

THE CONTROL OF FOOD

Obviously the question of food is at the heart of the question of famine, though the two are, curiously, rather often treated as separate. But food is of much wider importance in our discussion, since it influences almost every known human disease in some way or other. It is the most general background feature. Even when it does not directly cause ill health, it will powerfully affect mortality and morbidity rates because well fed populations can resist various micro-organisms better than badly fed ones. We are told that 'There is no doubt that malnutrition in man produces a severe defect in the function of the immune system.'¹ The reverse is also true. For instance, 'Countries where endemic diseases such as malaria occur, often show a general state of malnutrition, high infant and tuberculosis death rates; lethargy and weakness are often so pronounced as to slow down agricultural activities, and so further lower the nutritional state.'² The situation is made more complicated, however, by the finding that once one rises above extreme malnutrition, it is sometimes the case that, as reported in a famous Indian study, 'There was not much difference in death rates among mildly malnourished and well-nourished children; only among the severely malnourished did the risk of death rise sharply.'³

As an eighteenth-century aphorism put it 'The Means of preserving Life, which is Eating and Drinking, has destroy'd more Lives than ever did sword, Famine or Pestilence.'⁴ Or as an eighteenth-century doctor wrote, 'Unwholesome food, and irregularities in diet, occasion many diseases. There is no doubt but the whole constitution of the body may be changed by diet alone.'⁵ The view was also held by nineteenth-century doctors. Willis, an English doctor in mid-nineteenth-century Japan, wrote that 'In very many cases the enlightened doctor knows that it is not medicine so much as good food that is required to bring about the recovery of his patient.'⁶ A few years later another visitor to Japan widened

¹Poston, Immunity (xerox), 190

²Roberts, Hygiene, 344; for further discussion of the complex synergy between nutrition, disease and work, see Newman (ed.), Hunger in History, 356-8; Hunter, Tropical Medicine, pp.870-2; Mascie-Taylor (ed.), Disease (xerox), pp.44-56.

³Watkins, Nutrition, 220

⁴ Characters and Observations p.230

⁵ Buchan, Domestic, p.65

⁶ Cortazzi, Willis, p.182

the connection, writing that 'Sydney Smith condensed a volume of dietetic hygiene in his exact statement that "Some men dig their graves with their teeth". The complement of that is found in this: Disease enters by the mouth; or, the mouth is the door of disease.'⁷ George Orwell wrote that 'I think it could be plausibly argued that changes of diet are more important than changes of dynasty or even of religion.'⁸

The topic is of particular importance in this study. It has been suggested that changes in nutrition are the most likely explanation for the lowered mortality in eighteenth-century England. The thesis was most strikingly put forward by McKeown. Having eliminated all other possible causes, he was left with diet. He argued that the increase in food production in Britain, for instance, 'coincided with a substantial reduction of mortality from infectious diseases and, it is suggested, was the main reason for it.'⁹ The 'great increase in food production', from the end of the seventeenth century, 'toppled the balance in favour of the hosts and against micro-organisms which cause disease.'¹⁰

In principle, this is a plausible argument. We are told that 'McKeown's view that the economic advances which accompanied the industrial revolution eventually led to better nutrition, and that this progressively contributed to a reduction in the prevalence of infections, is epidemiologically sound.'¹¹ But is it historically correct? There are strong counter-arguments. A recent survey and summary of the argument doubts that nutrition is the key. Mercer concludes that 'There is little evidence from indicators of economic standard of living or food consumption per head that improvements in general levels of nutrition occurred in conjunction with the early phases of the mortality transition in England, or in Europe generally.'¹² He further argues that 'even if food supplies became more regular there is little direct evidence concerning any increase in food consumption per head in the eighteenth century, although some estimates are available for the nineteenth century.'¹³ There is 'little firm evidence that the average diet improved dramatically when mortality declined quite sharply and changes in normal levels of food

⁷ Griffis, Mikado

⁸ Orwell, *The Road to Wigan Pier*, quoted in Appleby, *Diet (xerox)*, p.3

⁹ McKeown, *Modern Rise*, p.142

¹⁰ McKeown, *Rise*, p.161

¹¹ Taylor, *Infections*, p.486

¹² Mercer, *Transition*, p.169

¹³ Mercer, *Transition*, p.35

consumption were probably not a key factor in the mortality transition in Europe.¹⁴ Others have pointed out that 'We would expect, if food supply was the crucial variable, mortality reductions to be concentrated almost exclusively amongst the poorer sections of the community. Wealthy groups such as the aristocracy should be unaffected if the food supply hypothesis were true, yet one of the most consistent conclusions of recent historical demographic work is that there were marked reductions in mortality in just such groups as the aristocracy.'¹⁵

Given the complexity of the relations between health and nutrition, it is worth looking at the question in a little more detail, especially since other economic historians have also argued for an improvement in nutrition in the eighteenth century,¹⁶ and Malthus implied that a 'more equable distribution of products of the soil' may have been one factor behind the decline of 'plagues, violent diseases and famines.'¹⁷ Furthermore, that diet may be important is suggested in a recent survey by Richard Smith; 'It is generally agreed that these lower elasticities of deaths in England prior to 1750 are to be explained by a better-balanced and perhaps more substantial diet, and a greater choice of substitutes for wheat...'¹⁸

Food in England.

If we stand back and look at food in western Europe over the five hundred years leading up to the industrial revolution, the first fact that strikes us is the generally favourable position of the majority of the population when compared to non-European peoples. The point has been made in many different ways. In 1959 Krause pointed out that 'Materials for Sweden, Ireland and England show that these pre-industrial western peoples had relatively adequate diets, diets which were far superior to those of the presently less developed countries.'¹⁹ A little later Hajnal wrote that Europe's population in the eighteenth century 'has better housing, better clothing, a greater variety of food etc. This uniqueness of Europe, so evident to contemporaries, has been largely ignored in recent discussion of economic

¹⁴Mercer, *Transition*, p.152; Razzell, *Essays (xerox)*, p.157 comes to the same conclusion

¹⁵Razzell, *Essays (xerox)*, 152

¹⁶ Habakkuk, *Population in History*, p.283

¹⁷ Malthus, *Population*, 1, p.315

¹⁸ Smith, *Demography*, p.1676

¹⁹ *Neglected Factors*, p.535

development: all that is pre-industrial including the eighteenth century is often lumped together and generalized about "agricultural" or "peasant" or "underdeveloped"...²⁰ It was not just true in the eighteenth century. As John Hall writes of western Europe, 'the diet of the medieval peasant may seem terrible to our eyes, but it was significantly better than that of the other pre-agrarian civilizations.'²¹ Europe's privileged position in comparison to Asia is documented in some detail by Braudel.²²

While the whole of the west European population seems, on average, to have had a more varied, protein and vitamin rich, diet than Asia, the extreme case was north-west Europe. As Braudel writes, 'Northern Europe was characterized by a larger consumption of meat, and southern Europe by a larger consumption of carbohydrates.'²³ An interesting, if very preliminary, calorific map of Europe tends to support this view.²⁴ Even within Northern Europe, however, there were great differences. There were countries such as Scotland or Ireland which were relatively less favoured. Even the Scandinavian countries had difficulties. For example, Malthus noted that 'The sickly periods in Sweden, which have retarded the rate of its increase in population, appear in general to have arisen from the unwholesome nourishment occasioned by severe want. And this want has been caused by unfavourable seasons, falling upon a country which was without any reserve store, either in its general exports or in the liberal division of food to the labourer in common years.'²⁵ There were, however, two areas where the diet seems to have been outstanding. One was the Netherlands and particularly Holland, the other was England. In Holland, for instance, even ordinary workers had a good meat diet in the most difficult years. Thus Schama describes how 'travellers often commented on the surprising variety of the labouring people's diet. A century later, Diderot was still amazed to see workers in the towns, **boers** in the countryside and fisherfolk eating fresh and cured meat and fish, fresh vegetables and fruit, butter, eggs and cheese, as a matter of weekly routine.'²⁶ People were equally amazed at the rich diet of the English

²⁰ Hajnal, Marriage Pattern, p.131

²¹ Hall, Powers and Liberties, p.123

²²Braudel, Capitalism ch.2 esp. p.133-35; see also Flinn, European (xerox), 97. The evidence presented below suggests that Fogel's pessimistic conclusions about the low level of nutrition and hence inability to work are overstated (see Fogel, Economic (xerox), p.4,6,23)

²³ Braudel, Capitalism, p.89

²⁴ *ibid*, p.88

²⁵ Malthus, Population, 1, p.174

through the centuries.

(This next section could be summarized or put into an appendix.)

In order to gain an overview, we can start by looking at what the English themselves thought. The relative ampleness of English diet is recorded from at least the thirteenth century and could no doubt be found earlier. In the middle of the thirteenth century, the English Franciscan Bartholomaeus Anglicus included a description of England in his massive encyclopaedia. He believed that England was 'the plenteousest corner of the world, full rich a land...England is full of mirth and of game...'²⁷ In the fourteenth century the **Polychronicon** of Ranulf Higden gives a similar picture, containing a 'paeon to British resources'.²⁸ In the middle of the fifteenth century, Sir John Fortescue, exiled for many years to France, commented on the difference between that country and England. In France, among the rural inhabitants 'Neither man nor women eat any flesh there, but only lard or bacon, with a small quantity whereof they fatten their potage and broths. As for roasted or sodden meat of flesh they taste none, except it be of the innards sometimes and heads of beasts that be killed for gentlemen and merchants.'²⁹ In England, on the other hand, 'They eat plentifully of all kinds of fish and flesh.'³⁰ He believed that 'In deed England is so fertile and fruitful, that comparing quantity to quantity, it surmounteth all other lands in fruitfulness...the lands, the fields, the groves and the woods do so abundantly spring, that the same untilled do commonly yield to their owners more profit than tilled, though else they be most fruitful of corn and grain.'³¹

John Aylmer, later Bishop of London, who was living in exile on the continent, published a tract in 1559 in which he compared the standard of living in various European countries. Addressing his fellow Englishmen, he told them that 'In Italy...the husbandmen...cometh to the market with a hen or two in one hand, and a dozen eggs in a net in the other, which being sold and told, he buyeth and carrieth home with him, no Beef or Mutton, Veal, or sea fish, as you do: but a quart of oil to make salads of herbs,

²⁶ Schama, *Embarrassment*, p.169, 170-74

²⁷ *On The Propertis of Things*, ii, p.734

²⁸ Preface to Harrison, *Description of England*, p.xviii

²⁹ *Commendation*, fols. 81-81v

³⁰ *id*, 85-85v

³¹ *ibid*, fols. 65v,66

wherewith he liveth all the week following. And in Germany though they be in some better case than the other: yet eat they more roots than flesh...Now compare them with thee: and thou shalt see how happy thou art. They eat herbs: and thou Beef and Mutton, They eat roots: and thou butter, cheese, and eggs...They go from the market with a salad: and thou with good flesh fill thy wallet. They lightly never see any sea fish: and thou hast thy belly full of it.³²

Fynes Moryson travelled around Europe in 1605-17 and made a dietary survey. He found 'the diet of the Germans is simple, and very modest, if you set aside their intemperate drinking.'³³ The people of the Netherlands had an extremely rich diet of butter, milk, meat and other products.³⁴ In Denmark the ordinary people 'feed much on divers kinds of dried fishes', which he thought led to their 'leane and withered faces' and they 'likewise feede on bread very black, heavy and windy.'³⁵ In general in diet 'they are much like the Germans.' Some Italians ate well and others badly. On the whole, however, 'The Italians generally compared with English or French, are most sparing in their diet.'³⁶ They were 'not so great flesh-eaters as the Northerne men', but ate a lot of bread and salads. Likewise 'For their dyet, the Turkes live sparingly.'³⁷ France abounded with many foodstuffs, yet the common people had very little good food. 'At this day none eate lesse Bacon or dried flesh for ordinary diet, than the French.' There were many fish and wild animals, but the 'countray people neither do nor may eate them. Their Beef is neither very good, nor much used. Their Sheep are lesse than ours in England', though sweet. 'They use not much whitemeats, nor have I tasted there any good Butter...' Even the wealthier lived less well than the English. 'As well the Gentlemen as Citizens live more sparingly than the English in their ordinary private diet, and have not their Tables so furnished with variety and number of dishes.'³⁸ The Scots 'eate much red Colewort and Cabbage, but little fresh meate and a lot of porredge.'³⁹ In Ireland, the

³² Orwell, *Pamphleteer*, i, p.29-33

³³ Moryson, iv, p.24

³⁴ Moryson, iv, p.59

³⁵ Moryson, iv, p.67

³⁶ Moryson, iv, p.93

³⁷ Moryson, iv, p.125

³⁸ Moryson, iv, p.140-41

³⁹ Moryson, iv, p.183

'English-Irish' lived well, but the 'meere Irish' lived on what he considered a filthy, if nutritious diet including horse meat, oats and even the blood from living cattle.

