

Changes in Diet in the Late Middle Ages: the Case of Harvest Workers*

By CHRISTOPHER DYER

Abstract

The custom of feeding workers during the autumn on various manors in eastern and southern England provides an opportunity to quantify changes in diet over two centuries. In the thirteenth century harvest workers were given much bread and some cheese, with relatively small quantities of ale, fish and meat. Two centuries later the importance of bread had much diminished, and a high proportion of the diet consisted of meat and ale. Barley and rye bread was replaced by wheat, bacon by beef, and cider by ale. These workers ate better than most wage-earners and peasants, but the trends in eating patterns were general. The chronology of the changes, which were spread over much of the fourteenth century, and the general relationship between diet, production, the market and demography, have implications for our interpretations of the late medieval period.

FOR generations knowledge of medieval agriculture has advanced, yet still we have hazy notions of the consumption of foodstuffs, especially by the lower ranks of society. A greater awareness of eating patterns can help our understanding of the social structure, so that such categories as 'wage-earners', 'peasants', and 'gentry' can be visualized in terms of their different material standards of life.¹ If we can learn more about diet we will be better able to test the hypothesis that the low nutritional status of large sections of the population in the early fourteenth century ended a century or more of increasing numbers and began a long period of demographic stagnation.² Finally, information about the use of crops and animal products

should provide new insights into the aims and methods of agricultural production.³

The search for information about diet leads us to employ a great deal of indirect evidence, by analysing the grain allowances made to retired peasants for example, or by examining the grain liveryes given to full-time servants on manors (*famuli*), or by sifting through bones and plant remains found as accumulated rubbish on archaeological sites. These and other areas of study are valuable sources of data, but they all tend to throw light on sections of the diet only, and often their use must be surrounded with uncertainties of interpretation.

The records contained in manorial accounts of the food and drink given to harvest workers provide a sample of lower-class diet over a long span of time, from the mid-thirteenth to the mid-fifteenth century. For this reason harvest-workers' diets are worth investigating, and the first part of this essay will contain a survey of their food consumption. However, the harvest workers were not typical of the whole labour force, and the later part will attempt

*Parts of this paper were presented to a seminar on Food and History organized by Professor T C Smout of the University of St Andrews in November 1984, and to a session on Nutrition and Standards of Living convened by Professor R W Fogel at the Ninth Economic History Congress at Berne in August 1986. As well as benefiting from discussions with participants on those occasions, I owe specific debts for help from B M S Campbell, B Carpenter-Turner, E J T Collins, E Crawford, R A Holt, J L Langdon, M Mate, D J Oddy, S A C Penn, J Z Titow, J Williamson.

¹ For a continental example see L Stouff, *Ravitaillement et Alimentation en Provence aux XIV^e et XV^e siècles*, Paris, 1970.

² M M Postan, *The Medieval Economy and Society*, 1972, p 34; J Z Titow, *English Rural Society, 1200-1350*, 1969, pp 64-96; G Bois, *The Crisis of Feudalism*, Cambridge, 1984, pp 268-9.

³ Eg I Blanchard, 'The Continental European Cattle Trades, 1400-1600', *Econ Hist Rev*, 2nd ser, XXXIX, 1986, pp 427-60.

to define their position within the social hierarchy of living standards, and to explore the wider implications.

Most manors paid their harvest workers a cash wage. On the minority of manors which are the subject of this enquiry, mostly in southern and eastern England, the labour force was given both cash and food. The group of workers who brought in the harvest included the *famuli*, the permanent staff of the manor, who for the 'autumn' (a period of four to seven weeks) were given an enhanced cash wage and meals instead of the usual combination of cash and grain. They were joined by workers hired specially for the harvest (both for the duration, and for shorter times), and by administrators. For example, at Sedgeford (Norfolk) in 1273 thirty-four people were said to be 'resident at table', including the supervisors, that is, a sergeant, reeve, hayward, and tithe collector, and the *famuli*, including the herdsmen and two dairymaids. Eleven extra hands were hired for the full 'autumn' of thirty-nine days, and four for ten days only.⁴ A dairymaid (*deye*) did some of the food preparation, but usually a cook was employed full-time.

