gave his description of the beer-drinking nation, the second major change in English drinking habits was just about to start, namely the move from beer to tea as the staple drink of the labouring population. This change was described by the same Rev. Davies at the end of the eighteenth century. Having described how good a drink beer was, and how it had been a 'necessary of life' and 'the common drink of the people', he noted that 'on account of the dearness of malt, which, is most unfortunately for them, a principal subject of taxation, small beer has been, these many years, far beyond their ability to use in common.'[38] The problem of cost was also alluded to by others in the middle of the eighteenth century. Buchan thought 'fermented liquors...' still continue to be the common drink of almost every person who can afford them.'[39]

Davies continued by explaining that 'Under these hard circumstances, the dearness of malt and the difficulty of procuring milk, the only thing remaining for them to moisten their bread with, was **tea**. This was their last resource. Tea (with bread) furnishes one meal for a whole family every day, at no greater expense than about one shilling a week at an average.' To the suggestion that this was a luxury, Davies replied that 'If you mean fine hyson tea, sweetened with refined sugar, and softened with cream, I readily admit it to be so. But **this** is not the tea of the poor. Spring water, just coloured with a few leaves of the lowest-priced tea, and sweetened with the brownest sugar, is the luxury for which you reproach them.' He believed that 'To this they have recourse from mere necessity; and were they now to be deprived of this, they would immediately be reduced to bread and water. Tea-drinking is not the cause, but the consequence, of the distresses of the poor.'[40] We shall return to the theme of tea-drinking and its impact in England in the next chapter, in particular the question of whether it lowered the quality of protection from bacterial infection.

The problem in Japan was the same as that in England, namely that it was necessary to find a drink cheap and pleasant enough to be universally acceptable and which would avoid the necessity of drinking polluted water. At first sight it might seem that the Japanese equivalent to English beer was sake. (APPENDIX. Sake production and drinking in Japan. a-sake)

In fact, sake was too expensive and too intoxicating to be more than a special drink for particular

[38]quoted in Stewart, Works, ix, 320

[39]Buchan, Domestic, 68

[40]quoted in Stewart, Works, ix, 320

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occasions. It was impossible that it would become the equivalent to English beer. Although sake is very important both socially and ritually in Japan, the central place in terms of quenching thirst needed something else.

That something else could not be milk, either in England or Japan. In the case of Japan, there were no milking animals. In the case of England, it does not seem to have been customary to drink raw milk, but rather to turn it into butter, cheese, whey and butter milk. This undoubtedly avoided a vast amount of disease, for untreated milk is as dangerous as untreated water.

(APPENDIX. Milk drinking in England and Japan. a-cow)

Tea in Japan.[41]

The origins and date of the discovery of tea are uncertain. One theory is that one or more tribal groups living in the mountainous forests on the borders of Assam and Burma, discovered that the leaves of a certain species of Camellia bush when mixed with hot water made a refreshing drink. Tea was perhaps earlier eaten as a vegetable, chewed, pickled or sniffed like snuff in this area, as it still is today in parts of Indo-China.[42] The early history of the discovery and location of the earliest tea bushes is a hotly contested one. Hunter in the nineteenth century and Kingdom Ward in the twentieth have given interesting but contradictory accounts.[43] Several thousands of years before the birth of Christ the knowledge of tea was transferred to China. 'According to certain statements made by ancient Chinese authors, the tea-plant was growing in the Celestial Empire as early as about 2700 B.C.'[44] It was domesticated in China and the fact that 'no tea-plants have been found growing wild in China' suggests that it was of Assamese origin, a fact supported by 'botanical evidence which supports the argument that **Thea assamica** is now generally considered by botanists to be the parent stock of all cultivated varieties of the tea-plant.'[45] The original stock was considerably modified to bring out its powerful

[41] I am extremely grateful to Dr.Derek Bendall and Dr.Hal Dixon of the Department of Bichomestry, University of Cambridge, for reading this chapter and making a number of most helpful suggestions concerning the details of the biochemistry of tea.

[42]Hobhouse, Seeds (xerox), 124

[43]Hunter, Empire, 504, 508; Statistical Account of Assam, i, 262-3, ii, 434-6; Kingdom Ward, Plant Hunter in Manipur, 101, 111, 114-5, 224

[44]Browne, Tea, 4

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medicinal ingredients. We are told that 'for centuries...the Chinese used tea exclusively as a medicine.'[46]

Tea was introduced into Japan as a medicine in the ninth century A.D.[47] Chamberlain wrote that 'Tea is believed to have been introduced into Japan from China in A.D. 805 by the celebrated Buddhist saint, Dengyo Daishi.'[48] At first it was cultivated in monastery gardens as a medicinal herb, to heal sickness and to help keep the monks alert during meditation. Its use and influence was restricted to courtly and monastic circles; 'tea plants were grown on the grounds of some temples and served priests and noblemen as a medicinal beverage'[49] 'Though encouraged from the first by imperial recommendations, tea culture made little or no progress in Japan till the close of the twelfth century'[50] Then in 1191 the monk Eisai returned from China, bringing with him Rinzai Zen Buddhism and tea. He 'planted the tea seed he had brought back from China in the front garden of the Iwagami Lodge of the Reisen-ji Temple at Seburi-yama in the province of Hizen. The remains of this garden survive even today...' From this date, the tea was transplanted to various different locations where it flourished. Eisai gave detailed advice on how it should be picked, prepared and drunk so that its virtues would be maximized. 'Eisai also taught the Japanese the Chinese way of preparing the leaves: gather them early in the morning before dew-fall, then roast them on a sheet of paper over a very gentle heat so that they do not burn, and keep them in a pot with a stopper made from bamboo leaves.'[51] Thus was introduced the green powdered tea which became central to the tea ceremony and much of Japanese cultural life.