As for the English, he believed they had an excellent diet. 'At this day the English inhabitants eate almost no flesh more than Hennes, and for Geese they eate them at two seasons...They had also great plenty of Connies (rabbits)...' The English have 'abundance of Whitemeats⁴⁰, of all Kinds of Flesh, Fowle, and Fish, and of all things good for foods.' They also had many delicacies which were rare or not known abroad, oysters, many sea birds, fallow deer, brawn. As for grains 'The English Husbandmen eate Barley and Rye browne bread, and preferre it to white bread as abiding longer in the stomach, and not so soone digested with their labour, but Citizens and Gentlemen eate most pure white bread, England yeelding (as I have said) all kinds of Corne in plenty.'

As a result of the abundance of food, the English were thought to be the gluttons of Europe, a charge which Moryson was keen to refute. He had to admit that 'the said abundance and the riches vulgarly increased, and the old custome of the English, make our tables plentifully furnished, where upon other Nations esteeme us gluttons and devourers of flesh', but argued that often the food was for 'strangers and reliefe of the poor.' He had to 'confesse, that the English custome, first to serve grosse meates, on which hunger spares not to feede, and then to serve dainties, which invite to eate without hunger, as likewise the longe sitting and discoursing at tables, which makes men unawares eate more, than the Italians can doe at their solitary tables, these things (I say) give us just cause to cry with Socrates, God deliver mee from meates, that invite to eate beyond hunger.' He was also eager to refute the slander that the English not only ate huge amounts, but ate four meals a day. He claimed that 'the Italian Sansovine is much deceived, writing, that in generall the English eate and cover the table at least foure times in the day; for howsoever those that journey, and some sickly men staying at home, may perhaps take a small breakfast, yet in generall the English eate but two meales (of dinner and supper) each day, and I could never see him that useth to eate foure times in the day.' He argued that pound for pound the Italians ate as much as the English, even if it was somewhat inferior food. 'And I will professe for my selfe and other Englishmen, passing through Italy so famous for temperance, that wee often observed, that howsoever wee might have a Pullet and some flesh prepared for us, eating it with a moderate proportion of bread, the Italians at the same time, with a Charger full of hearbs for a sallet, and with rootes, and like meates of small price, would each of them eate two or three penny-worth of bread. And since all fulnesse is ill, and that of bread worst, I thinke wee were more temperate in our dyet, though eating more flesh, then they eating so much more bread then wee did.' Yet again he had to admit that 'It is true that the English prepare largely for ordinarie dyet for themselves and their friendes comming by chance, and at feastes for invited friendes are so excessive in the number of dishes, as the table is not thought well furnished, except they stand one upon another. Neither use they to set drinke on the Table, for which no roome is left, but the Cuppes and Glasses are served in upon a side table...'⁴¹

⁴⁰Whitemeats: butter, cheese and other milk products.

⁴¹ Moryson, *Itinerary*, iv, p.171-74

The reputation of the English as comparatively well fed continued into the eighteenth century. Satirical prints, for example showed the fat, roast-beef stuffed English countrymen and the thin, wasted, herbivorous Frenchmen.⁴² Arthur Young, we are told 'represents the labouring classes of France, just at the commencement of the revolution, as "76 per cent worse fed, worse clothed, and worse supported, both in sickness and health, than the same classes in England".⁴³

Although the evidence is consistent and fits with what we know about the productivity of English agriculture, the general wealth of the people, and the lightness of the population, we might be tempted to dismiss much of this as chauvinistic propaganda about John Bull's island of roast beef and the wheaten loaf. Yet it is supported by the comment of outsiders. Andrew Trevisano as an Ambassador to the court of King Henry VII in the later fifteenth century wrote a report home for his government. It was not written as propaganda or for a literary market and there is no reason for this acute observer to exaggerate. Coming as he did from one of the richest parts of Europe, Venice, and with the cultured background and contacts which later made him Pope, he was nevertheless impressed. He wrote that 'the riches of England are greater than those of any other country in Europe, as I have been told by one of the oldest and most experienced merchants, and also as I myself can vouch from what I have seen.' He believed that this was partly due to the 'great fertility of the soil', as well as to the tin and wool trade. Whatever the cause, 'everyone who makes a tour in the island will soon become aware of this great wealth.' Thus there is no small innkeeper, however poor and humble he may be, who does not serve his table with silver dishes and drinking cups... Even when engaged in war, the people 'will seek for good eating, and all their other comforts, without thinking of what harm might befall them.'⁴⁴

In 1560 the Dutch physician Levinus Lemnius wrote that he travelled in 'that flourishing Island' of England to see the fashions of that 'wealthy Country.' He was struck by the 'exquisite fineness, the pleasant and delightful furniture in every point of the household' and the 'wholesome and exquisite meat.' He noted 'the fruitfulness of their ground and soil...their great herds and flocks of cattle...'⁴⁵ A little later, Emmanuel van Meteren, an Antwerp merchant who lived in London throughout the reign of Elizabeth and travelled through the whole of England and Ireland was equally impressed. He noted that the English 'feed well and delicately, and eat a great deal of meat...'⁴⁶ Paul Hentzner, from Brandenburg,

⁴² Duffy, *Englishman and Foreigner*, p.39,47,48,74,75,95

⁴³ Malthus, *Population*, 1, p.230-31

⁴⁴ *Italian Relation*, p.22ff

⁴⁵ Rye, *Foreigners*, p.78-80

⁴⁶ Rye, *Foreigners*, p.70-1

visited England in the 1590s and noted the great wealth: 'the soil is fruitful and abounds with cattle', and upon the hills 'wander numerous flocks' of sheep. He noted that compared to the French the inhabitants ate 'less bread but more meat, which they roast in perfection; they put a great deal of sugar in their drink...'⁴⁷

In the early eighteenth century, the Swiss traveller De Saussure noted of London, 'In these markets an abundance of every kind of salt and fresh water fish is to be found; also vegetables and poultry of every description.'⁴⁸ He wrote that 'English people are large eaters; they prefer meat to bread, some people scarcely touching the latter. The cooking is simple and uniform, stews are seldom served, and they do not roast or boil their meats as much as we do, which makes it, I think, more succulent and delicate, thereby giving it a better taste.'⁴⁹ As for dairy products, 'Outside the town you scarcely see anything but large, fine pastures, where all the year round thousands of cows graze and give an abundance of milk. English people consume of great quantity of dairy produce; they are very fond of cream, milk and butter.'⁵⁰ Butter was particularly important, for 'English people consume a great deal of butter, and they do not know how to prepare fish and vegetables except with this ingredient melted.'⁵¹ Fruit and vegetables were also in abundance. 'Around London there are numerous fine large gardens, all belonging to gardeners who grow vegetables of every kind and flowers and fruit trees.'⁵² La Rochefoucauld noted that 'The consumption of meat is much greater in England than in any other country whatever; the whole nation eats it and the Englishman, generally speaking, is a flesh-eater.'⁵³

At the end of the eighteenth century, Henry Meister wrote that 'I do not impose upon you when I say that...the English labourer is better clothed, better fed, and better lodged than the French...'⁵⁴ Earlier

⁴⁷ Rye, *Foreigners*, p.110

⁴⁸ De Saussure, *Foreign*, p.171

⁴⁹ De Saussure, *Foreign*, p.221

⁵⁰ De Saussure, *Foreign*, p.133

⁵¹ De Saussure, *Foreign*, p.222

⁵² De Saussure, *Foreign*, p.137

⁵³ La Rochefoucauld, *Frenchman*, p.204

⁵⁴ quoted in Marshall, *People*, p.160

Adam Smith wrote, 'The common people in Scotland, who are fed with oatmeal, are in general neither so strong nor so handsome as the same rank of people in England, who are fed with wheaten bread. They neither work so well, nor look so well...'⁵⁵ The difference in bread and meat consumption which had earlier been constantly noted, was reported by the Scottish political economist, Dugald Stewart. In France, 'bread is said to form nineteen parts in twenty of their food' whereas 'in England, on the contrary, the quantity of meat, and of the produce of the dairy consumed by all ranks, is immense.'⁵⁶ The same contrast was noted in the middle of the nineteenth century by Taine. 'The fresh green grass, incessantly reborn, springs everywhere superabundant. Translate it into meat and dairy produce and compare that to the bread, wine and vegetables which form the principal food of our own peasantry. In this respect and many others the English are much more like the Dutch than the French.'⁵⁷

(end of appendix...)

If we turn to other sources, we find that medieval English diet, in a country with relatively low population and abundance of livestock, was probably good, though the difficulty of preserving meat and a shortage of certain types of vegetable may have limited its range. Descriptions of medieval foodstuffs, suggests an ample diet for most people.⁵⁸ Chaucer's pilgrims and the stories they told suggest a well-fed populace. The economic historian Thorold Rogers wrote that 'From the earliest times the staple food of the English people has been wheaten bread. Wheat is the costliest, and on the whole the most precarious of our corn crops.'⁵⁹ Drummond notes a relatively good diet, with apparent improvements after the Black Death.⁶⁰

Christopher Dyer has recently provided a detailed analysis of the diet of medieval English 'peasants'

⁵⁵ Smith, *Wealth*, i, p.179

⁵⁶ Stewart, *Works*, viii, p.106

⁵⁷ Taine, *Notes*, p.127

⁵⁸ Bennett, *Pastons*, p.57ff; Power, *Goodman*, p.228; Benett, *Manor*, p.235-36; Wright, *Domestic Manners*, ch.xiii; Britton, *Community of Vill*. p.158ff

⁵⁹ Rogers, *Industrial*, 1, p.59 cf also *Six Centuries*, p.59

⁶⁰ Drummond, *Food*, ch.III

between the thirteenth and fifteenth centuries.⁶¹ He shows that it is a myth that there was no fresh meat available in the winter.⁶² There was, in fact, a very high meat consumption. For example, looking at the diet of harvest workers, by 1400 the meat allowance was nearly a pound per person per day, not counting extra offal.⁶³ He describes the situation as shown in one set of documents thus. The Sedgeford records 'give a picture of harvest workers and their dependents of the thirteenth century sitting down to heavy meals of barley bread and cheese, accompanied by a little salt meat or preserved fish, with ale, milk and water to drink. Their successors of the fifteenth century were issued with ample quantities of wheat bread, nearly a gallon of ale per day, and (except on fast days), large portions of fresh meat.'⁶⁴ The house of a particular fifteenth century peasant' was 'stuffed with bacon, dairy produce, malt, salt-beef onions and garlic...'⁶⁵ Kitchen gardens growing an assortment of vegetables were widespread in medieval villages.⁶⁶

There may well have been a number of improvements in the sixteenth century, for instance with the introduction of new fruits and vegetables and, as they spread, potatoes and maize, which Adam Smith was to describe as 'the two most important improvements which the agriculture of Europe, perhaps, which Europe itself, has received from the great extension of its commerce and navigation.'⁶⁷

The situation in the sixteenth century is well described by a number of authors. Doctors took a particular interest in health and gave detailed instructions on a balanced diet which suggests there was plenty of foodstuffs available.⁶⁸ Stubbes castigated his fellow countrymen, for 'nowe a dayes, if the table

⁶¹Dyer, *Everyday Life*, chs.5-7.