Before analysing the food issued on these occasions, we must consider the nature of this important part of the farming year. The participants worked hard over long hours, scything and raking barley, cutting other types of corn with sickles and binding the sheaves, tossing the sheaves into carts for carriage back to the manorial *curia*, and there 'pitching' the corn onto stacks. The work sometimes had to be hurried, 'for fear of rain' as the accounts say in justifying an extra tip given in encouragement. The intensity of pre-mechanized harvest work has been recorded by nineteenth-century observers, and the illustrator of the early fourteenth-century Luttrell Psalter, with his eye for

the grotesque, has captured in the bent backs and strained faces of his figures some of the harsh toil involved.⁵

The harvest was a time of high labour productivity, when workers could keep up the pace better if they ate plenty of food, and employers gained from generous treatment of the workers. It was also a period of intense competition for labour, when the lords of manors, demesne farmers, rectors, and better-off peasants all needed hired hands. Labour mobility reached a peak in August, as people left their homes and normal occupations in search of good pay in the harvest fields. Even in the years around 1300, when labour was relatively abundant before the epidemics of 1348-9, village by-laws were requiring the able-bodied to accept employment in the harvest at 'a penny a day with food', instead of running off to other villages, or making a living by gleaning.⁶ After 1349 the struggle for labour intensified, and many harvest workers came before the justices for offences under the Statute of Labourers, accused of demanding and receiving excessive rates of pay, and of breaking contracts in order to take the opportunities of the season. The cases show that daily wages doubled at harvest time, and that workers were also offered high lump sums (such as 6s 8d) and inducements in kind to work for the whole season.⁷

Because harvest workers were a special case, their diet, which formed an important element of their total pay, was superior to that of wage-earners in other occupations. The employers had the resources to provide ample supplies, in return for which they were able to recruit a large, willing, and efficient work-force, who they might hope would return in subsequent years.

5 B Bushaway, *By Rite*, 1982, pp 107-38; G Ewart Evans, *Ask the Fellows who Cut the Hay*, 1965, pp 85-93; E G Millar (ed), *Luttrell Psalter*, 1932, pp 97-9.

6 W O Ault, *Open-Field Farming in Medieval England*, 1972, pp 29-34.

7 S A C Penn, 'Wage-Earners and Wage-Earning in Late Fourteenth Century England', Research Report for the ESRC, Birmingham, 1986, p 51.

4 Norfolk RO, DCN 60/33/4.

Although the peculiar characteristics of the season and its workers should be borne in mind, they should not undermine entirely the value of studying the harvesters as a group of medieval wage-earners. We are not dealing with a single and exceptional day, like the reaping boon when all tenants turned out to do a day's labour service and were rewarded with a special meal. The autumn normally lasted for about five weeks, or a tenth of the year, more than an insignificantly transient episode in people's lives.

And the harvest workers formed a wide cross-section of the lower ranks of medieval society. Among the *famuli* some were no doubt youths labouring in the early years of their life-cycles, and others included married small-holders like Henry le Driver, the ploughman at Cuxham (Oxon) who was still working on the demesne at the age of about fifty in 1348, and widowed cottagers like Chaucer's *deye*, with her two daughters, three pigs, and three cows, who is of course fictional, but was recognizable as a type to an audience of the 1390s.⁸ The temporary employees would also have included small-holders without the ties (or the security) of full-time work on a demesne, and members of their families. Workers in such industries as building and textiles abandoned their jobs for higher pay in August.⁹ Temporary migrants came from towns, like the forty-six 'cokeres' from King's Lynn, who worked at Sedgeford in 1378.¹⁰ Itinerants travelled from further afield, notably the bands of Welshmen who worked in the midlands in the autumn. At Brancaster (Norfolk) in 1368 three 'flemynge' called

Pekkeres' (presumably from Picardy) were hired.¹¹ All sources agree that both sexes joined in the harvest, for example at Appledram in Sussex in 1450 wages were paid to 'various men and women harvesting, at the lord's table'.¹² A few better-off peasants (who would generally have been busy bringing in their own crops) would have been present at the demesne harvest by virtue of their tenure of such offices as reeve and hayward. By an unusual arrangement at Lullington (Sussex) the supervisors only were fed at the manor and the workers fended for themselves.¹³ The sergeant or bailiff, often recruited from the lesser gentry, was the highest ranking of the residents, though monks or senior administrators sometimes stayed on the manor for a few days to keep an eye on the work. These fleeting visits did not usually have much influence on the types or quantities of food consumed.¹⁴ In short, the main body of the harvest workers ranged from the upper peasantry to landless servants, with the great majority at the bottom end of the social spectrum. They included young and old, men and women, townsmen and villagers, householders and itinerants, English and foreigners, people working normally in both industry and agriculture, and those in both continuous and intermittent employment; they represent a varied sample of the whole medieval labour force.

Wealthy monasteries figure prominently among those known to have been employers of harvest workers who ate at the lord's table; they include Norwich Cathedral Priory, Battle Abbey, and St

⁸ M M Postan, *The Famulus*, *Economic History Review Supplement*, 2, 1954; A Kussmaul, *Servants in Husbandry in Early Modern England*, Cambridge, 1981; P D A Harvey (ed), *Manorial Records of Cuxham, Oxfordshire, c.1200-1359*, Historical Manuscripts Commission, JP 23, 1976, p 763; idem, *A Medieval Oxfordshire Village: Cuxham, 1240-1400*, Oxford, 1965, pp 77, 125; F N Robinson (ed), *The Works of Geoffrey Chaucer*, 2nd edn, London, 1957, p 199 (*Canterbury Tales*, VII, ll 2821-46).