Tea appears to have had many virtues for this great exponent of Zen. It is tempting to read into it an analogy with the Zen disciplines, difficult to swallow, but ultimately health-giving. For it was the medicinal value of tea which Eisai stressed. He wrote a two-volume work called 'Kissa-yojo-ki' or 'Notes on the curative effects of tea'. In this he wrote that 'Tea is the most wonderful medicine for preserving health; it is the secret of long life. It shoots forth its leaves on the hillside like the spirit of the

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[45]Browne, Tea, 5

[46]Browne, Tea, 87

[47]Morris, Shining, 116

[48]Chamberlain, Things, 452

[49]Tanaka, Tea Ceremony, ???

[50]Chamberlain, Things, 453

[51]Frederic, Daily Life, 75

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earth. Now, as in the past, it possesses these same extraordinary qualities, and we should make much greater use of it...'[52] Iguchi provides a summary of the work. Eisai stated that 'the health of the five human organs is strengthened through the plentiful intake of the five flavours they each respectively enjoy. Accordingly, the lung enjoys sharp flavours, the liver desires sour flavours, the spleen sweet flavours, the kidney salty flavours and the heart enjoys bitter flavours. But, whilst people absorb the four flavours of sharp, sour, sweet and salty, the bitter flavour necessary for the heart is unpleasant and cannot be taken in. This is the reason, Eisai writes, why Japanese hearts are afflicted and Japanese lives short. We are fortunately able to learn from the people of the continent and we must make our hearts healthy absorbing the bitter flavour of tea.' Hence Eisai 'interprets tea drinking as a secret technique for the prolongation of life.'[53] It gave health to many other parts of the body as well as the heart; 'it was believed to banish sleep and to be effective against liver and skin complaints, rheumatism and beri-beri.'[54] Another summary states that tea drinking was strongly recommended by Eisai 'as a cure for five types of disease: loss of appetite, drinking water disease, paralysis, boils and beri-beri. Tea, he added, is a remedy for all disorders...'[55]

The tea plantations grew and tea drinking became widespread among the Samurai in the thirteenth century and 'By the Muromachi period (1336 on), all classes in Japan drank tea.'[56] By the later sixteenth century, tea had assumed an immense importance in Japanese life. The tea ceremony, developed by Rikyo and other great masters, became the most important cultural institution in Japan. Vast quantities were grown. In 1678 Willem Ten Rhijne 'was responsible for the first descriptions and specimens of the tea plant to come to the West. Just a few months after his arrival at Nagasaki (in 1674) he sent an essay on the tea plant, a branch of a camphor tree, and a batch of twigs, leaves, and flowers' back to a Danish friend.[57] But it was another medical visitor who provides us with the most insightful description of this plant.

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[52]Frederic, Daily Life, 75

[53]Iguchi, Tea Ceremony, 101

[54]Frederick, Daily Life, 75

[55]Tanaka, Tea Ceremony, 25

[56]Tanaka, Tea Ceremony, 75; Yamamura, Cambridge 3, 460 also cf 488

[57]Bowers, Medical Pioneers, 36

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Kaempfer, who visited Japan in 1696, had just the right combination of qualities to appreciate and describe tea. He was by training a doctor, but he was also one of the greatest of seventeenth century botanists. Combining these skills with his encyclopaedic knowledge of all aspects of Japanese history and culture, he gives us a portrait of tea in Japan. As a doctor, he was impressed with those medicinal virtues of tea which had been the basis for its acceptance in China and Japan. 'Tsianoki, that is the Tea-shrub, is one of the most useful Plants growing in Japan...' he argued.[58] He wrote a special appendix on tea, in which he concluded, 'To sum up the virtues of this liquor in a few words, it opens the obstructions, cleanses the blood, and more particularly washes away that tartarous matter, which is the efficient cause of calculous concretions, nephritick and gouty distempers. This it doth so very effectually, that among the Tea-drinkers of this Country I never met with any, who was troubled either with the gout or stone.'[59] But its virtues were even more general. 'I believe, that there is no Plant as yet known in the world, whose infusion or decoctions, taken so very plentifully, as that of Tea is in Japan, sits so easy upon the stomach, passes quicker through the body, or so gently refreshes the drooping animal spirits, and recreates the mind.'[60]