⁶²Diet, 193.

⁶³Everyday, .p.86.

⁶⁴Everyday Life, 87; see also p.91

⁶⁵ Dyer, *Diet*, 210.

⁶⁶Dyer, *Everyday*, pp.113-4,116,121,126,128-30.

⁶⁷ *Wealth*, i, p.268

⁶⁸ Cogan, *Haven*, p.3ff; Bulleyn, *Government*, p.xxxvff; Boorde, *Regiment*, p.258ff

be not covered from one ende to the other, as thicke as one dish can stand by an other, with delicate meate of sundrie sorts, one cleane different from another, and to euerie dishe a seuerall sawce appropriate to hys kinds, it is thought there unworthy the name of a dinner!' Course followed course, dainty after dainty. People were becoming more and more gluttonous, Stubbes argued. In the previous generation, things were different. 'Oh, farewell, former worlde! For I haue heard my father say, that in his dayes one dishe or two of good wholsome meate was thought sufficient for a man of great worshippe to dine withall, and if they had three or foure kinds, it was reputed a sumptuous feast. A good peece of beefe was thought then good meate, and able for the best, but nowe, it is thought too grosse for their tender stomackes to digest.' Now people ate far more, which led to many vices. Gluttony was one of the three 'devouring cankers' of the English.

There is plenty of other evidence of a rich diet. In the **Description of England**, written in the mid-sixteenth century, conscious of the accusations of gluttony against the English Harrison started his chapter by explaining that 'The situation of our region, lying near unto the north, doth cause the heat of our stomachs to be of somewhat greater force; therefore our bodies do crave a little more ample nourishment than the inhabitants of the hotter regions are accustomed withal, whose digestive force is not altogether so vehement...' It was 'no marvel therefore that our tables are oftentimes more plentifully garnished than those of other nations, and this trade hath continued with us since the very beginning.' 'White meat', or milk, butter and cheese, which were 'wont to be accounted of as one of the chief stays throughout the island, are now reputed as food appertinent only to the inferior sort, whilst such as are more wealthy do feed upon the flesh of all kinds of cattle accustomed to be eaten, all sorts of fish taken upon our coasts and in our fresh rivers, and such diversity of wild and tame fowls as are either bred in our island or brought over unto us from other countries of the main.' The nobility, he thought ate a large amount of all sorts of meat. 'In number of dishes and change of meat, the nobility of England (whose cooks are for the most part musical-headed French men and strangers) do most exceed, sith there is no day in manner that passeth over their heads wherein they have not only beef, mutton, veal, lamb, kid, pork, cony, capon, pig, or so many of these as the season yieldeth, but also some portion of the red or fallow deer, beside great variety of fish and wild fowl, and thereto sundry other delicates!' He thought that 'the gentlemen and merchants keep about one rate, and each of them contenteth himself with four, five, or six dishes when they have but small resort, or peradventure with one or two or three at the most when they have no strangers to accompany them at their tables.'

As for artisans and husbandmen, they 'make greatest account of such meat as they may soonest come by and have it quickliest ready, except it be in London when the companies of every trade do meet on their quarter days, at which time they be nothing inferior to the nobility. Their food also consisteth principally in beef and such meat as the butcher selleth, that is to say, mutton, veal, lamb, pork, etc. whereof the artificer findeth great store in the markets adjoining, beside souse, brawn, bacon, fruit, pies of fruit, fowls of sundry sorts, cheese, butter, eggs, etc...'

This was the everyday fare of ordinary workmen. As for special occasions, 'in feasting also this latter sort (I mean the husbandmen) do exceed after their manner, especially at bride-ales, purifications of women, and such odd meetings, where it is incredible to tell what meat is consumed and spent, each one bringing such a dish or so many with him as his wife and he do consult upon, but always with this

consideration, the liefer (derer) friend shall have the better provision.'

Bread was the staple food. 'The bread throughout the land is made of such grain as the soil yieldeth; nevertheless, the gentility commonly provide themselves sufficiently of wheat for their own tables, whilst their household and poor neighbors in some shires are enforced to content themselves with rye or barley, yea, and in time of dearth, many with bread made either of beans, peason (peas), or oats, or of all together and some acorns among, of which scourge the poorest do soonest taste, sith they are least able to provide themselves of better.' Normally beans, peas, oats, tares, lentils and the like were fed to horses, being known as 'horse corn'.

There were various kinds of bread made from wheat. The 'first and most excellent is the manchet', which was only eaten by the nobility and gentry, the second best was 'the cheat, or wheaten bread', which was grey or yellowish, 'being clean and well dressed.' The 'ravelled cheat' was inferior, containing 'more of the gross and less of the pure substance of the wheat'. Then there were two types of brown bread, of a superior and inferior quality. In arable areas 'much rye and barley bread is eaten, but especially where wheat is scant and geason (rare).'⁶⁹

From these accounts, it would seem that by the middle of the sixteenth century, and probably much earlier, the English diet was very rich. Even in charitable institutions such as St. Bartholomew's hospital or in the House of Correction, meat and beer, fish and milk products were served daily.⁷⁰ The evidence after this time is mixed. It is clear that as agricultural productivity rose the last hint of famine and even dearth cleared away and the population were, on the whole, reasonably fed. The substantial meals and good diet of the yeomen class, for instance, is described by Campbell.⁷¹ Although he was trying to make the opposite point, Petty's description of the diet of an artisan in the second half of the seventeenth century, as consisting 'chiefly of bread and cheese, neck beef and "inwards" twice a week, stale fish, old peace without butter'⁷² would have been attractive to many protein starved populations before the twentieth century. Gilbert White writing in 1778, noted various improvements. 'The plenty of good wheaten bread that is now found among all ranks of people in the south, instead of that miserable sort which used in the old days to be made of barley or beans...' He believed that 'Every decent labourer also has his garden, which is half his support, as well as his delight; and common farmers provide plenty of beans, peas, and greens, for their hinds to eat with their bacon.'⁷³ On the other hand, Cobbett thought

⁶⁹ Harrison, Description, p.129-135

⁷⁰ Drummond, Englishman's Food, 56

⁷¹ Campbell, Yeoman, 244-250

⁷² Marshall, p.170

that conditions had deteriorated from a high level in the 1760s, to the present days of 'slavery, of rags, and of hunger' in the 1830s. He wrote that 'When I was a boy I never knew a labouring man...go out to his work in the morning without a bottle of beer and a satchel of victuals, containing cheese, if not bacon, hung upon his crook.'⁷⁴

In the later eighteenth century Arthur Young outlined what he thought would be a suitable diet for a labouring man. 'On the first day he was to eat two pounds of bread made of a mixture of wheat, rye and potato, two ounces of cheese and two pints of beer. Next day he was to have three messes of soup made of lean beef, peas, mealy potatoes, ground rice, onions, celery and salt and water. A rice pudding made of skim milk was the fare for the third day. On the fourth he was permitted a quarter of a pound of fat beef and one and a quarter pounds of potatoes baked together, and some beer. Rice pudding reappeared on the fifth day and bread, cheese and beer on the sixth, while on Sunday he was again allowed to feast on fat beef, potatoes, beer and cheese.'⁷⁵

One revealing source is the enquiry by Sir F. Eden into the state of the poor. Looked at from our present perspective, these suggest, as Marshall concludes, that 'the ordinary labourer would depend on his wages to procure no more than the barest living, bread, cheese and weak tea being his staple diet, as the pathetic budgets that Eden and Davies collected testify.'⁷⁶ On the other hand, relative to the condition of most labouring populations, this low point in English dietary history, and at the very poorest level, could be interpreted in a more positive manner. As Krause summarizes the situation, 'the incomplete data for the English poor in a harsh year reveal a per capita consumption of dairy goods which was about twice as great as the estimated India per capita production in 1940. Then, of the 31 families for which Eden has detailed information, 27 families had meat or fish included in their diets, sometimes in sizable quantities. Of the four families without any meat listed in their budgets, three of the men were given some victuals by their employers and thus may have had meat. One curious feature of the budgets is that nowhere is there any mention of fowl or eggs. It is not impossible that many of the families supplied these foods by 'home production'.⁷⁷

⁷³ Marshall, p.171

⁷⁴ Cobbett, Progress, p.9

⁷⁵ Young, Letters (quoted in Marshall, People, p.173)

⁷⁶ Marshall, English People, p.173

⁷⁷ Krause, Neglected, p.535-6. Shamas, Consumption, p.134ff, estimates that this gave 2500-3000 calories per person per day, on average.

Although it is not difficult to show that the English were better fed than many people in contemporary Asia and Africa population, it is not easy to know whether the diet was nutritionally satisfactory. Most believe that the foodstuffs of the wealthier were more than adequate. For instance, Appleby concludes that 'By all accounts the food of the well-to-do was both varied and plentiful through the sixteenth century, probably becoming somewhat richer and more elaborate towards the end of the century.'⁷⁸ Such people 'enjoyed a varied diet, with adequate amounts of fruit and, at least by the end of the century, vegetables.'⁷⁹ The problems were ones of over-eating, and too much meat eating. Anaemia due to a disdain for vegetables, constipation, the stone, these were the problems of the rich according to Keith Thomas.⁸⁰

As for the poor, Appleby believes their diet grew worse in the sixteenth century. He believes 'price data gives a general picture of an erosion in the diet throughout the sixteenth century. Apparently there was a switch away from wheat to the lower-priced and less-desired grains.'⁸¹ Yet he admits that 'with our limited knowledge it is very difficult to say whether these people had a qualitatively adequate diet. Did they, for example, eat enough fruits, vegetables or seasoning herbs that contained vitamin C, to ward off scurvy? It is impossible to say.'⁸² Thomas believed that the poor in the seventeenth century were 'chronically under-nourished and vulnerable to tuberculosis and gastric upsets... caused by bad food.'⁸³ His sources for this view were Drummond's book and a piece by Everitt on farm labourers in the sixteenth and seventeenth centuries. What does Everitt in fact say?

Everitt writes that labourers' diet varied regionally. 'The staple articles of his diet were bread, pies and puddings.' The bread was usually made from barley, 'occasionally from oats, wheat and rye.' Occasionally they were forced to mix buck wheat with their barley-flour, though Justices in 1623 said they had not formerly been 'acquainted with (it) and therefore show much loathness to use (it).' Because of their dependence on market purchase, 'When prices rose...they were often reduced to extreme

⁷⁸ Appleby, Diet (xerox) p.101

⁷⁹ Appleby, Diet (xerox), p.101

⁸⁰ Thomas, Religion, p.6-7

⁸¹ Appleby, Diet (xerox) p.110

⁸² Appleby, Diet (xerox), p.104

⁸³ Thomas, Religion, p.7

misery.' This remark is partly based on William Harrison's account, which we have already quoted. Cheese was widely eaten. 'Even the tin-miners of Devon, the poorest of the poor, reckoned some kind of hard cheese in their diet. With butter and lard, cheese 'probably formed the only fat and protein element in the poorer farmworkers' meals.' But Everitt then proceeds to explain that 'Though few labourers kept pigs of their own, many had fletches of bacon hanging in their roof or chimney...Beef was eaten by labourers who fed at the master's table, but in the inventories of out-labourers it is rarely mentioned.' Everitt admits, however, that they would be unlikely to have meat in such large pieces as to be listed in an inventory. Vegetables and herbs 'were commonly grown in cottage gardens.' There was a lot of wild life and wild fruits and nuts and 'rural labourers profited accordingly. 'Even the poor had a good deal of milk or ale and beer to drink, all of them nourishing in their way.'⁸⁴ If we allow for the distortion created by inventories, which do not list small quantities of daily foodstuffs, the picture is hardly one of total misery. Reasonable bread, widespread use of butter, cheese, milk, some meat and plentiful vegetables, beer and ale.