⁹ Penn, *op cit*, pp 17-31.

¹⁰ Norfolk RO, Le Strange MSS 1B 3/5.

¹¹ PRO, SC6 931/8.

¹² Millar, *op cit*, p 97; S A C Penn, 'Female Wage-Earners in Late Fourteenth-Century England', *Ag Hist Rev*, XXXV, 1987, pp 1-14; PRO, SC6 1018/24. See also M Roberts, 'Sickles and Scythes: Women's Work and Men's Work at Harvest Time', *History Workshop*, 7, 1979, pp 3-28.

¹³ PRO, SC6 1024/1-2, 4-5, 8, 15; 1016/1.

¹⁴ At Mildenhall (Suffolk), in 1323-4, the visitors included the Cellarer of Bury St Edmunds, his entourage, and the estate steward, so wine appears among the harvest expenses: Bodleian Library, Suffolk Rolls no. 21.

Swithun's Priory Winchester. Also the harvest is associated with paternalistic customs, like the many perquisites granted to customary tenants performing labour services in the autumn.¹⁵ Is it therefore possible that the accounts which contain harvest diets are very unrepresentative, recording the generosity of 'good' lords, well in excess of normal provisions? This is unlikely, first because documents from the manors of minor landowners – gentry and very small monastic houses – show a similar autumn dietary regime; and secondly because great lords were very cost-conscious, and employed auditors to make sure that workers did not receive pay greatly in excess of the going rate. Peasant and seigneurial employers were competing in the same labour market, and both gave workers in the late thirteenth century a daily wage of '1d with food', and presumably there was some comparability between employers in the payments in kind as well as in cash.

I

Sedgeford has been chosen as an example because of the manor's remarkably long series of accounts, and the detailed information that they contain. They were compiled for Norwich Cathedral Priory, a house famous for its thorough accounting methods.¹⁶ The form of the paragraph in each document headed 'Costs of the Autumn' is ideal for this analysis because the use of cash is given in detail. Many of the foodstuffs came from the manor's own resources, and are recorded twice, under the autumn costs, and on the dorse of the account. The information is imperfect in ways that are common to all medieval accounts. The officials in charge of the

manors inevitably cheated the lord, by claiming more than the real expenditure. The harvest costs seem to have been subject to frequent disputes between officials and auditors, judging from the number of alterations on the documents. The vigilance of the auditors is our guarantee that the amounts are not ludicrously over-stated, and our trust in their professionalism receives some reassurance from the marginal notes in which they checked the figures by calculating the number of people receiving bread from a bushel of grain, or the daily cost of food issued to one employee.¹⁷ The quantities are likely to be somewhat exaggerated, but were not fictitious. An administrative complication at Sedgeford arises from the existence of two manors, Easthall and Westhall; the former may have provided goods for the Westhall employees without any reference appearing in the accounts, but this is unlikely. Some items are absent from the accounts because they involved no expenditure of money, notably the vegetables from the manor's garden. Also the documents are silent about the distribution of foodstuffs among the workforce. For example, the meat included such delicacies as doves and poultry, which were likely to have been reserved for the supervisors and not shared equally among the workers. The main problem in using the accounts, however, is that they do not record the actual recipients of the foods. Judging from the vast quantities, the workers must have been handing over much of the food either to assistants or to their families. We know that in later periods harvest workers sometimes worked as teams with wives and children.¹⁸ It is also possible that some food was sent out of the temporary harvest

15 A Jones, 'Harvest Customs and Labourers' Perquisites in Southern England, 1150–1350: the Corn Harvest', *Ag Hist Rev*, XXV, 1977, pp 14–22; Bushaway *op cit* for a general discussion.

16 E Stone, 'Profit-and-loss Accountancy at Norwich Cathedral Priory', *Transactions of the Royal Historical Society*, 5th ser, XII, 1962, pp 25–48.

17 This type of checking calculation was recommended in auditors' text-books; eg D Oschinsky (ed), *Walter of Henley*, Oxford, 1971, pp 417–45.

18 D H Morgan, 'The Place of Harvesters in Nineteenth-Century Village Life', in R Samuels (ed), *Village Life and Labour*, 1975, pp 29–72; idem, *Harvesters and Harvesting*, 1982, pp 23–5, 59. Cf K D M Snell, *Annals of the Labouring Poor*, Cambridge, 1985, pp 52–3.

household to dependants. Certainly the diets that we are investigating must have been consumed by a much wider circle of people than the accounts reveal.

Sedgeford lay in the 'good sand' district of north-west Norfolk.¹⁹ The sown acreage of the demesne sometimes exceeded 400 acres before the Black Death, and shrank to 268 acres by 1424. The land was used to grow barley with some wheat, rye, peas, and oats. Stock kept on the manor included a dairy herd of about two dozen cows in the late thirteenth century, together with pigs and poultry, and a large flock of sheep.