Its virtues depended very much on how it was grown, cured, stored and boiled. Kaempfer differentiated between the two main types of Japanese tea, the high-quality and costly powdered green tea, and ordinary tea. For instance, in the tea houses on the highways (check XXX) 'The Tea sold at all these places is but a coarse sort, being only the largest leaves, which remain upon the shrub after the youngest and tenderest have been pluck'd off at two different times, for the use of people of fashion, who constantly drink it before or after their meals.'[61] He notes the differences in the way in which it is picked, dried, stored, and boiled, which alters its nature. 'The common drink of the Japanese is brew'd of the larger leaves of this Shrub; but the young and tender leaves dried, powder'd and mix'd in a Cup of hot water into a sort of Soup, are drank in the houses of people of quality before and after their meals.'[62] The rougher tea was not merely drunk because it was cheaper. Many people thought that the green tea was too powerful for ordinary use. Kaempfer wrote that though ordinary tea 'smells and tastes like lye (= XXX), the leaves it is made of, besides that they are of a very bad sort, being seldom less than a year old', 'yet the Japanese esteem it much more healthful for daily use, than the young tender leaves prepar'd after the Chinese manner, which they say affect the head too strongly, tho' even these

[58]Kaempfer, History, i, 179

[59]Kaempfer, History, 3, 240

[60]Kaempfer, History, 3, 241

[61]Kaempfer, History, 2, 329

[62]Kaempfer, History, 1, 179

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lose a great part of their narcotick quality when boil'd.'[63]

(APPENDIX. The growing and preparation of Japanese tea. a-japtea)

Such tea would be prepared in the morning, and then used throughout the day. 'This kettle is to serve for the whole family all day long, to quench their thirst. Every one, who hath a mind to drink, goes there, when he pleases and with a pail takes out as much of the decoction, as he will.'[64] Thunberg described how the tea was kept on the boil and 'from this the brown decoction is poured out for immediate use, and another kettle, filled with cold water, affords them the means of diluting and cooking it.'[65] When visitors came, they were instantly served from this store. 'And it is the custom of the Country to present friends that come to visit them, with one or more dishes of Tea, both when they come and go.'[66] As Morse wrote, 'it is one of the pleasant features of Japan that wherever you go, friend's house or shop, tea is offered you.'[67] Likewise, in the 'innumerable smaller Inns, Cook-shops, Sacki, or Ale-houses, Pastry-cook's and Confectioner's shops, all along the road, even in the midst of woods and forests..', travellers 'for a few farthings' could find "something warm to eat, or hot Tea-water...'[68] As in the private houses, a large kettle of tea was prepared at the start of the day and when a customer came 'Half a cup of this decoction is mixed with cold water, when travellers ask for it.'[69]

One of the problems with tea was the bitterness which Eisai had alluded to. The art was to make the tea sufficiently but not too bitter. The temperature of the water and the length of infusion were vital here. 'For ordinary usage the tea is prepared in another way. The tea is put into the teapot, which has been carefully scalded; upon it is poured a little water, having boiled, but no longer boiling; it is stirred with a whisk. This first water, which absorbs the bitterness of the tea, is thrown away; then there is poured upon the tea a sufficient quantity of water of the temperatures previously indicated, and it is left to infuse

[63]Kaempfer, History, 2, 330

[64]Kaempfer,History, 3, 239

[65]Thunberg, Travels, iv, 41; cf also Elgin, Mission, 170

[66]Kaempfer, History, 1, 179

[67]Morse, i, 192

[68]Kaempfer, History, 2, 327

[69]Kaempfer, History, 2, 329

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for five minutes.'[70] As Chamberlain described it, 'Japanese tea, unlike Chinese, must not be made with boiling water, for it will give an intolerably bitter decoction; and the finer the quality of the tea, the less hot must be the water employed.' It would appear that the water was boiled, and then allowed to cool: 'the Japanese tea equipage actually includes a small open jug called the "water-cooler" (yu-zamashi) to which the hot water is, if necessary, transferred before being poured on the tea-leaves. Even so, the first brew is often thrown away as too bitter to drink.'[71] As Joseph Needham puts it, the tea in the Japanese tea ceremony must be made with 'aged hot water', that is 'water at the third stage of boiling.'[72] Again the 'bitterness' gives us a clue to the presence of some strong agent in the tea, which both gives it part of its virtue, but can also make it unpalatable.

When western travellers arrived in larger numbers in the nineteenth century, they found the ordinary Japanese tea somewhat unappetizing at first. Pompe wrote that 'Tea is the national drink, a weak concoction taken without sugar or milk. One has to get used to this drink slowly, for at first the newcomer might well use it as an emetic; gradually, however, one gets accustomed to it. Wherever a European visits a Japanese home, the first thing offered to him is a cup of tea. The Japanese drink dozens of cups of tea a day.'[73] Edward Morse likewise began by finding the tea rather uninteresting, but later wrote 'I am getting accustomed to the tea and find it refreshing. It is always very weak, very hot, and is drunk without milk or sugar. It is drunk by everybody, high and low, at intervals through the day.'[74] Tea was easy to prepare: 'preparing tea as they do is a very simple act, as it is drunk without cream or sugar...' It replaced water on public occasions . 'You give a public lecture, and instead of the customary pitcher of cold water and a glass, a tray with a teapot and cup is placed upon your desk.' Institutions had special officers who just made tea: 'At the University one man's whole duty is to prepare tea for the teachers...**(give rest of quote).**' What was apparent to all was that tea was drunk by all Japanese in huge quantities. Siebold in the early nineteenth century, for instance, noted that 'the grand object of cultivation, next to rice, is the teaplant...Its consumption is now almost unlimited.'[75] It is drink