From this preliminary survey we may draw a few tentative conclusions. As Appleby suggested, 'By continental standards the food eaten by the English was plentiful, with far more meat than was customary across the Channel.'⁸⁵ Meat eating was widespread in the sixteenth century and there is evidence that while the very poor may have been edged out of meat-eating at times, the production and storage of meat increased throughout the period. In the later half of the seventeenth century, King estimated that half the population only ate meat once a week or less.⁸⁶ But Kames noted an improvement by the middle of the eighteenth century. 'There is also a remarkable alteration in point of diet. Formerly, people of rank lived on salt meat the greater part of the year: at present, fresh meat is common all the year round. Pot-herbs and roots are now a considerable article of food: about London, in particular, the consumption at the Revolution was not the sixteth part of what it is now.'⁸⁷ The development of new fodder crops made it possible to keep animals alive through the winter, hence the fresh meat. Likewise Malthus at the end of the century believed, that 'The price of provisions has risen, but almost invariably the price of labour has risen in a greater proportion; and it is remarked in most parishes that more is consumed among the common people than formerly.'⁸⁸

⁸⁴ Everitt, *Cambridge Agrarian History*, iv, p.450-53

⁸⁵ Appleby, *Diet* (xerox), p.102

⁸⁶ cited in Macaulay, *History*, i, p.316 note

⁸⁷ Kames, *Sketches*, 1, p.245

⁸⁸ Malthus, *Population*, 1, p.268

The relative affluence of the English is well shown by Shammass. She points out that in 'traditional' societies, something like 80% of disposable income is spent on food, whereas nowadays the figures stand at between 20 and 33%. In pre-industrial England, the figures were about 50%, half way between.⁸⁹ For instance, using wage assessments for the period 1420-1780, she found that labourers spent 43-55% of their wages on food, while master carpenters spent 3???-48%.⁹⁰ Interestingly, there was no particular trend in these proportions over the period.⁹¹

Too much meat eating, of course, is as dangerous to health as an absence of protein. As Buchan commented 'No people in the world eat such quantities of animal food as the English, which is one reason why they are so generally tainted with the scurvy and its numerous train of consequences, indigestion, low spirits, hypochondricism, etc.'⁹² Certainly the amounts eaten were huge. In 1778 a Spanish visitor commented that 'more meat is sold in a month (in Leadenhall market, London) than is eaten in the whole of Spain during a year...'⁹³ and the tradition continued. The consumption in the new cities was immense. Chadwick stated that 'From a return obtained in 1836 and presented to the Manchester Statistical Society, of the cattle passing the toll-gates and the meat sold in the markets, it appeared that the consumption exclusively amongst this population could not be less than 105 lbs each person annually, man, woman and child or 450 lbs yearly per family of butcher's meat alone, exclusively of bacon, pork, fish and poultry.'⁹⁴ It may be, however, that the consumption of meat, which had risen to a very high level between the fifteenth and seventeenth centuries, had begun to decline among the poorer groups from the early eighteenth century, as Shammass argues.⁹⁵

The other major supply of protein, namely dairy products or 'white meat' was also very large. English pasturage and the light population led to a land flowing with milk and butter. As Harrison wrote in the sixteenth century, 'The pasture of this island is according to the nature, and county of the soil, whereby

⁸⁹Shammass, *Consumer*, pp.123ff.

⁹⁰Shammass, *Consumer*, 128.

⁹¹ See the table in shammass, p.124.

⁹² Buchan, *Domestic*, p.65

⁹³ Braudel, *Capitalsim*, p.131

⁹⁴ Chadwick, *Report*, p.248

⁹⁵Shammass, *Consumer*, p.137ff.

in most places it is plentiful, very fine, battable (fertile) and such as either fatteth our cattle with speed or yieldeth great abundance of milk and cream, whereof the yellowest butter and finest cheese are made.⁹⁶ Given the very high quantities produced and consumed in the sixteenth and seventeenth centuries, it is difficult to believe that, as the towns rapidly increased, the per capita consumption of dairy products actually increased in the second half of the eighteenth century. Indeed, Shammass argues that the consumption of milk and cheese declined in eighteenth century England and began to cause a shortage of calcium.⁹⁷ It may have been the case however that, contrary to expectations, the benefits of a high butter-fat diet **continued** to be felt in cities. Improvements in milk production, for instance the availability of milk throughout the year with new winter foodstuffs for cows, or the growth in the retailing of milk in the cities, may have made a difference.⁹⁸

Another important source of protein is fish. The English were surrounded by seas rich in fish and, according to an Italian visitor in the 1490s 'greatly prefer sea fish.'⁹⁹ Harrison had mentioned 'all sorts of fish taken upon our coasts and in our fresh rivers' and fish could also now be brought from further away. Mokyr describes how 'In the late fourteenth century, Dutch fishermen discovered the technique of gutting and salting fresh herring, which allowed preservation for long periods.'¹⁰⁰ Then the 'discovery of huge supplies of codfish off the banks of Newfoundland in 1497 by John Cabot, and the use of a new type of line with thousands of hooks, gave the Europeans a new and unexpected supply of dried cod, not appetizing perhaps by modern standards, but rich in protein.'¹⁰¹ The fact that England was a sea-faring nation, and a wealthy one at that, meant that it began to draw in supplements of food, not merely exotic spices, tea, coffee, sugar and so on, but also proteins.

One result of a diet relatively rich in protein can be noted. Human beings need a certain amount of energy to work. If they eat a protein-rich diet, then they can eat infrequently. If they depend on a largely vegetarian diet, where much of the protein comes through grain in the form of rice, bread, maize, or

⁹⁶ Harrison, *Description*, p.432

⁹⁷ Shammass, *Consumer* (xerox), pp.138ff.

⁹⁸ George, *London Life*, p.98

⁹⁹ *Italian Relation*, p.9

¹⁰⁰ Mokyr, *Lever*, p.70

¹⁰¹
Mokyr, *Lever*, p.70

whatever, huge amounts have to be eaten. Harrison had half seen this, when he compared the relatively small chicken meal of an Englishman, with the huge amount of salad and bread that an Italian in the sixteenth century needed to eat. The frequency of eating is an index of the richness of the diet. If the English diet was as good as contemporaries suggest, the English should not have had to eat often.

The evidence suggests that in the sixteenth century, there were only two, or at the most three, main meals. The doctor Andrew Boorde thought that people 'resting' would have two meals a day, while labouring folk would have three.¹⁰² Another doctor described two meals a day as normal, a 'dinner' at about 11 o'clock and supper at any time from five o'clock onwards.¹⁰³ Harrison gives the fullest details, describing how 'each one in manner (except here and there some young hungry stomach that cannot fast till dinnertime) contenteth himself with dinner and supper only.' He further writes that 'With us the nobility, gentry and students do ordinarily go to dinner at eleven before noon and to supper at five, or between five and six at afternoon. The merchants dine and sup seldom before twelve at noon and six at night, especially in London. The husbandmen dine also at high noon, as they call it, and sup at seven or eight...'¹⁰⁴ There may also have been a not insubstantial 'breakfast' at six or seven in the morning.¹⁰⁵ Pounds notes that 'William Vaughan's **Fifteen Directions to preserve Health** of about 1602 urged its readers to "Eate three meales a day untill you come to the age of fourtie yeares..betweene breakefast and dinner (let there be the space of foure hours, and betwixt dinner and supper seaven houres."¹⁰⁶ As we have seen, Fynes Moryson noted that while the French ate four times a day, the English only ate substantial meals twice a day¹⁰⁷ and a century later De Saussure wrote that 'Dinner is taken at two or three o'clock, sometimes even later, and there is no supper.'¹⁰⁸ From at least the sixteenth century to the present, the structure of meals has remained basically the same. There is a relatively light 'breakfast' a mid-day 'dinner' and an evening 'supper'. This is perfectly suitable with a high protein and high calory diet such as that of twentieth-century urban dwellers. That it should be enough for a mainly rural,

¹⁰² Boorde, Regiment, p.251

¹⁰³ Cogan, Haven, p.185-8

¹⁰⁴ Harrison, Description, p.140-44

¹⁰⁵ Byrne, Elizabethan Life, p.30; Drummond, Food, p.60

¹⁰⁶ Pounds, Culture, 215.

¹⁰⁷ Moryson, Itinerary iv, p.138,173

¹⁰⁸ De Saussure, England, p.223

pre-industrial population tells us a good deal about the quality of the diet. The contrast with Japan, as we shall see, is particularly striking.

Vitamins, are a subject which need further investigation. It may well be that there was some improvement here. It is difficult to be certain of how widely available fruit and vegetables were in the medieval period, but Dyer has provided evidence that gardens may have been quite widespread among the medieval peasantry.¹⁰⁹ Drummond thought that there was a shortage of vegetables, but that the situation improved during the sixteenth and seventeenth centuries.¹¹⁰ The rapid extension of fruit and vegetable growing in the later seventeenth and early eighteenth century is documented by Joan Thirsk. She quotes, for example, Sir William Coventry who 'summed up the essentials in the situation in 1670 when he described "the increase of the use of fruit, herbs and roots, especially near all great towns, whereby an acre of garden will maintain more re than many acres of pasture would have done".¹¹¹ Yet even a century later Rochefoucauld thought that "The English do not eat half as many vegetables as we do. Consequently their kitchen gardens are quite small in comparison with ours."¹¹² For instance, George quotes an authority on scurvy who wrote in the early nineteenth century that one of the major improvements had been 'the increased use of fresh provisions and the introduction of a variety of vegetables among the ranks of the people.'¹¹³

Some of the changes were noted by Adam Smith in the 1760s. 'Not only grain has become somewhat cheaper, but many other things, from which the industrious poor derive an agreeable and wholesome variety of food, have become a great deal cheaper. Potatoes, for example, do not at present, through the greater part of the Kingdom, cost half the price which they used to do thirty or forty years ago. The same thing may be said of turnips, carrots, cabbages; things which were formerly never raised but by the spade, but which are now commonly raised by the plough. All sort of garden stuff too has become cheaper. The greater part of the apples and even of the onions consumed in Great Britain were in the last century imported from Flanders.'¹¹⁴ Certainly doctors were aware by then that a good diet was

¹⁰⁹ Dyer, *Everyday Life*, ch.7.

¹¹⁰ Drummond, *Food*, 18,19,27-9,117-8

¹¹¹ Thirsk, *Horticulture* (xerox), 301

¹¹² Rochefoucauld, *Frenchman*, 46

¹¹³ (Marshall, *London* p.69 or George, *London Life*, p.98 - check which XXX).

¹¹⁴ Smith, *Wealth*, i, p.87

necessary to cure the dreaded disease of scurvy. Buchan wrote at the same time, 'The most obstinate scurvy has often been cured by a vegetable diet; nay, milk alone will frequently do more in that disease than any medicine. Hence it is evident, that if vegetables and milk were more used in diet, we should have less scurvy, and like-wise fewer putrid, and inflammatory fevers.'¹¹⁵ Drummond has given an account of the fluctuations of scurvy and rickets, which often rose and subsided unexpectedly.¹¹⁶ Although it may be that the diet of the lower classes in the late eighteenth century was only returning to the level of the same groups in the later sixteenth century, this was a tremendous achievement given the rapidly increasing population. If agricultural improvements, marketing and transport improvements kept nutrition as good as it had been in earlier centuries, this is so unexpected and contrary to the Malthusian predictions that we should note the effects.