Every year between twenty and fifty full-time workers appear on the harvest pay-roll of Sedgeford.²⁰ The content of the diet issued to them is indicated by Table 1, which gives the percentage of each type of food calculated by value. In the thirteenth century the bulk of the supplies was produced on the demesne, so the values have been calculated from current prices, mostly given in the Sedgeford accounts or from accounts of manors as near as possible to Sedgeford. In the fourteenth and fifteenth centuries more food was purchased, and the accounts themselves provide valuations for the products of the manor. Long-term and short-term variations in prices have influenced the figures, but they reflect changes in quantity rather than prices. Violent short-term fluctuations did not occur in the years chosen for analysis, and the long-term decline in grain prices was to some extent offset by the substitution of wheat for cheaper grains in the later part of the period. Therefore the main reason for the trends shown in Table 1 is the change in the actual quantity and quality of different foods issued, not movements in prices. The information is provided in approximate ten-year inter-

TABLE 1
Analysis (by Value, in Percentages) of Food-stuffs Consumed by Harvest Workers at Sedgeford, Norfolk, 1256-1424*

Year	1256	1264	1274	1286	1294	1310	1326	1341
Bread	41	48	49	47	48	43	39	34
Pottage corn	1	1	2	2	1	1	1	1
Alc	13	7	11	12	16	14	17	21
Meat	4	4	7	14	8	8	11	9
Fish	13	16	12	12	9	10	10	17
Dairy produce	28	24	19	13	18	24	22	18
Year	1353	1368	1378	1387	1407	1413	1424	
Bread	31	19	15	14	17	20	15	
Pottage corn	1	1	1	1	1	1	1	
Alc	26	28	22	20	33	29	41	
Meat	15	25	24	30	28	50		28
Fish	14	13	15	23	10			6
Dairy produce	13	14	23	12	11			9

* All columns total 100%

vals, so far as the uneven survival of the documents allows. The figures usually derive directly from the documents. Estimation has been used only in the case of the oatmeal for the pottage, for which the accounts usually give the quantity only for the whole year, and for milk which is often stated to be the product of the cows during the autumn, which has to be calculated from the yield before and after the harvest period.

Table 2, which attempts to quantify the diet in two sample years by giving the items provided, and the share of each person per day, is much more speculative than Table 1. Meat and fish have been put together, though in reality they would have been eaten on separate days according to the church's rules. The figures for shares rest on questionable assumptions about the weight of foods, the translation of medieval into modern measures, the amount of waste in preparation, and the calorific values of medieval foods (the assumptions behind the calculations are given in Appendix 1). As noted above, the very large quantity of food allowed for each person, much in excess of the 2000-3600 calories

¹⁹ J Williamson, 'Norfolk', in P D A Harvey (ed), *The Peasant Land Market in Medieval England*, Oxford, 1984, pp 84-102.

²⁰ Norfolk RO, DCN 60/33/1,2,4,5,7,10,14,19,25,30,31; Le Strange MSS, 1B 1/4, 3/5.

TABLE 2
Food Allowances at Sedgeford (Norfolk)
1256 (1443 man-days)

Food		Amount per man-day (imperial)	Amount per man-day (metric)	Kcal (%)
Bread	1 qr 7 bu wheat 27 qr 2 bu barley	6.99 lb	3171 g	9,602 (74%)
Pottage	1 qr 2 bu oats	2.49 oz	71 g	285 (2%)
Ale	8 qr 4 bu malt	2.83 pt	1.61 l	513 (4%)
Meat	1 pig 20 fowls and 6s 8 ¹ / ₄ d spent	3.68 oz	104 g	243 (2%)
Fish	170 mulwell 1050 herrings	15.52 oz	440 g	694 (5%)
Dairy produce	120 eggs 602 lb cheese 518 gall milk	0.12 oz 6.67 oz 2.87 pt	3 g 189 g 1.63 l	1,630 (13%)
				12,967 (100%)
1424 (906 man-days)				
Bread	3 qr 4 bu wheat	1.97 lb	894 g	1,994 (40%)
Pottage	4 bu oats	1.59 oz	45 g	180 (4%)
Ale	12 qr malt	6.36 pt	3.61 l	1,154 (23%)
Meat	3 pigs 1 bullock 8 sheep 8 geese and 10s 0d spent	16.87 oz	478 g	1,169 (23%)
Fish	30 cod	3.46 oz	98 g	135 (3%)
Dairy produce	Cheese, milk, butter, eggs - calculated as 224 lb cheese	3.96 oz	112 g	336 (7%)
				4,968 (100%)