[70]Regamey, Art and Industry

[71]Chamberlain, Things, 455

[72]Needham, Shorter Science in China, 2, 346

[73]Wittermans, Pompe, 53

[74]Morse, i, 51/2

[75]Siebold, Manners, 232

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'at all their meals, and, indeed, at all times in the day, by every class.'[76] In addition to the large plantations, 'every hedge upon every farm is formed of the teaplant, and furnishes the drink of the farmer's family and labourers.'[77] One estimate is that 'about 3 litres is the daily consumption of the citizens of the empire of the rising sun.'[78] And at the end of their lives the Japanese showed their appreciation for its great virtues and healthy properties: 'Last of all, the vacant spaces in the coffin are filled with bags of tea.'[79]

The virtues of tea drinking as a preventive to disease lie in two areas. The first is in the obvious fact that it provides a cheap, drink which avoids the many dangers of unboiled water. This became particularly apparent in Japan in the dramatic events of the later nineteenth century when cholera was introduced into the country. As Morse wrote, 'Cholera was very prevalent...not a swallow of cold water could be drunk. Tea, tea,tea,, morning, noon, and night, and on every possible occasion.'[80] Or as Arnold, who had come from an India which was not yet drinking tea except in very restricted circles (thank C.Bayley), wrote during a cholera outbreak in the 1890's, 'I may add that the custom of perpetual tea-drinking greatly helps the Japanese in such a season as this. When they are thirsty they go to the tea-pot, and the boiled water makes them pretty safe against the perils of the neighbouring well.'[81] Arnold noted that 'There is beside a general and widespread intelligence as to the advantage of boiling water and milk, and dipping vegetables and fruit in boiling water...' (ibid) We may wonder how old this connection was and the part that tea played in it.

The connection between population density and the boiling of water in China and Japan was pointed out by King at the start of the twentieth century. 'The cultivation of tea in China and Japan is another of the great industries of these nations, taking rank with that of sericulture if not above it in the important part it plays in the welfare of the people. There is little reason to doubt that this industry has its foundation in the need of something to render boiled water palatable for drinking purposes.' He added that 'The drinking of boiled water is universally adopted in these countries as an individually available

[76]Siebold, Manners, 133

[77]Siebold, Manners, 232

[78]Les Grandes Cultures, 224

[79]Bacon, Japanese Girls, 278

[80]Morse, i, 192

[81]Arnold, Seas, 543

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and thoroughly efficient safeguard against that class of deadly disease germs which thus far it has been impossible to exclude from the drinking water of any densely peopled country.'[82] He believed that 'This device and the custom are here centuries old and throughout these countries boiled water, as tea, is the universal drink, adopted no doubt as a preventive measure against typhoid fever and allied diseases.'[83]

King was writing explicitly in order to influence policy in the United States, where he was head of the Government Agricultural Bureau. He saw that America and Europe might well have to emulate Japan and China in this respect. 'So far as may be judged from the success of the most thorough sanitary measures thus far instituted, and taking into consideration the inherent difficulties which must increase enormously with increasing populations, it appears inevitable that modern methods must ultimately fail in sanitary efficiency.' He believed that 'it must not be overlooked that the boiling of drinking water in China and Japan has been demanded quite as much because of congested rural populations as to guard against such dangers in large cities, while as yet our sanitary engineers have dealt only with the urban phases of this most vital problem and chiefly, too, thus far, only where it has been possible to procure the water supply in comparatively unpopulated hill lands.'[84]

Some thirty years before King another American, Edward Morse had stated that 'For centuries the Japanese have realized the danger of drinking water in a country where the sewage is saved and utilized on the farms and rice-fields.'[85] This knowledge may explain the fact that even if the few tea leaves were for some reason not available, then water was still heated. Morse notes as one of a list of the peculiar inversions of Japan as opposed to the west that 'they drink hot water instead of cold...'[86], though he might be referring to tea-drinking here. Jannetta also writes that 'It was customary to boil drinking water in Japan...'[87]

So far, the drinking of tea has been looked on as basically a way of making hot water palatable. If

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[82]King, Farmers, 323? ; sericulture is the cultivation of silk.

[83]King, Farmers, 77

[84]King, Farmers, 323-4

[85]Morse, ii, 192

[86]Morse, i, 25

[87]Jannetta, 202

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this were all it would still be of vast importance. 'The fact that water must first be boiled before it can be turned into tea is probably one of the most important health measures ever to have been introduced, albeit unconsciously, since unboiled water was, and still is, in some parts of the world, the main channel by which bacterial diseases such as cholera and other enteropathic infections are disseminated.'[88] Yet there are indications that not only were tea leaves attractive as a stimulating infusion, but that they contained some further property of a health-inducing kind.