Of course, all assessments of whether a diet is 'adequate' are subjective. This is shown, for instance by Shammas' work on English consumers. She found, for instance, that 'Throughout the early modern period, workhouses seem to have offered a daily diet in the mid to high 2000 (calories) in adult male equivalent terms'.¹¹⁷ Or again, she estimated from Eden's late eighteenth century survey that the poor had a diet which contained between 2500 and 3000 calories a day.¹¹⁸ She believed that this was a good deal less than what was required.¹¹⁹ When we compare this with figures for South-East Asia in the 1960s, for example, which showed that the cals. per day were Pakistan (2030), India (2050), Burma (2150), Thailand (2185), the English figures do not seem so unreasonable.¹²⁰ A great deal depends, of course on body weights, whether a woman was pregnant or lactating, the nature of work and other factors.¹²¹ It is generally thought that diet declined through to the middle of nineteenth century,

¹¹⁵ Buchan, *Domestic*, p.66

¹¹⁶ Drummond, *Food*, chs. vii, viii, xiv, xv, pp.379-382, 390-6.

¹¹⁷ Shammas, *Consumer*, 140.

¹¹⁸ Shammas, *Consumer*, pp.134ff.

¹¹⁹ Shammas, *Consumer*, p.146.

¹²⁰ For the source of these figures and others for Nepal, see Macfarlane, *Resources*, p.174.

¹²¹ For instance, it is estimated that 50,000 calories are required for a pregnancy and 1000 calories per day for lactation - though this is seldom available in many countries. (see Diggory (ed.), *Natural Human Fertility*, pp.96, 139.

yet a survey of the consumption of agricultural labourers in 1862 showed that 'the poorest workers in Britain in this period, consumed about 2,700 calories per day per adult male equivalent. But the more highly paid of these workers were consuming over 4,000 calories per day, far above modern consumption levels.¹²² As Emerson around the same time commented on industrial workers, "They use a plentiful and nutritious diet. The operative cannot subsist on water-cresses. Beef, mutton, wheat-bread, and malt-liquors are universal among the first-class labourers. Good feeding is a chief point of national pride among the vulgar..."¹²³

Food in Japan.

The Japanese found themselves in the Tokugawa period caught in a high level equilibrium food trap, somewhat like China's though not as extreme. The problem they faced is simple. In terms of traditional agricultural practice, there are two major strategies. One is the English one, which is to have a high protein diet heavily reliant on domesticated animal products. This gives plenty of energy with minimum effort. The reason why Japan did not take this approach are complex and interwoven. There were few domestic animals of any kind kept in Japan, for a number of sound ecological, economic and cultural reasons. The costs of this absence, however, affected all of Japanese life until very recently. It meant that people had to work incredibly hard to produce enough foodstuffs for both themselves and the growing cities, and they had to do this on a largely grain diet from which protein and vitamins could only be extracted by eating a huge amount - hence needing even more hard work. We shall see the physical and other distortions this created shortly. Let us look first in a little more detail at the absence of protein.

It is not certain when the Japanese gave up eating the products of domesticated animals, meat, milk and eggs. Nor are the reasons clear. One theory is that it was during the reign of the Emperor Temu, whose accession is generally dated 673 A.D. 'During that reign Buddhism appears to have become a powerful influence at court; for the Emperor practically imposed a vegetarian diet upon the people - proof positive of supreme power in fact as well as in theory.'¹²⁴ Hearn elaborates on this, writing that 'although fish never ceased to be an article of food for the laity, we may say that from about this time, the mass of the nation abandoned(?) its habits of diet, and forswore the eating of meat, in accordance with Buddhist teaching.'¹²⁵ In the later seventeenth century, Kaempfer noted 'the want there is of

¹²² Cited in Mokyr (ed.), *Industrial*, 258.

¹²³ Emerson, *Traits*, 56.

¹²⁴ Hearn, *Interpretation*, p.263

¹²⁵ Hearn, *Interpretation*, p.217

Flesh-meat, which Custom and Religion forbid them to eat.¹²⁶ He believed that the result was an efficient agriculture. 'Pythagoras's doctrine of the transmigration of the Soul being receiv'd almost universally, the natives eat no Flesh-meat, and living, as they do, chiefly upon Vegetables, they know how to improve the ground to much better advantage, than by turning it into meadows and pastures for breeding of Cattle.'¹²⁷ Chamberlain also believed that the ban was due to religion. 'To Buddhism was due the abandonment of a meat diet, now over a thousand years ago.'

The absence of all products of domesticated animals, not only meat but milk was evident until the last third of the nineteenth century. Early European travellers had noted that the Japanese would eat wild animals, for example wild boar, hares, wild fowl, but would not 'eate any Milke, because they hold it to bee as bloud, nor tame beasts.'¹²⁸ At the end of the seventeenth century Thunberg observed that the Japanese 'abstain from animals food, are very loath to shed blood, and will not touch any dead body. Wherever any one transgresses in any of these points, he is considered as unclean for a longer or a shorter term, as was the case with the Jews, agreeable to the Levitical law.'¹²⁹ Both these quotations indicate that the dietary prohibitions, as in the Levitical laws to which Thunberg referred, were related to classifications of clean and unclean, wild and tame, life and death, similar to those analysed by anthropologists.¹³⁰ Siebold noted in the early nineteenth century that 'The empire containeth neither sheep, goats, swine, nor asses.'¹³¹ As Pompe wrote, 'Meat is hardly ever used. Before 1859 only slaughtering of pigs for the Dutch at Desima was allowed; later, when more foreigners and especially the English came to Japan, several slaughterhouses appeared, established by Europeans or Americans. The Japanese make little use of them, although it was my experience in the hospital that they liked beef stock and the meat of cows and calves quite well.'¹³² Even milk drinking was thought to be both immoral and disgusting. In the 1880s Isabella Bird described how 'I thought that I might get some fresh milk, but the idea of anything but a calf milking a cow was so new to people that there was a universal laugh, and Ito

¹²⁶ Kaempfer, *History*, 1, p.187

¹²⁷ Kaempfer, *History*, 1, p.194

¹²⁸ Purchas, *Pilgrims*, 146; Kaempfer, *Travels*, iv, 38

¹²⁹ Thunberg, *Travels*, iv, 20

¹³⁰ cf Douglas, *Purity and Danger*

¹³¹ Siebold, *Manners*, p.234

¹³² Wittermans, *Pompe (xerox)*, p.53

told me that they thought it "most disgusting", and that the Japanese think it "most disgusting" in foreigners to put anything 'with such a strong smell and taste' into their tea.¹³³ Likewise Morse noted that 'It is difficult to understand a country in which there is no milk, butter, cheese, bread, or coffee, and never has been. Butter is so distasteful to the Japanese that many cannot eat cake or other article of food in whose composition butter is used.'¹³⁴

The change to an animal protein diet started, as Pompe noticed, in the middle of the nineteenth century. Willis in the 1860s noted that 'The Japanese display a growing fondness for animal food, especially amongst the soldier class. Butchers shops are springing up in different parts of Edo where none previously existed. I have met Japanese whose taste seemed to have ranged over an extensive number of the animal kingdom.'¹³⁵ Willis's reference to the wide range of meats is explained by Hanley; 'Meat began to appear in speciality shops in the early years of the nineteenth century, having been promoted by scholars of Dutch learning as beneficial to the health. But all kinds of meat sold were wild boar, deer, badger and monkey, all of which would be considered gamey by even the most ardent of meat eaters in the West.'¹³⁶ Ten years later Morse reported that 'A meat shop was a great novelty a few years ago, and even now only a few are seen in the larger cities...'¹³⁷ We are told that 'Meat was hardly ever consumed by the peasants. In fact, even in urban areas, meat was a luxury. In 1889-93, the annual consumption of meat per capita was 0.9 pounds. This rose to 4 pounds by 1922-26, still a minuscule 1.2 ounces per capita per week.'¹³⁸ The real shift only occurred after the Second World War. 'Although meat was reintroduced into the diet in the nineteenth century, most Japanese ate very little meat until after World War II.'¹³⁹ And it was only then that the 'Japanese began to eat many dairy products and a great deal of fish'.¹⁴⁰ An anthropological account of the 1950s described now 'Meat was unknown on

¹³³ Bird, p.133

¹³⁴ Morse, i, p.120

¹³⁵ Cortazzi, Willis, p.160

¹³⁶ Jansen; Rozman (eds.), Transition, p.456

¹³⁷ Morse, Day i, p.128

¹³⁸ Hane, p.40

¹³⁹ Jansen; Rozman (eds), Transition, p.455

¹⁴⁰ Jansen; Rozman (eds.), Transition, p.445

the table two generations ago. There are old persons still who have never violated the Buddhist taboo against eating "the flesh of four-footed creatures".¹⁴¹ Even eggs and chickens were not safe: 'villagers feel themselves extravagant if they eat their own eggs and cruel if they eat their own chickens.'¹⁴²

Given the absence of animal protein, how did the Japanese set about providing enough energy for themselves? One solution was to use the water dwelling protein which was classified as edible. With the long sea coasts and many rivers and lakes, combined with the great need for protein, it is easier to understand the omniverousness in relation to marine products. Kaempfer noted that 'Of all the soft submarine plants there is hardly one, but what the Natives eat. Fishermen's wives wash, sort, and sell them, and they are likewise very dexterous in diving them up from the bottom of the Sea in twenty to forty fathom depth.'¹⁴³ Two centuries later, Morse likewise wrote that 'Every living thing in the water seems to be eaten by the lower classes; all kinds of shellfish, every shrimp and crab as well as sharks, skates, and indeed all kinds of fish, seaweed, sea urchins, and sea worms.'¹⁴⁴ Or again, 'Almost everything in the sea furnishes food for the masses; not only fish, but sea urchins, sea cucumbers, squids, and even some species of worms are eaten. Seaweed, a thin green leaf, is also eaten; it is dried and put up in tin boxes.'¹⁴⁵ That the 'natives seem to eat anything and everything that comes from the sea',¹⁴⁶ was also attested to by Siebold, 'Every species of fish is eaten, down to the very coarsest...'¹⁴⁷ Fish 'is a standing dish at every Japanese table, answering to the English joint of meat.'¹⁴⁸

Whales were particularly important. Kaempfer wrote that 'Of all the animal productions of the

¹⁴¹ Beardsley (ed.), *Village Japan*, p.107

¹⁴² Beardsley (ed.), *Village Japan*, p.107

¹⁴³ Kaempfer, *History*, 1, p.189

¹⁴⁴ Morse, *i*, p.205

¹⁴⁵ Morse, *Day i*, p.88

¹⁴⁶ Morse, *Day i*, p.439

¹⁴⁷ Siebold, *Manners*, p.132

¹⁴⁸ Siebold, *Manners*, p.132

Japanese Seas, I know none of so extensive an use, for rich and poor, as the Kudsuri or Whale.¹⁴⁹ Every single part of the whale was used. 'Of all these several kinds of Whales nothing is thrown away as useless, excepting only the large Shoulder-bone. The skin which is black in most kinds, the Flesh which is red and looks like Beef, the intestines, which from their remarkable length are call'd Fiaksiro, that is, an hundred fathoms long, and all the inward parts are eat, pickel'd, boil'd, roasted, or fry'd. The fat or blubber is boil'd into Train-oyl and even the sediments of the second boiling are eat.'¹⁵⁰ Whale oil was believed to be one of the major reasons for good health of the ordinary people and, in particular, the oil protected them against bitter winters endured in fragile houses with hardly any heating. 'Sebio is the chief, and indeed the largest Fish of the Whale-kind. It affords most Train-oyl and its flesh is very good and wholesome so far that Fisher-men and the common People attribute their good state of health amidst all the injuries of cold and weather, which they are continually expos'd to, chiefly to their eating this flesh,¹⁵¹ As Pompe noted 'For men who have to carry out hard labor, and especially during the winter when the thermometer sometimes dips to the freezing point, their regular diet is insufficient, and they often supplement it with peas and beans with blubber.'¹⁵²

There can be little doubt as to the importance of marine products. Kaempfer estimated that 'The Sea and its Productions contribute full as much towards the sustenance of the Natives, as the growth of the Country, Rice only excepted.'¹⁵³ As Regamey suggests 'The numerous water-courses which furrow Japan, and especially the sea which washes her coast, constitute for her an immense food-store, inexhaustible, sufficient to satisfy the most exacting ichthyophagist.'¹⁵⁴

The sea was systematically harvested, not only for every moving form of life, but even for all the edible seaweeds. 'Dried seaweed is eaten often with rice, the iodine content undoubtedly accounting for the rarity of goitre in Japan.'¹⁵⁵ Mrs. Geoffrey described how 'All through the winter and spring on sunny

¹⁴⁹ Kaempfer, History, 1, p.213

¹⁵⁰ Kaempfer, History, 1, p.215. 'Train-oil' is the oil 'obtained by boiling from the blubber of whales', especially the right whale. (O.E.D., s.v. 'train oil')

¹⁵¹ Kaempfer, History, 1, p.214

¹⁵² Wittermans, Pompe (xerox), p.53

¹⁵³ Kaempfer, History, 1, p.213

¹⁵⁴ Regamey, Art and Industry, p.193

¹⁵⁵ Geoffrey, Immigrant, p.241

days every little backyard blossomed with rows of wooden frames on which the seaweed carefully picked over and arranged in layers on straw mats was dried.¹⁵⁶ The nutritional value of seaweeds is considerable. For example Davidson states that 'The chief carbohydrates in seaweeds are mannitol and the polysaccharides alginic acid and laminarin. They contain less than 1 per cent of fat, but appreciable amounts of protein and a high content of minerals.'¹⁵⁷ Seaweed was, and still is, an important constituent of the Japanese diet.