now regarded as a normal adult's daily intake, must be explained by assuming that helpers and families were being fed out of the harvest allowances, and consequently no certain judgements can be made of the actual quantity eaten by individuals each day. Nor should the reduction in the size of the shares between the late thirteenth and early fifteenth century be taken as evidence of a decline in food intake. Over the period the method of payment shifted; at the beginning the average pay of individual workers for the harvest period was a little over 2s in cash, with food allowances worth about 2d per day, while in the 1420s

the cash wage for the season had risen to about 7s each and food allowances were valued by the auditors of the accounts at around 1¹/₂d per person per day. So workers after the Black Death were receiving a higher proportion of cash, and food allowance of lower quantity and value, but of generally higher quality. The valuations of the individuals' allowances in both cash and calories suggest that in the thirteenth century (when skilled workers were paid about 3d per day) the harvest workers were getting enough to feed a whole family, while after the Black Death they received a good proportion of a household's needs

and the rest would have come from any land held by them or from purchases. The mechanics of food distribution among assistants or families are not known. The accounts insist that the grain was milled and baked and the malt brewed, so the workers were receiving prepared food and drink, not sacks of grain. Medieval bread was often kept, even in aristocratic households, for days, even a week, before consumption, so it could have been sent out occasionally to dependants. Liquids, like pottage and ale, were more difficult to transport in quantity, so it seems likely that they were consumed by the harvest workers themselves.

The diet of the thirteenth century revealed by these accounts is characterized by a high proportion of bread, with a great deal of dairy produce in the form of cheese made from the manorial cows earlier in the summer, and milk from the cows during the harvest season. Together these two elements totalled about four-fifths of the calorific value of the food issues. The malt could have provided a share of two or three pints (1.3–1.7 litres) of strong ale, in which case, in view of the heat and sweat of the harvest field the workers must have drunk much milk and water. A more likely way of using the malt would have been to brew a larger quantity of thinner ale (four or five pints ?), though even then some other drink would have been needed to quench the thirsts of these active workers, especially in view of the unrecorded numbers of assistants or relatives receiving some of the ale.

Changes in the diet are apparent in the early fourteenth century (see Table 1), when the percentage spent on bread declined, and the value of the ale increased. By 1341 enough malt was provided to give as much as five pints (2.8 litres) of strong ale for each worker on the pay roll. After 1349 these trends were emphasized, with the value of bread corn, once a half of the total spent, falling to only a fifth, while the

brewing malt rose from about an eighth to a quarter of the budget. By the early fifteenth century the quantity of malt would have been sufficient to give shares of six pints (3.4 litres) of the best ale, or a gallon of thinner stuff (4.5 litres), though each person, allowing for undocumented helpers, may have received a smaller amount. Perhaps Hillman's advice to farmers brewing for the harvest, written in 1710, indicates earlier practice: 'make three sorts of beer, the . . . strongest for your own use, the second is what is called best beer, whereof each man ought to have a pint in the morning before he goes to work, and as much at night as soon as he comes in . . . Small beer they must also have in the field.'²¹ Meat increased greatly in importance in the late fourteenth century, from a tenth or less of the food budget to a quarter or a third of the total, while dairy produce, and at a later stage, fish, declined. In terms of nutritional values, the allowances of the fifteenth century contained much fewer calories deriving from cereals consumed in the form of bread. Meat, which contributed a negligible proportion of calories two hundred years earlier, was now a source of a fifth or more of the total.

Another way of expressing the changes in the balance of the diet would be to set the ale aside and concentrate on solid foods. In that case, bread in the third quarter of the thirteenth century accounted for about a half of the total cost, and meat between 4 and 8 per cent, while in the early fifteenth century a quarter of the expenditure went on bread, and 42–47 per cent on meat. For every 2 lb of bread that they ate in the thirteenth century, the workers received an ounce or two of meat and about 5 oz of fish. A century and a half later, for every 2 lb of bread workers were allowed a pound of meat and 3–4 oz of fish.

²¹ T Tusser, *Five Hundred Points of Good Husbandry*, Oxford, 1984, p. 305.

The quality of the foods also changed. Bread was baked mainly from barley in the thirteenth and early fourteenth century. Wheat accounted for less than 8 per cent (by volume) of the bread corn, and probably the sergeant and the other supervisors ate the wheat bread, along with other 'luxuries' such as poultry. An increase in the proportion of wheat and rye at the expense of barley is apparent in 1341, and continued rapidly until the wheat and rye amounted to almost a half by 1353, and by 1387 barley bread had disappeared completely from the harvest food allowances. Then the proportion of wheat increased until it replaced rye entirely in 1407. In this year, the bread which was purchased for holidays when the Sedgeford baker took a rest was described as 'white', suggesting the use of flour with a high extraction of bran. When wheat replaced barley as the main bread corn the daily quantity dropped sharply to about 2 lb per head, so presumably the workers were exchanging quality for quantity, and gave a much smaller proportion to assistants.