There are clues throughout the history we have outlined above that there is some agent in the specific Camellia leaf which is made into tea. The Dutch physician Cornelis Bontekoe (alias Cornelis Dekker) wrote a **Tractaat** on the excellence of tea, coffee and chocolate.[89] We are told that 'He held green tea of Bohea in such high esteem that in one of his works he seriously recommended the sick to take 50, 60, up to 100 cups without stopping, a feat (!) he had accomplished himself in one morning. It was when suffering cruelly from stones, as he had, that he believed had been cured by the copious use that he had made of the Chinese drink. He defended it strongly against those who said it caused convulsions and epilepsy; on the contrary, he attributed to it all sorts of therapeutic virtues, and recommended it among others to counter malaria, which one could cure if one took 'two glasses of strong tea two hours before an attack and a number of glasses after.'[90] There was 'a book by the French Nicolas de Blegny (Paris, 1687) on **The proper use of tea, coffee and chocolate for the prevention and for the cure of illnesses.** [91] Some were disappointed that it seemed to be less miraculous in its European setting. The first reports of the virtues of tea in China had stressed its great medicinal virtue. We learn that 'When Haji Muhammad reported on it to the Venetian geographer Ramusio in 1550, he said that the Chinese believed 'one or two cups of this decoction taken on an empty stomach remove fever, headache, stomach pain, pain in the side or in the joints, and it should be taken as hot as you can bear it...And those people would gladly give a sack of rhubarb (greatly prized by European apothecaries) for an ounce of **Chiai Catai**.'[92] But the physician Leonardo di Capua observed that 'The tea herb is commonly used by us now, although we do not see from it those wonderful effects which it allegedly shows in China - it may be that, during the journey of such long duration, it loses for the most part its volatile alkali and with it, little less than the whole of its virtue - or some other reason.'[93]

[88]Marks, Clinical Effects, 709-1710

[89]The Hague, 1685

[90]Les Grande Cultures, 216

[91]cited in Cipolla, Before, 236

[92]Tannahill, Food in History, xx

[93]quoted in Cipolla, Before, 236

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If tea does indeed have some mysterious medicinal power, where can this lie? A clue is provided by the Scottish philosopher Kames. In trying to account for the decline in all types of mortality in the eighteenth century, he wrote that one important factor might be 'the great consumption of tea and sugar, which I am told by physicians to be no inconsiderable antiseptics.'[94] Now it would clearly be immensely useful if a herb could be found that was both a powerful antiseptic and enormously popular. As Roberts puts it, 'A satisfactory disinfectant should not be poisonous to higher animals, should not corrode metals or rot fabrics, should not stain or bleach, should not have an unpleasant smell, and should be reasonably cheap and readily miscible with water.'[95] If tea contained a powerful disinfectant, it would fit all these desiderata, with the added bonus that its stimulating effects made it an enormously attractive drink. Such an antiseptic would be likely to be bitter and 'astringent' to the taste, and somewhat unpalatable. The description of ordinary Japanese tea by Griffis fits the description very well. 'The drink was the cheapest tea...The third course was a dipperful of tea, apparently one-half a solution of tannic acid, in which a raw hide might have been safely left to tan.' So powerful was this, that Griffis wondered whether 'the disease of ossification of the coats of the stomach, so common in Japan, arises from the constant drinking such astringent liquor.'[96] Could it be that in this "astringent liquor", apparently consisting of a large amount of the tannin which is one of the principal distinctive features of tea, the particularly powerful properties lie? (APPENDIX - a-tea).

What might be surmised to have happened is as follows. In the Assamese jungles many hundreds of thousands of years ago a plant evolved which in its struggle for survival developed a number of powerful acids in its leaves. One was caffeine, a stimulant which no doubt attracted certain birds and animals. Yet it also had to develop defences against the numerous bacteria in the forest. It developed a very powerful defence mechanism in the form of tannin. This most powerful of germicides or paraciticides was one of the properties which gave it that medicinal virtue which was recognized when it was taken on its long journey to China, Japan and ultimately Europe and the world. When it was cured lightly, the worst of the bitterness removed, it provided a drink whose attractiveness lay in its stimulating effect. 'The ingestion of caffeine in even moderate doses, e.g. 250 mg, significantly increases work production and the ability to withstand prolonged strenuous exercise.'[97] This was obviously welcome to the hard-working Japanese and Chinese populations. The fact that it also stimulates the mind, and helps

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[94]Kames, Sketches, i, 245

[95]Roberts, Hygiene, 251

[96]Griffis, Mikado, 409-410

[97]Marks, Clinical Effects, 723

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wakefulness and concentration, made it attractive for the early religious communities where it was carefully tended. Without this feature, it would never have been spread by humans. Yet it also contained an astringent, bitter, agent which, when combined with boiling, or even without full boiling, would destroy most harmful bacteria.