Yet it is clear that with the massive population, much of it living away from the sea, even marine products were not sufficient. As we shall see in descriptions of Japanese meals, only tiny portions of fish tended to be served - and that on special occasions. Fish, with the possible exception of whale meat, was half way between a luxury and an ordinary part of the diet. On the one hand, Isabella Bird noted that 'Much of the food of the peasantry is raw or half-raw salt fish.'¹⁵⁸ On the other hand, we know how tiny a proportion of the food budget could be spent on fish in 1900. Although the consumption of fish was much higher than meat, the annual consumption per person was 29lbs of fish - about half a pound a week, or an ounce a day. A survey in the Gunma prefecture in 1910 'showed that sixty-five percent of the money spent on food went for rice and other grains...less than two percent on fish...'¹⁵⁹ An ounce a day, if this is at all representative, would hardly provide enough protein. What other sources were available and where would most vitamins come from?

Just as the Japanese seem to have been almost omnivorous in relation to marine products, so they ate a very large variety of plants, cultivated and wild. The importance of this source of nutrition is shown by the fact that whereas only two percent of income was spent on fish and meat in Gunma prefecture in 1910, some 13.5 per cent was spent on vegetables.¹⁶⁰ What then was consumed and what was of nutritional or medical importance?

Kaempfer noted that 'Not only the Fields and flat Country, which are seldom or never turn'd into Meadows and pasture Ground, but likewise the Hills and Mountains, afford Corn, Rice, Pease, Pulse

¹⁵⁶ Geoffrey, *Immigrant*, p.218

¹⁵⁷ Davidson, *Nutrition*, 185

¹⁵⁸ Bird, *Tracks*, p.100

¹⁵⁹ Hane, *Peasants*, p.40

¹⁶⁰ Hane, *Peasants*, p.40

and numberless edible Plants.¹⁶¹ He furthermore notes an abundance of vegetables which were cultivated in Europe, but grew wild in Japan. 'Horse-radishes, Carrots, Gourds, Melons, Cucumbers, Mala insana, Fennel and some sorts of Lettice, which with us are cultivated in Gardens, grow wild in Japan.' Everywhere in this crowded land, things were being grown or were growing naturally. Almost all of it was eaten. 'Besides the plants, I have hitherto mention'd, there are numberless others, that grow in the Fields, upon hills and mountains, in woods and forests, in morrassy grounds, in barren and uncultivated places, along the Sea-Coasts, and in short every where. Of all these there are very few, but what afford their roots, leaves, flowers and fruits, not only for the sustenance of the common people, but even for the delicious tables of people of quality.'¹⁶² A century later Thunberg also noted the importance of wild vegetables. 'Bamboo roots, and various forms of mushrooms (**Agarici**), which with these people are in great request, occur common in the shops, dried for sale, and are besides in almost daily use, both for soups and sauces.'¹⁶³ In general, '...it is very common to meet with a great number of culinary vegetables and kitchen-garden plants, growing wild in the open fields, and consequently there are no other gardens, than those which are found near every house, are of a very insignificant size, and are chiefly intended for the sake of ornament.'¹⁶⁴ This last remark about the absence of kitchen gardens may have become less true as time went by and particularly in cities. By the middle of the nineteenth century Oliphant wrote 'There are kitchen-gardens attached to every establishment, with vegetables, and fruit-trees, and orchards, where the pears are trained on trellises like grapes.'¹⁶⁵ This takes us to cultivated vegetables.

In the mid-nineteenth century, Alcock was impressed by the range of vegetables available. 'The principal vegetables are beans, peas, potatoes, sweet potatoes, turnips, carrots, lettuce, beetroot, arams, yams, tomatoes, ginger, the egg plant, gourds, melons, chilies, cucumbers, mushrooms, horse-radish (the roots of several kinds of lilies are eaten also), spinach, leeks, garlic, capsicums, endive, fennel; and enormous turnip-radish, often twelve or fourteen inches long is consumed in great quantity, sliced and salted.'¹⁶⁶ He complained about the flavour, though giving evidence of the large

¹⁶¹ Kaempfer, *History*, 1, p.186

¹⁶² Kaempfer, *History*, 1, p.189

¹⁶³Thunberg, *Travels*, iv, 89

¹⁶⁴Thunberg, *Travels*, iv, 90

¹⁶⁵Elgin, *Mission*, 197/98

¹⁶⁶ Alcock, *Tycoon*, 1, p.322

consumption. The cultivation of vegetables is large, and although few are well flavoured and many are nearly savourless, they are largely consumed.¹⁶⁷ This was part of his more general complaint that '...in one of the most beautiful and fertile countries in the whole world, the flowers have no scent, the birds no song, and the fruit and vegetables no flavour!'¹⁶⁸

As well as these vegetables, there were various kinds of nuts. 'Chest-nut trees grow in great plenty in Japan, particularly in the Province Tsikusen, and they bear chestnuts much larger and better than ours.'¹⁶⁹ Likewise, 'There are two sorts of Oaks grow in the Country, both different from ours. The acorns of the larger sort are boil'd and eat by the common People.'¹⁷⁰

Likewise, there was a good supply of fruit, important for Vitamin C. 'Oranges and Lemons grow very plentifully, and of different sorts. That sort of Lemons, which is reckon'd the best, is call'd Mican.'¹⁷¹ Furthermore, 'With Peaches, Apricocks and Plums they are plentifully supplied.'¹⁷² Because of the fact that Japan spans several climatic zones, almost any fruit could be grown. 'Hence the southern islands, though generally said not to be hot enough for the sugarcane, teem with most of the fruits of the tropics, while the northern yield those of the temperate zones.'¹⁷³ But while there were immense possibilities and a wide variety, some argued that by the mid-nineteenth century, at least, the fruit was picked too early and the quality was poor. Alcock wrote that 'It does not seem to me that the Japanese have any idea what ripe fruit means.'¹⁷⁴ And though he found 'apples, pears, plums, peaches, chestnuts, persimmons, oranges, pomegranates, figs, lemons, citrons, wild strawberries', he thought they were 'nearly all equally bad - if we except, perhaps, the water melon, the persimmon and grapes.'¹⁷⁵ Whatever the truth of his

¹⁶⁷ Alcock, Tycoon, 1, p.321

¹⁶⁸ Alcock, Tycoon, 1, p.70

¹⁶⁹ Kaempfer, History, 1, p.180

¹⁷⁰ Kaempfer, History, 1, p.181

¹⁷¹ Kaempfer, History, 1, p.181

¹⁷² Kaempfer, History, 1, p.181

¹⁷³ Siebold, Manners, p.229

¹⁷⁴ Alcock, Tycoon, 1, p.322

allegation, there do seem to have been a wide array of fruit.

The markets seem to have concentrated on just two types of vegetables, namely root vegetables and beans. Alcock found the vegetable stalls 'chiefly filled with the coarsest kinds of roots and French beans...'¹⁷⁶ This may explain Morse's erroneous deduction that 'The vegetable portion of the market was poorly supplied, apparently very few kinds of vegetables being known before the advent of the foreigner.'¹⁷⁷

Kaempfer early on noticed the importance of root vegetables. 'Turneps grow very plentifully in the Country, and exceeding large ones. Of all the produce of the fields they perhaps contribute most to the sustenance of the Natives.'¹⁷⁸ Likewise Thunberg in the late eighteenth century had singled out 'Turnips (**Brassica rapa**)' which were 'sown in abundance, and are much used for food, as are likewise other esculent-rooted and bulbous plants.'¹⁷⁹ Apart from the fact that it grows very well and plentifully and is easy to store, providing a cheap addition to rice, it is not absolutely clear why the turnip should be so important. It is possible that it overlaps in constituents with its near relative the radish and if so, an added reason for its popularity may be found when we turn to that plant, the most ubiquitous constituent of Japanese meals apart from rice.

These were huge white radishes: Siebold heard of 'some weighing from fifty to sixty pounds, other types of radishes of fifteen pounds' weight were common.'¹⁸⁰ Their ubiquity is described by Inouye. 'An invariable accompaniment at Japanese meals is the pickled vegetable. The commonest of these is the garden radish which has been pickled in a paste of powdered rice-bran and salt until it assumes a rich golden hue.'¹⁸¹ Inouye describes how 'We have a great variety of vegetables. The commonest and most useful of them is the garden radish, which is pickled or salted, boiled almost dry with **mirin**, Sugar, and

¹⁷⁵ Alcock, Tycoon, 1, p.323

¹⁷⁶ Alcock, Tycoon, 1, p.85

¹⁷⁷ Morse, Day i, p.36

¹⁷⁸ Kaempfer, History, 1, p.188

¹⁷⁹Thunberg, Travels, iv, 88

¹⁸⁰ Siebold, Manners, p.234

¹⁸¹ Inouye, Home, p.59

bonito shavings, put into soup, or grated to flavour raw or fried fish.¹⁸² The importance of radish, which appeared with every meal in Japan and is still widely eaten as good for the digestion explained by Mrs. Geoffrey. This radish is known as **daikon**. She writes that 'another favorite condiment for the rice is grated or pickled daikon. Daikon might be called the garlic of Japan, so widespread and all-pervading is its aroma, but it is far more disagreeable to the neophyte than garlic. The crop is pretty to look at, for it is marketed in long white roots, as thick as a man's arm, but tapering gracefully, and invariably scrubbed in some dirty pool till it shines as white as sea sand. Its taste brings tears to my eyes, but it is beloved of the Japanese, and science has recently turned up a good reason for their craving for it. Daikon, it seems, is rich in diastase, which assists the process of converting the starch of rice into sugar for energy; so that without daikon, the nation might have acute indigestion over the tons of rice it consumes annually.'¹⁸³

The one vegetable which produces a high level of protein is the bean. Thunberg in the late eighteenth century wrote that Of Beans, Peas and Lentils, many sorts are cultivated, both the larger (**Phafeoli**) and the smaller (**Dolichos**).¹⁸⁴ A hundred and fifty years later Alcock wrote, 'Beans are largely grown, and of numerous varieties - some like the English field bean, and others like the French bean, though both inferior in flavour. They are grown for various purposes, and are eaten as food in a green state, and also when ripe. Some kinds are ground down into powder and made into cakes. Cattle are fed on some kinds, and soy is made from others.'¹⁸⁵ In the 1950s, the widespread use of soybeans, red beans, broad beans and chick peas continued to be evident.¹⁸⁶