The meat provided in the thirteenth century consisted mainly of bacon. Fresh beef was included from as early as 1286, and after the mid-fourteenth century the proportion of beef rose until three cattle were being slaughtered in some years; also in the fourteenth century fresh mutton was being added to meat supplies. Towards the year 1400 the allowance of meat for each officially listed worker had reached a level near to a pound per day, counting only the carcass meat, and a chance statement in the account for 1387 makes it clear that the offal was also consumed. Fish supplies consisted mainly of salt cod and preserved herring throughout the period, though its unpopularity is suggested by the diminishing quantities issued in the late fourteenth century, and fresh fish (that is, fresh sea fish) is mentioned for the first time in the early fifteenth century. Presumably the harvest workers kept the same pattern of

meat and non-meat ('fast') days as did aristocratic households, observing fast days on Fridays and Saturdays, on the vigils of feasts, and perhaps also on Wednesdays, in which case it might be expected that the average quantity of meat would be equal to, or rather greater than, the weights of fish. Before 1349 fish exceeded meat, suggesting that cheese was eaten, either with the meat, or instead of meat on non-fast days. After the mid-fourteenth century the situation was reversed, and as the meat increased and the fish dwindled the cheese would have supplemented the fish. However, the quantities of dairy produce declined in the long term, being displaced by meat and perhaps (for liquid milk) by ale. No change in the types of milk-products is known, though butter is specifically mentioned for the first time in 1309 and regularly thereafter.

The physical arrangements for the harvest workers' meals can be glimpsed from hints in the accounts. At least one meal each day was eaten *ad mensam*, at the lord's table, set out in the hall of the manor house. A canvas table cloth five ells long was bought in 1378, but a longer table would have been needed to seat all of the workers of that year, and perhaps only the supervisors enjoyed the privilege of a covered board. Expenditure on candles suggests that either some eating or food preparation took place in the dark, leaving the daylight hours for work in the field – unless such work as carting or stacking sometimes continued after dusk.²² The morning meal, *prandium*, was eaten out-of-doors, judging from the employment of a servant to carry food and drink *versus campum* (to the field). The food was eaten from dishes, plates, and bowls of wood bought for the purpose, together with wooden spoons; the brewing required the purchase and maintenance of large vessels. The custom of feeding harvest workers

²² Night harvesting in Norfolk is attested in c1710: *ibid.* p 305; see also Ault, *op cit.* pp 36–7.

helps to explain why estates maintained manor houses which were used only rarely as residences for the lords.

To sum up, the Sedgeford records give a picture of harvest workers and their dependants 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.

II

The custom of feeding harvest workers at the lord's table was especially common in Norfolk, but is found sporadically in the records of manors in other counties. Information for comparison with Sedgeford has been obtained from seventeen manors, five in Norfolk, four in Hampshire, two each in Suffolk and Sussex, and single manors in Huntingdonshire, Lincolnshire, Oxfordshire, and Warwickshire. There are broad similarities between the general trends at Sedgeford and these other manors, and some important variations.

First a general tendency can be recognized for the balance of the diet to shift from cereal-based foods (bread, oat-meal pottage, and ale), towards meat, fish, and dairy produce, which the accounts sometimes call *companagium* (literally, 'that which goes with bread'). At Hindolveston, another Norfolk manor on the same estate as Sedgeford, the bread element amounted to about a half (by value) in the mid-thirteenth century, and was reduced to 28 per cent in 1362 and 15 per cent by 1412.²³ At Martham in north-east Norfolk, in a much more fertile, intensively cultivated district, the proportion of expenditure on bread fell in a similar way from 48 per

cent in 1266 to 16 per cent in 1389.²⁴ At both of these places the amount of meat increased markedly over the same period, from a tenth to more than a quarter of the food budget. On a different estate (that of Merton College, Oxford), at Cuxham (Oxon) the value of the cereal-based foods amounted to 69 per cent of the total in 1297, and by 1357 had fallen to 58 per cent, with a corresponding increase in the proportion of *companagium*.²⁵ The importance of the change in the mid-fourteenth century is indicated by the figures from Thurlby (Lincs) where the proportion of meat in the harvesters' food budget increased from 8 per cent in 1341 to 26 per cent in 1362, and the ratio between cereal-based foods and *companagium* changed from 77:23 to 56:44.²⁶

Secondly, as at Sedgeford, there was a tendency for a greater proportion of cereals to be used for brewing rather than baking, with ale accounting for 16 per cent of the value of the supplies in 1287 at Appledram (Sussex), but 30 per cent and above in many years between 1341 and 1450.²⁷ A more modest increase is found at Cuxham, from 30 per cent in 1297 to 37 per cent in 1357.