Various clues as to the bacteriostatic effects of tea occur throughout the literature. In Assam the kernel of tea is 'eaten locally as a cure for dysentery and fever.'[98] It was discovered that tea was a powerful protection against impure water. The English explorer Kalm is quoted as follows: 'It is necessary for me to admit that tea has been extremely useful in my travels through savage countries, where one cannot carry wine or other drinks, and where the water is generally undrinkable, being polluted and infected by insects. In such cases the water becomes a very agreeable drink when, having boiled it, one drinks it with an infusion of tea. I cannot sufficiently praise the taste of the water treated thus; moreover it restores the strength of the exhausted traveller. In the same was as a number of explorers who have travelled in the virgin forests of America, I have constantly been put to the test. In these tiring excursions tea is as indispensable as food.'[99] It was noted that 'In some forms of diarrhoea, especially in children, antiseptics are very useful - e.g. carbolic acid...'[100]

The most thorough assessment of the possible medical effects of tea, however, has been made by Stagg. He points out that tea seems to have been found effective against a number of diseases. 'Tea was used extensively in combating plague in Japan during an epidemic in 1951 and this had led to its exploitation as an adjunct in the treatment of several diseases including dysentery (where the diuretic property of caffeine supplements the antibacterial function of polyphenols).'[101] He suggests that it 'probably has therapeutic value in the prevention of dental caries and the prophylaxis and treatment of vascular and coronary disorders including atherosclerosis.'[102] Most importantly he reports on tests that have been done with tea, and gives a summary of the probably medical benefits. In relation to the tests, 'Infusions of green tea were found to act bacteriostatically **in vitro** on Typhoid bacillus, **Shigella paradysenteriae, Shigella dysenteriae, Staphylococcus aureas, Salmonella typhosa, Bivrio cholera** and **Leuconostoc mesenteroides**.'[103] In other words, a number of the worst stomach

[98]Kingdom Ward, Manipur, 196

[99]Les Grandes Cultures, 217

[100]Chambers, Encyclopedia, s.v. diarrhoea

[101]Stagg, Tea (xerox), 1451

[102]Stagg, Tea (xerox), 1354

[103]Stagg, Tea (xerox), 1451

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infections, typhoid, dysentery and cholera among them, are affected by tea. But the effects are not just on stomach infections; possibly plague, malaria, tooth decay, vascular and coronary disorder are also affected. The proposed way in which tea has some of these effects is summarized by Stagg. 'Bacterial infections (especially typhoid, paratyphoid, cholera and dysentery); (active principle) Polyphenols, especially gallocatechins, possibly synergising with caffeine; (proposed mode of action) Bacteriostatic action probably related to redox properties of flavonols; the diuretic action of caffeine may also be of value. Synergistic effects involving polyphenols and vitamin C also augment the resistance to bacterial and viral infections. Polyphenolic anti-haemorrhagic effects may also contribute to relief of cholera patients.'[104] Given all this evidence, Stagg believes that in relation to a decision to take Vitamin XXX (= tea) off the list of discovered vitamins 'some doubt must still surround the validity of the FDA decision since there is a large volume of self-consistent evidence supporting some **pharmacological** (as opposed to nutritional) action for polyphenols derived from natural sources, such as tea and buckwheat.'[105] He notes that 'The Soviet tea industry for example markets a therapeutic concentrate prepared from green tea leaf, and there are many claims for its efficacy in the literature. Finally, independent research performed outside the tea growing countries tends to confirm some of these claims.'[106]

If this account is basically correct, it helps to explain why a country as thickly populated as Japan suffered so little from enteric disease, in particular bacillary and amoebic dysentery. When the Japanese population were drinking tea they were also daily drinking pints of powerful antiseptic. We may note King's observation that all hygienic measures will fail to provide 'absolute safety' unless they have 'the equivalent effect of boiling water, long ago adopted by the Mongolian races, and which destroys active disease germs at the latest moment before using.'[107] The destruction of the germs at 'the latest moment before using' was doubly efficient because of the anti-septic content of that boiled water. Tea is probably 'after water, the world's most popular beverage,' being cheap, exhilarating and health-inducing.[108] Having conquered the third of the world's population that lived in China and Japan, it then began its next move, to Europe and ironically, by way of the British Empire, to India and beyond.

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[104]Stagg, Tea (xerox), Table 5

[105]Stagg, Tea (xerox), 1447

[106]Stagg, Tea (xerox), 1447/48

[107]King, Farmers, 323

[108]Marks, Clinical Effects, 707

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Tea in England.

We are told that 'The first cargoes of tea are thought to have arrived at Amsterdam in 1610...'[109] In France the new drink is not mentioned until the 1630's. Tea, we are told, was 'first served to the public in England in 1657', when it was drunk very weak, with sugar but without milk. It was 'brewed, kept in a cask, then drawn and warmed up for customers as they asked for it.'[110] Although this looks as if this was merely applying the storage method used for beef to the new drink, it is not so very different from the way in which it was preserved in Japan, though there it was brewed and usually kept warm.