Two types in particular were noticed by Kaempfer. The former were known as Daidso. 'Daidso, that is, Daidbeans, is a certain sort of Beans, about the Bigness of Turkish Pease, growing after the manner of Lupins. They are next to the rice in use and esteem. Of the Meal of these Beans is made what they call Mudso, a mealy Pap, which they dress their Victuals withal, as we do with Butter.'¹⁸⁷ The second kind were 'Adsuki, or Sodsu, that is sobeans. They grow likewise after the manner of Lupins, and are black, not unlike Lentils, or the Indian Cajan. The flower is bak'd with sugar into Mansje and other

¹⁸² Inouye, Home, p.71

¹⁸³ Geoffrey, Immigrant, p.241

¹⁸⁴Thunberg, Travels, iv, 88

¹⁸⁵ Alcock, Tycoon, 1, p.321

¹⁸⁶ Beardsley, p.106

¹⁸⁷ Kaempfer, History, 1, p.188

Cakes.¹⁸⁸ The importance of soya beans in Japanese diet is widely known. 'But in point of utility the soy bean comes next to rice, for our soy sauce which enters into almost all dishes is made from the bean, wheat, and salt. So extensively is this sauce employed that table salt is comparatively little needed. The bean is also the principal ingredient in **miso**, which is a mixture of the soy bean, steamed and pounded, with rice-yeast and salt.'¹⁸⁹ 'Miso' was described a century later by Thunberg. '**Miso** soup, boiled with fish and onions, is eaten by the common people, frequently three times a day, or at each of their customary meals. **Misos** are not unlike lentils, and are small beans, gathered from the **Dolichos soja**.'¹⁹⁰ Thunberg also wrote of soya that 'The seeds are served up in soups, once of twice a day all the year round, to people of distinction or otherwise, to the poor and to the rich.'¹⁹¹ Both soya and lentils have a very high protein content and this led one anthropologist in the 1930s to write that though largely vegetarian 'Plenty of proteins are available in the many foods made of soya beans, especially the soya-bean soup ('miso-shiru'), soya-bean sauce ('shoyu') and soya-bean curd cake ('tofu').'¹⁹²

The dietic value of these pulses was increased by fermenting them. For instance, the making of **miso** is described thus. 'Miso (a fermented substance made from Soy Beans). Preparation...The usual mode is, after soaking soy beans in water for about two hours, to put them into a suitable vessel and steam them; then, after mixing them with salt and yeast, they are removed to wooden plates.'¹⁹³ All kinds of vegetable sprouts, which contain the maximum nutrition, were to be found for sale. 'Sprouted beans and peas of many kinds and the sprouts of other vegetables, such as onions, are very generally seen in the markets of both China and Japan, at least during the later winter and early spring.'¹⁹⁴ Dubos explains the benefit thus. 'The extensive use of sprouts - the germinated beans, peas and lentils of China and India - also has nutritional merit, since essential amino acids, fats, and vitamins become more available in the sprouts as a result of germination. Extensive nutritional experiments have revealed, for example, that the

¹⁸⁸ Kaempfer, *History*, 1, p.188

¹⁸⁹ Inouye, *Home* p.58

¹⁹⁰Thunberg, *Travels*, iv, 38

¹⁹¹Thunberg, *Travels*, iv, 121

¹⁹² Embree, *Suya Mura*, p.31

¹⁹³ Tames (ed.), *Encounters*, p.64

¹⁹⁴ King, *Farmers*, p.134

nutritive value of soybeans is significantly greater after germination than before...¹⁹⁵ In particular, the sprouting may have provided essential vitamin C in the diet. We are told that 'although pulses like cereal grains are devoid of any vitamin C activity, large amounts of ascorbic acid are formed on germination; sprouted pulses are an excellent preventive against scurvy.'¹⁹⁶ Perhaps this helps to explain the absence of scurvy in Japan.

So huge was the demand for this additional supply of protein that by the start of the twentieth century, much of the Chinese mainland was being drained of this nutritious pulse for use in Japan and Europe. 'Since the Japanese-Russian war the shipments of soy beans and of bean cake from Manchuria have increased enormously. Up to this time there had been exports to the southern provinces of China where the bean cakes were used as fertilizers for the rice fields, but the new extensive markets have so raised the price that in several instances we were informed they could not then afford to use bean cake as fertilizers.'¹⁹⁷ King described how '...we saw the first extensive massing of the huge bean cakes for export, together with enormous quantities of soy beans in sacks piled along the railway and in the freight yards or loaded on cars made up in trains ready to move.'¹⁹⁸ Later 'It was at Lwanchow that we met the out-going tide of soy beans destined for Japan and Europe, pouring in from the surrounding country in gunny sacks...'¹⁹⁹

Another important crop was oil-seed rape. Alcock noted that 'Rape is grown for its seed here, as in China, from which large quantities of oil are made, and it forms one of the more important crops.'²⁰⁰ It was an excellent plant in several ways. For instance, as well as producing valuable oil, '...its young shoots and leaves are succulent, nutritious, readily digested and extensively used as human food, boiled and eaten fresh, or salted for winter use, to be served with rice.'²⁰¹ Another great advantage is that it takes very little out of the soil. 'Like the dairy cow, rape produces a fat, in the ratio of about forty

¹⁹⁵ Dubos, *Adapting*, p.64

¹⁹⁶ Davidson, *Nutrition*, 179

¹⁹⁷ King, *Farmers*, p.357

¹⁹⁸ King, *Farmers*, p.357

¹⁹⁹ King, *Farmers*, p.348

²⁰⁰ Alcock, *Tycoon*, 1, p.321

²⁰¹ King, *Farmers*, p.190

pounds of oil to a hundred pounds of seed, which may be eaten, burned or sold without materially robbing the soil of its fertility if the cake and the ashes from the stems are returned to the fields, the carbon, hydrogen and oxygen of which the oil is almost wholly composed coming from the atmosphere rather than from the soil.²⁰² If it was grown widely, as Alcock suggests, this would help to provide an alternative to milk, butter and fat from animals. There were probably several related plants which also produced oils. For example, Thunberg described how 'In preparing their victuals, they make use of expressed oils, of several different sorts.' - e.g. Sesamy, Ginke etc.²⁰³ The **Sesamu orientale** was cultivated in many ?? and from the seed, although very small, a fine oil was expressed, which was in general use here, as well as in other places in India, for dressing of victuals, and other purposes.²⁰⁴

The combination of beans and pressed flowers was enormously important. Roberts has outlined some of the advantages of soya. 'Soya been flour contains 40 per cent of protein of good quality, at least equal to that of whole wheat and superior to the proteins of white flour and to those present in peas and ordinary beans. It also contains the essential amino-acids in nearly optimum proportions for animal nutrition. It has a fat content of 20 per cent and in consequence has a high calorific value - about 470 calories per 100 grammes, as compared with 370 for white flour.²⁰⁵ In some of its derivatives, 'the nutritional value to the protein has been shown to be equivalent to that of the protein in cow's milk.²⁰⁶ Furthermore 'pulses as a class are good sources of the B group of vitamins (except riboflavine). More important, the greater part of these vitamins present in the harvested seeds is actually consumed.²⁰⁷ Davidson concludes that 'A combination of pulse and cereal proteins may have a nutritive value as good as animal proteins.²⁰⁸ This takes us to those cereal proteins which were necessary to complete the diet.

Although it is less efficient for this purpose, 'clearly the protein intake from rice, barley and wheat was

²⁰² King, *Farmers*, p.192

²⁰³Thunberg, *Travels*, iv, 38

²⁰⁴Thunberg, *Travels*, iii, 215

²⁰⁵Roberts, *Hygiene*, 386

²⁰⁶Davidson, *Nutrition*, 179

²⁰⁷Davidson, *Nutrition*, 179

²⁰⁸Davidson, *Nutrition*, 179

of utmost importance during the middle of the nineteenth century.²⁰⁹ It is estimated that eighty per cent of the protein in Japanese diets in the second half of the nineteenth century came from these grains. The amount coming from soybeans was surprisingly small, only about five to six grams out of a total of forty-five to fifty grams per day.²¹⁰ The type of grain which was eaten varied by region, period and class. For instance, we are told that 'During both the Tokugawa and the Meiji period, the staple consumed varied by region. In the westernmost parts of Japan, people ate a higher proportion of mugi (wheat and barley) and sweet potatoes, while people in the mountainous areas ate more millet and hie (deccan grass).²¹¹ Rice was the preferred food but many could not afford it. 'Every one lives on it who can afford to do so; but as a rule, the peasantry cannot. Wheat, barley, and especially millet, are the real staples throughout the rural districts, rice being there treated as a luxury to be brought out only on high days and holidays, or to be resorted to in case of sickness.²¹² For instance, at the start of the twentieth century, it was estimated that 'In most parts of Japan the grain food of the labouring people is about seventy per cent naked barley mixed with thirty per cent of rice, both cooked and used in the same manner.²¹³

The class division is shown by a study of Tokyo in the 1860s and 1870s where 'Ogi Shinzo found an essentially rice diet, with the middle and upper classes eating rice and the rest of the population eating rice extended with other grains.²¹⁴ When it could be obtained the rice was thought to be extremely good, with a special flavour, extra nutritious and long lasting. 'There are several varieties of Rice grown in the Country. The best sort hath not its equal in the Indies. It is perfectly white, like Snow, and so nourishing and substantial, that Foreigners, who are not used to it, can eat but little of it at a time.'²¹⁵ Kaempfer noted that 'The Japanese rice accordingly is esteem'd the best of all Asia, particularly what grows in the Northern Provinces, which will keep many years, and which for this reason they chuse to

²⁰⁹ Jansen; Rozman (eds.), *Transition*, p.437

²¹⁰ Jansen; Rozman (eds.), *Transition*, p.437

²¹¹ Jansen; Rozman (eds.), *Transition*, p.455

²¹² Chamberlain, *Things*, p.21

²¹³ King, *Farmers*, p.379

²¹⁴ Jansen; Rozman (eds.), *Transition*, p.458

²¹⁵ Kaempfer, *History*, 1, p.187

fill their Store-houses withal, having first wash'd it in muddy water and then dried it.²¹⁶ Thunberg also believed that 'The rice in this country is accounted the best in all the east Indies and is extremely white, glutinous, and more nutritive than any other.'²¹⁷

What is clear is that whatever the grain, it was from this that the Japanese had to draw most of their nourishment, both carbohydrates and proteins. As Hanley puts it 'in the Meiji period, as in the decades and centuries preceding it, the dietary staple was grain, rice being the preferred grain. The purpose of side dishes was to enhance the taste of the staple grain; they were not considered basic foods themselves.'²¹⁸ It is only possible to extract enough protein from grains for the really exhausting physical labour which was common in Japan by eating a huge amount - far more than human beings would normally do. This led to an attitude towards eating which puzzled and intrigued foreign observers.