Thirdly, the content of the *companagium* changed, the proportion of meat rising while that of dairy produce decreased. This was especially marked at Hindolveston and Martham. At Appledram in 1375 an explanation to the auditor shows that fresh meat was being deliberately substituted for dairy produce: 'and no more [cheese and butter] because six wethers and ewes were expended in the autumn, and three geese'.²⁸

Variations from the Sedgeford example are mainly apparent in the types of food eaten. In Norfolk in the thirteenth century

²³ Norfolk RO, DCN, 60/18/1, 14, 30, 38, 59.

²⁴ Norfolk RO, DCN 60/23/3, 23; NNAS, 5899/20 D1.

²⁵ Harvey (ed), *op cit*, pp 281-588.

²⁶ PRO, SC6 914/6, 7.

²⁷ PRO, SC6 1016/5, 7, 9, 12, 13, 14, 15, 18; 1017/1, 4, 5, 6, 8, 10, 11, 14, 16, 18, 20, 24, 25; 1018/22, 24.

²⁸ PRO, SC6 1017/8.

barley and rye were the main bread corns, though in the early fourteenth century the Hunstanton harvest workers were given maslin bread (wheat and rye).²⁹ Elsewhere the move towards wheat as the main or sole bread corn was a marked development of the fourteenth century, and the change had often been completed by the 1380s. The workers at Mildenhall, a Suffolk manor of Bury St Edmunds Abbey, advanced slowly and the proportion of wheat issued to them rose from a third in 1324 to below a half in 1382, when maslin and rye bread still accounted for much of the total.³⁰ In other counties, notably in Hampshire, Oxfordshire, and Sussex, harvest workers were given wheat bread even in the late thirteenth and early fourteenth century. An exception is Combe (Hants) where 39 per cent of the harvest bread in 1307 was baked from *beremancorn* and the rest from wheat, and the harvesters at another Hampshire manor, Chilbolton, ate mainly wheat bread but a quarter or a third of the bread was baked from barley in the decades around 1300, and the barley was replaced by wheat in the course of the fourteenth century.³¹

On southern manors before 1349 cider often provided a major part of the drink supplied to harvest workers, even exceeding the quantity of ale supplies. On such manors as Appledram, Lullington, and Chilbolton in the late fourteenth century cider was replaced by ale, though at the former manor it continued to make an intermittent appearance after 1370.³²

In Norfolk the meat mainly eaten by harvest workers changed from bacon to fresh beef. Similarly at Cuxham bacon

figured prominently in the diets of the 1290s, and fresh mutton was added during the fourteenth century. Mutton appeared for the first time in the Appledram accounts in 1354 and then became a normal feature of the harvest workers' diet for at least the next century. At Manydown (Hants) mutton already figured prominently among the types of meat in 1338, and the innovation of the late fourteenth and fifteenth century was the introduction of quantities of fresh beef.³³ Poultry, especially geese, formed a fairly consistent minor element in harvest food supplies throughout the later middle ages. Traditionally geese were fattened on the grain that lay among the autumn stubble, and then slaughtered for a celebratory feast, called the *ripgoos*; they may also have been served on the 'high table' of the bailiff and supervisors throughout the whole season.³⁴

While recognizing the improvement in the meat allowance, some reservations should be made about the quality of the provisions. While medieval taste did not entirely share our preference for young animals, some appreciation of such meat in aristocratic households is indicated by the calves, piglets, and lambs served in addition to predominantly mature animals. The harvest workers were generally given animals too old or too inadequate to perform their normal functions on the manor; the accounting officials were anxious to impress this on the auditors who might have questioned the use of high quality stock for this purpose. Hence the procession of ancient bulls, enfeebled oxen, sterile cows, and *kebb* (culled) wethers and ewes slaughtered for harvest workers. When those at Mildenhall (Suffolk) were supplied with two heifers, the auditors were informed that the beasts were thought to be diseased – perhaps the har-

²⁹ Norfolk RO, Le Strange MSS BG 4; NH 4a; G H Holley, 'The Earliest Roll of Household Accounts in the Muniment Room at Hunstanton for the 2nd year of Edward III', *Norfolk Archaeology*, 21, 1920-2, p 95.

³⁰ Bodleian Library, Suffolk Rolls No 21; British Library, Add Roll 53,116.

³¹ M Chibnall (ed), *Select Documents of the English Lands of the Abbey of Bec*, Camden Society, 3rd ser, LXXIII, 1951, pp 149-52; J S Drew, *The Manor of Chilbolton (Hants)*, Typescript in the Institute of Historical Research, University of London.

³² See notes 13, 23, and 31 above.

³³ G W Kitchin, *The Manor of Manydown, Hampshire*, Hampshire Record Society, 1895, pp 150-8; Winchester Cathedral Library, Box 29/nos 47, 49.

³⁴ Tusser, *op cit*, p 178.

vest workers were not told of this.³⁵ As at Sedgeford, on other manors they consumed the offal of animals killed for the harvest.