At first tea was very expensive and hence a great luxury. Famously it was drunk by Mrs. Pepys, as Pepys recorded in his Diary on 25 September 1660; it was drunk partly for medicinal reasons as it was thought that it would be good for his wife's cough. When it first reached the London market 'it was sold for the remarkable price of £3-10s a pound.' Then 'the price dropped to about £2 in nine or ten years', when it became available in every coffee house. Yet it remained a luxury drink throughout the seventeenth and early eighteenth century. For instance, in Holland "...even in the 1660s when enough tea was being shipped by the East Indian Company to send the price plummeting from a hundred gilders a pound to ten, it remained too expensive to replace ale the drink of the people.'[111] In spite of a heavy tax imposed on it, the price was down to 20s. a pound. 'The importation was then about 20,000 lb. a year.' Ten years later, the 'figure was trebled.' 'In 1715 the market was flooded with Chinese green tea and in 1760 duty was paid on over five million pounds.'[112] We are told that the consumption did not 'become considerable until 1720-30 when direct trade between Europe and China began.' Before then, most tea had come by way of Batavia (Indonesia), carried by the Dutch.[113] By 1787, some 17,800,000 lib. was being imported in to England. This massive increase was noted by George Staunton, who estimated that in the century since 1693, there had been a four hundred fold increase in the export of tea from China.[114] Other figures suggest an increase from 4713 lb imported in 1678 by the East India Company,

[109]Braudel, Structures, 250

[110]Ferguson, Drink, 24

[111]Shama, Embarrassment, 171-2

[112]Drummond, Food, 203

[113]Bruadel, Structures, 250

[114]In Braudel, Structures, 251

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to 370,323 lb drunk in 1725; to 5,648,000 lb in 1775 to 23,730,150 lb in 1801.[115]

At the end of the eighteenth century it was estimated that 'more than a pound weight each, in the course of a year, for the individuals of all ranks, ages and sexes' was consumed.[116] Other estimates are higher than this. Others suggest that the average consumption was over 2 lib. per person per annum. Hobhouse estimates 2.5 lb per annum, per head.[117]. 'By the end of the century the amount imported was over twenty million pound, that is, about 2 lb. per head of the population.' But these were only the official figures. 'It was estimated that in 1766 as much reached England illegally as came through the proper channels.'[118] It is estimated that a pound of tea can make almost 300 cups.[119] Given the fact that all the population, including infants, were included, this would suggest that an adult, on average, was drinking at least two cups of tea a day. This is a lot less than the Japanese but still a large amount. Thus the chronology suggests an amazingly rapid growth from the 1730's onwards, with tea spreading through the whole population. Kames noted how even the poorest recipients of charity would drink tea twice a day.[120]

Interestingly, we are told, 'only a tiny part of Western Europe - Holland and England - had taken to the new drink on a large scale. France consumed a tenth of its own cargoes at the most, Germany preferred coffee, Spain hardly tried it.'[121] It was in these two Protestant, beer-drinking countries that the new drink took off.

As it spread, the argument about its virtues or possible dangers increased. A medical student defended a thesis on the virtues of tea in France in 1648, but 'Some of our doctors burned a copy of the thesis.' Ten years later, another thesis 'under the patronage of the Chancellor Seguier (who was himself

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[115]Chambers Encyclopedia, 'tea'

[116]Braudel, Structures, 251

[117]Hobhouse, Seeds (xerox), 114; Enc. Brit. s.v. 'tea'

[118]Drummond, 203

[119]Tannahill, Food, 268

[120]Kames, Sketches, 3, 83

[121]Braudel, Structures, 252

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a fervent tea addict) celebrated the virtues of the new drink.'[122] In Holland it was 'first recommended by moral physicians like Johannes van Helmons as a restorative against loss of body fluids from excessive sweating and purges.'[123] In England it was advertized as 'That excellent and by all Physicians approved, China drink, called by the Chineans, Tcha, by other Nations Tay or Tee', and was sold at the Sultans head near the Royal Exchange.[124] Thomas Trotter in his **View of the Nervous Temperament** argued that tea, as well as other commodities like coffee and tobacco 'had once been used as medicines, but had been reduced to necessities.'[125]

The comments of those opposed to tea suggests how widely tea drinking was spread. In 1744 Duncan Forbes wrote: 'But when the opening a Trade with the **East-Indies**...brought the Price of Tea...so low, that the **meanest** labouring Man could compass the Purchase of it', when connections with Sweden 'introduced the common Use of that Drug amongst the **lowest** of the People' even in Scotland, 'and when Tea and Punch became thus the **Diet** and **Debauch** of all the **Beer** and **Ale** Drinkers, the effects were very **suddenly** and very **severely** felt.'[126] This shows the widespread use of tea before 1744.