As Griffis travelled on the river from Osaka in 1871, he watched the men who, with enormous effort, punted the boat with long poles. 'After a hard night's toil, poling and walking in a nipping frost, I wished to see the breakfast by which they laid the physical basis for another day's work.' He had heard rumours that the Japanese must eat some secret form of protein, rats or mice - 'The daily ration of a Japanese labourer was one mouse per diem; so I was once told in America.' But he noted that 'I never saw or heard of such animals being eaten during all the time I was in Japan.' Nevertheless he was on the look-out 'for some stimulating food, some piece of flesh diet to be eaten by these men, who had to make muscle and repair the waste of lubricating their joints.' What he observed was as follows. 'The first course was a bowlful of rice and a pair of chopsticks. In the second course history repeated itself. Third course was a dipperful of tea...the fourth course was a bowl of rice and two slices of radish; the fifth was the same. A dipperful of tea-liquor finished the meal, and the pole was resumed.'²¹⁹

Scidmore noted that same extraordinary contrast between the meagre diets and great strength of the lowest of the physical labourers, the coolies. 'The coolies, sitting around this kitchen, fortified their muscle and brawn with thimble cups of green tea, bowls of rice, and a few shreds of pickled fish.'²²⁰ He felt that 'The diet of these coolies seems wholly insufficient for the tremendous labor they perform - rice, pickled fish, fermented radish, and green tea affording the thin nutriment of working-days. Yet the most splendid specimens of physical health are reared and kept in prize-fighting condition on what would

²¹⁶ Kaempfer, *History*, 1, p.186

²¹⁷Thunberg, *Travels*, iv, 85

²¹⁸ Jansen; Rozman (eds.), *Transition*, p.457

²¹⁹ Griffis, *Mikado*, p.409-410

²²⁰Scidmore, *Jinrikisha*,142.

reduce a foreigner to invalidism in a week.²²¹

Food had to be eaten constantly to replenish the energy. As one Japanese author pointed out 'There is certainly far greater sustaining power in European food, and our medical authorities urge a more extensive use of animal food besides fish. Rice and vegetables, it is true, fill the stomach; indeed, one may even feel surfeited, and yet in a short time the strain disappears and hunger returns. For this reason coolies and others engaged in severe physical labour take four or more meals a day.'²²² In the late eighteenth century, thunberg had noted that 'In general they eat three times a day; about eight o'clock in the morning, two o'clock at noon, and eight in the evening. There are some that observe no regular time for their meals; but eat whenever they are hungry; for which reason the victuals are obliged to be kept in readiness the whole day.'²²³ Pompe also noticed the need for frequent eating. 'Diet is as a rule very simple, but insufficient for those who do heavy work. Rice is the staple food and is eaten three or four times a day. Usually the Japanese put some rice in a cup, pour some weak tea on it, and gulp this mixture down accompanied by strange noises.'²²⁴ Some people ate even more frequently; 'Japanese farmers even five or six times a day...' wrote Morse.²²⁵ Pompe also noted the irregularity and frequency when patients came to hospital. 'The food was very good, but it was hard to accustom the Japanese to having their meals at fixed times. It is their custom to eat as soon as they are hungry, and boiled rice is almost always available.'²²⁶ Arnold explained that 'Rice is the mainstay, and a huge quantity of it is always kept ready boiled, needing only to be warmed up or mixed with hot tea.'²²⁷ Scidmore described the same phenomenon. 'Rice is boiled in quantities large enough to last for one, or even two days. It is heated over when wanted, or hot tea is poured over the cold rice after it is served.'²²⁸

²²¹Scidmore, *Jinrikisha*, 254.

²²² Inouye, *Home*, p.75

²²³Thunberg, *Travels*, iv, 37.

²²⁴ Wittermans, *Pompe (xerox)*, p.52

²²⁵ Morse, ii, p.354

²²⁶ Wittermans, *Pompe (xerox)*, p.105

²²⁷ Arnold, *Seas*, p.402

²²⁸Scidmore, *Jinrikisha*, 194.

The rice was cooked in a special way, perhaps to help speedy digestion. The manner in which it is cooked makes it exceptionally palatable and nutritious, quite different from the Indian process which leaves each grain separate and dry.²²⁹ The way in which the rice was cooked may also, perhaps deliberately, have had important nutritional consequences. Davidson points out how much can be lost in the preparation of rice. 'Rice, as purchased in any bazaar, has to be washed and this washing water must then be discarded. The rice is then cooked in water and this cooking water is usually discarded, though it is sometimes consumed...the losses of thiamine particularly may be very high. Similar losses of nicotinic acid also occur. It is probably a safe assumption that for rice half of the water-soluble vitamins which escape the millers are washed away by the housewife and so lost to her family.'²³⁰ The fact that Japanese rice is left in a very wet state, the water not poured away, may indicate that some of this loss was avoided.

There were two problems caused by this constant need for huge amounts of rice. One was that if one is eating much of the time in order to have the energy to do the work, when is one going to have the time to work? The Japanese solution was to gobble down food very quickly. As we have seen, Pompe noticed the 'gulping down' of a mixture of tea and rice, which made it go down quicker, an addition of tea which is also noticed by Griffis as occurring between courses. Isabella Bird noted that the raw fish and pickled vegetables were 'all bolted with the most marvellous rapidity, as if the one object of life were to rush through a meal in the shortest possible time.'²³¹ As Chamberlain observed 'Another detail which will impress the spectator less favourably is the speed at which food is absorbed. In fact, some classes - the artisans in particular - seem to make a point of honour of devoting as little time as possible to their meals.'²³²

One of the most detailed accounts comes from a town near Tokyo. A woman was remembering her childhood in the first quarter of the twentieth century. Country girls used to come into the sewing school and the mistress would tick off girls for gobbling their food. 'The trouble was that country girls, who were made to work in the fields from a very early age, had learned to eat their meals as fast as possible so they could get straight back to work; otherwise they were told off by their parents...A girl needed at least two large bowls per meal to keep her going, so she had to get used to stuffing it in. In fact, when matchmakers came around looking for suitable brides, one of the things they took particular notice of was the girl's appetite: if she really gobbled her food down she'd make a good farmer's wife, they

²²⁹Chamberlain, Things,

²³⁰Davidson, Nutrition, 212

²³¹ Bird, Tracks, p.100

²³² Chamberlain, Things p.181

said.²³³ In Tokyo itself, breakfast, 'does not take more than ten or fifteen minutes; indeed, people pride themselves upon their quickness at meals, especially at breakfast, as it implies that they have no time to dawdle over their food which is taken solely to ward off hunger and maintain their health and strength.'²³⁴

It looks as if this may have caused some peculiar developments in the Japanese physiognomy. It was suggested that they had become somewhat like many herbivorous animals, which have to spend much of their effort extracting sustenance and which develop complex and large intestinal systems. This was noted by Morse, who claimed as a professional zoologist, that 'It has been ascertained by actual measurement (so Takenaka, who is a medical student, informs me) that the Japanese stomach is larger than that of foreigners; this may have been caused by the large amount of rice they consume. It is amazing to see in the country little children with abdomens roundly distended by the quantity of rice with which they have literally stuffed themselves.'²³⁵ At first, a visitor might have imagined that the children were suffering from **Kwashiorkor** or some deficiency disease which distended their stomach. Morse believed, that it was due to the fact that they were being trained to eat vast amounts of grain in preparation for the time when they would need that energy in the fields. 'The abdominal, and I might say the abominable, protuberance often seen in little children and infants is astounding; it seems as if it would pain them; indeed, they looked as if they had been stuffed for the oven. It comes from gorging themselves with rice, which actually distends the walls of the stomach.'²³⁶ There were certainly some deficiencies in the diet, but it seems likely that it was the problems of digesting and converting huge quantities of grain that led to the distortion, which tended to disappear in adults as they worked harder and used the energy.

How then would we evaluate the nutritional level of the majority of the Japanese population over the centuries? As Hanley concludes 'From the evidence available, it is possible to argue either that the Japanese had a very poor and boring diet in the Tokugawa period or that the diet was rich and varied.'²³⁷ It is particularly difficult to find out 'how much of each kind was eaten or what the daily calorific intake was.'²³⁸ We know that every possible piece of land was used for food. In the late

²³³ Silk, p.141

²³⁴Inouye, Home, 62

²³⁵ Morse, Day ii, p.354

²³⁶ Morse, Day i, p.155

²³⁷ Hall (ed.) Cambridge History, iv, p.686

²³⁸ Rozman (ed.), Transition, p.453

seventeenth century Kaempfer described how 'Every inch of Ground is improv'd to the best advantage and it was not without great admiration, we beheld on our Journeys to and from Court, Hills and Mountains, many inaccessible to Cattle, which would lie wholly neglected in other Countries, cultivated up to their tops.'²³⁹ The Japanese ate almost everything. 'Little can be thought of, but what appears at their table in some dress or other. Many things, despised by other nations, make up part of their desert and most delicate dishes.'²⁴⁰ They seemed able to live on humble food. 'The Japanese are very industrious, and endured to hardships. Very little will satisfy them. They generally live on plants and roots, tortoises, shell-fish, sea-weeds and the like.'²⁴¹

One group of scholars and observers have argued for dietary defects, in particular pointing to certain key deficiencies. The English doctor Willis pointed out 'that butter and milk would be a very useful addition to the sweet potato which formed the ordinary diet of the poor people.' He stressed that 'a mixed diet, one partly vegetable and partly animal, is best suited to the requirements of the human body and the one best suited to the capabilities of this province to produce food for its inhabitants.'²⁴² A few months later he wrote 'It is the duty of the undersigned to speak plainly and to tell the Government that the standard of health and vigour of the inhabitants of this province and indeed throughout Japan falls short of what it should be.' One of the chief causes was, he thought, 'the comparatively poor diet of the population generally.'²⁴³ Certainly visitors from the better fed western middle classes in America or Britain were surprized at how meagre the diet seemed to be. They noted that for many 'even rice was something of a luxury.' As Bird wrote, 'The shops, such as they are, contain the barest necessities of life. Millet and buckwheat rather than rice, with the universal **daikon** (radish) are the staples of diet.'²⁴⁴ This thin diet continued up into the 1930s. A newspaper reporter then described the daily meals of a typical family of tenant farmers in western Japan as consisting of 'rice gruel and pickles for breakfast; rice gruel, dregs of soybean cakes, and pickles for lunch; and rice mixed with barley, vegetables and

²³⁹ Kaempfer, History, 1, p.186

²⁴⁰ Kaempfer, History, 3, p.314

²⁴¹ Kaempfer, History, 3, p.312

²⁴² Cortazzi, Willis, p.181

²⁴³ Cortazzi, Willis, p.181

²⁴⁴ Bird, Tracks, p.128

pickles for supper.²⁴⁵

Ironically, however, it appears that two of the major health problems were caused by the preparation and eating of too much of the food with the highest status, white rice. One was calcium deficiency. The absence of meat and eggs in the diet could be offset by eating cheaper grains. Morse noted that 'It is said that injuries and fractures of the bones heal very slowly and often imperfectly. Rice has but half the ash material of wheat, and the water does not supply sufficient inorganic matter necessary for the bones.'²⁴⁶

Equally important was the spread of a curious wasting disease which was finally traced to a particular inadequacy in the diet. This was beri-beri, or **Ka-Ke** as it was known in Japan.

(APPENDIX on beri-beri - a-beri).

Returning to the question of the over-all dietary quality of food in Japan, a thoughtful attempt to estimate whether the diet was inadequate in terms of energy during the second half of the nineteenth century has been made by Hanley. She gives figures suggesting 'the growth from 1,664 Kcal in the 1840s to 1,902 Kcal in 1887.' Given the size and weight of the Japanese population, she believes that 'A diet providing 1,700 - 1,900 Kcal and 45-50g of protein might keep the physique of the Japanese people within certain limits, but was not insufficient for the Japanese of that era.'²⁴⁷ She adds that 'Taking everything into consideration, 2,000 Kcal per day per capita was not a low nutritional standard in 1887. Further, the survey data do not include consumption of unrefined sake, consumed by farmers, which could have provided additional calories needed for hard labor.'²⁴⁸ In conclusion, she believes that not only had there probably been an increase in the amount of rice consumption over the Tokugawa period,²⁴⁹ but that the evidence as a whole shows 'the adequacy of the diet and its long-term stability over a critical half-century of transition.'²⁵⁰ This was the view of Chamberlain at the time. 'Experts say

²⁴⁵ Hane, p.41

²⁴⁶ Morse, i, p.40

²⁴⁷ Jansen; Rozman (eds.), Transition, p.445

²⁴⁸ Jansen; Rozman (eds), Transition, p.442

²⁴⁹ Cambs, Hist, iv, p.681

²⁵⁰ Jansen (ed), transition, p.446

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that Japanese food, though poor in nitrogen and especially in fat, is rich in carbon and amply sufficient to support life, provided the muscles be kept in action, but that it is indigestible and even deleterious to those who spend their time squatting on the mats at home.'

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²⁵¹ Chamberlain, *Things*, 180.