In 1751 Charles Deering published a book about Nottinghamshire. He wrote as follows: 'The People here are not without their Tea, Coffee and Chocolate, especially the first, the Use of which is spread to that Degree, that not only the Gentry and Wealthy Traders drink it constantly, but almost every Seamer, Sizer and Winder, will have her Tea and will enjoy herself over it in a Morning,...and even a Common Washerwoman thinks she had not had a proper Breakfast without Tea and hot buttered white Bread...being the other Day at a Grocers, I could not forbear looking earnestly and with some Degree of Indignation at a ragged and greasy Creature, who came into the Shop with two Children following her in as dismal a Plight as the Mother, asking for a Pennyworth of Tea and a Half pennyworth of Sugar, which when she was served with, she told the Shop-keeper: Mr. N. I do not know how it is with me, but I can assure you I would not desire to live, if I was to be debarred from drinking every Day a little Tea.'[127]

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[122]Braudel, Structures, 250

[123]Schama, Embarrassment, 171

[124]Ferguson, Drink, 24

[125]Porter, In Sickness, 220

[126]Drummond, Food, 204

[127]quoted in Marshall, English People, 172

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By the end of the century, Eden wrote 'Any person who will give himself the trouble of stepping into the cottages of Middlesex and Surrey at meal-times, will find, that, in poor families, tea is not only the usual beverage in the morning and evening, but is generally drank in large quantities at dinner.'[128] We are told that 'it was not uncommon for two pounds a year to be so spent when the total income was only a matter of forty pounds a year.' Arthur Young was surprised that 'the inmates of the Nacton House of Industry, who were allowed to spend 2d. out of every shilling they earned on food, almost invariably bought tea and sugar with this money.'[129] Jonas Hanway (An Essay on Tea by Mr Hxxxx,1757) asked 'When will this evil stop?', after pointing out that no less than four million pounds had been imported a year or so before he wrote 'Your very **Chambermaids** have lost their bloom, I suppose by **sipping tea**.'[130] Most historians have sided with him when he proclaimed 'What an **army** has **gin** and **tea** destroyed!' A more moderate approach was shown by the most popular of English doctors, Buchan. 'Much has been said on the ill effects of tea in diet. They are, no doubt, numerous; but they proceed rather from the imprudent use of it, than from any bad qualities in the tea itself.'[131] He continued that 'Good tea, taken in moderate quantity, not too strong, nor too hot, nor drank upon an empty stomach, will seldom do harm; but if it be bad, which is often the case, or substituted in the room of solid food, it must have many ill effects.'[132]

The argument about the virtues of tea needs further investigation, particularly in the light of the thesis that it may have contained a very beneficial ingredient. It was an essence or ingredient which people tried to extract. Mr Lawrence at his Toy Shop, in 1709 offered a 'Chimical Quintessence of Bohee-tea, and Cocoa Nuts, wherein the Volatile Salt, oil and spirit of them both, are chymically extracted and united.' Drummond thought he was merely seizing 'the opportunity of making money out of a gullible public by selling them the essential medicinal essence of tea.'[133] It would be ironic if it turns out that Mr. Lawrence was right.

[128]quoted in Drummond, Food, 240

[129]quoted in Drummond, Food, 204

[130]quoted in Drummond, Food, 204

[131]Buchan, Domestic, 66

[132]Buchan, Domestic, 66/67

[133]Drummond, Food, 205

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Conclusion

In Japan, the drinking of tea played a similar role to that of beer in England. It made it possible for even the poor to avoid unboiled water. Furthermore, tea contained a substance, often earlier called 'tannin', but in fact a mixture of polyphenols, which is a powerful disinfectant. This added to its health-giving effects. This may be one of the major reasons why as a dense and urbanized population managed to avoid most of the enteric diseases until the later nineteenth century. Nor was this an entirely unintended consequence, for the earliest writers on tea had been aware of its therapeutic and medicinal value.

These virtues were transferred to England from the early eighteenth century when the craze for tea began. Soon tea was taking over from beer as the national drink. There is not much evidence that it was drunk for its medicinal value, but its stimulating and pleasant effects and relative cheapness made it attractive. The health effects were largely an unintended consequence, but may have been dramatic.

One of the major features for the fall in mortality in the eighteenth century, according to Malthus and others, was the decline in dysentery. A major part of the explanation for this may have been tea-drinking, particularly among the poorer parts of the population. This may not only have affected the drinkers themselves. Just as we have become more aware of the indirect effects of 'passive smoking', so the fact that other members of the family, and particularly mothers, did not have dysentery probably helped to prevent their infants from suffering those most important of infant killers, infant and weanling diarrhoea. In the first decades of the nineteenth century, as the improvement in health began to become apparent, several authors suggested that perhaps the reason for improved health was tea-drinking. Blane wrote that '**Tea** is an article universally grateful to the British population and has to a certain extent supplanted intoxicating liquors in all ranks, to the great advantage of society...The modern use of tea has probably contributed to the longevity of the inhabitants of this country.'[134] Even more interestingly, the founder of the modern census, Rickman, in correspondence with d'Invernois in 1827, quietly wrote 'It is not for Mr. Rickman to assign causes of the decrease of mortality; if he might venture further than in the Preliminary Observations to the Census of 1811 and 1821...he would ascribe it to the general use of tea and sugar...'[135] Neither of them were in a position to see why this association should be there, beyond the replacement of 'intoxicating liquors'. We are now in a position to build on their insight.

Thus it may turn out that tea-drinking is the single most important health measure to have been introduced into England and Japan. The fact that within Europe England was the only major nation to make tea her national drink has added significance.

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[134]quoted in George, London, 329, note 103

[135](Minutes of Evidence, Population Bill Committee 1830) quoted in George, London, 329 note 103