The fish purchased for the autumn meals usually included some type of salted white fish and either red or white herrings. At Appledram after 1370 and in 1384 at Boarhunt (Hants) the harvesters ate fresh fish as well as the preserved kinds.³⁶

Harvest workers were provided with pottage, which was also given to the full-time *famuli* all year round, when they received no other food apart from their liveries of grain. Oatmeal, and sometimes peas and beans, provided the basis of this dish. The other ingredients to some extent remain a mystery, except that at Catton (Norfolk) in 1274 *5d* was spent on *olera* (vegetables) for pottage.³⁷ Normally such crops as onions and leeks were grown in the garden of the manor, and because they involved little expenditure, were not mentioned in the accounts. There is direct evidence at Lakenheath (Suffolk) where in 1329–30 the garden of the manor was leased out on condition that vegetables were still supplied for the pottage of the *famuli*.³⁸ In view of the relatively small effort that went in general into manorial gardening, certainly in terms of payments of cash, the production of vegetables must have been severely limited in quantity. Their virtual omission from the documents was not just accidental – it is a measure of their small importance in the eyes of lords and their officials. The vegetables contributed flavour to the meals, like the garlic supplied to the Cuxham harvest workers

in 1357.³⁹ Salt is mentioned as a separate item in some accounts, but more often it came from the manors' general supply.

The domestic arrangements of the other manors resembled those of Sedgeford. At Catton, because the harvest workers collected rectorial tithes as well as bringing in the demesne crops, in 1274 they were 'at table' both in the hall of the manor, and in the 'church house'. Treen utensils were in use everywhere, and the purchase of a linen table cloth at Wibtoft (War) in 1377 shows that Sedgeford was not unique in providing such a refinement.⁴⁰

The detailed chronology of dietary change deserves closer investigation. Clearly the pattern of consumption changed most rapidly when the size of the whole labour force fell precipitously in 1348–9, but the diets cannot be simply resolved into those prevailing before and after the plague. The Sedgeford figures show a definite downward movement in the proportion of the budget devoted to bread in 1341, and the beginning of the substitution of wheat and rye for barley. Another Norfolk manor, Catton, has more plentiful documents for the early fourteenth century, and they confirm a decline in expenditure on bread and an increase on meat long before the Black Death, even beginning as early as the 1290s.⁴¹ Rye generally replaced barley on this manor in the early fourteenth century, and by 1339 wheat and rye together accounted for more than half of the corn for baking bread. Similarly the introduction of fresh meat appears generally in the early fourteenth century, in 1317 in the case of mutton at Cuxham. So in diet, as with other indices of economic change, the Black Death appears as intensifying and accelerating

³⁵ Feeding old animals to the harvest workers was advised by Hillman in the early eighteenth century: 'a cow or two, some fatted crones (old ewes) may be timely provided, . . . and if you have but plenty, and fat, provided it be sweet, your guests will ask no further questions: for at this time they do expect a full diet'. Tusser, *op cit*, p. 302.

³⁶ Hampshire RO, 5 M50/72.

³⁷ Norfolk RO, DCN 60/4/5.

³⁸ Cambridge University Library, EDC 7/15/11/1/8 M5, M13. (Transcript by Miss J Cripps in the School of History, University of Birmingham.)

³⁹ Harvey (ed), *op cit*, p. 577. Saffron and pepper were provided, probably because a fellow of Merton College was visiting.

⁴⁰ British Library, Add Roll 49,748.

⁴¹ Norfolk RO, DCN 60/4/1, 5, 6, 11, 15, 22, 25, 36.

processes that had begun in previous decades – it was not an initiator of trends.⁴²

Nor did the first major epidemic lead to an immediate transformation of harvest workers' dietary standards. The shift in the balances of the diet between cereal-based foodstuffs and *companagium*, the rise of fresh meat to become the most important non-cereal food, and the emergence of wheat as the main bread corn, all worked their way through the system for fifty years and more after 1349. The peak of dietary improvement seems not to have been reached until the fifteenth century.

In addition to the long-term trends, food consumption was affected by year to year fluctuations in grain production. At Catton in 1322–3, a bad year, the price of barley had risen from the usual 3s or 4s per quarter to 8s, 9s, and 10s, and rye cost 10s per quarter.⁴³ The quantity of grain allocated to the harvest workers did not change, but the estate managers stopped providing rye for bread as they had done regularly for more than twenty years, and the bread was therefore made entirely from the less-costly barley. They economized slightly on ale, meat, and dairy produce, but still provided foodstuffs worth 64s, compared with a normal 30s to 50s. The extra expenditure was perhaps judged to be profitable because of the high value of the harvested grain. In extreme shortages like the great famine of 1315–17 in Yorkshire, monastic employers did not scruple to lay off servants to save cash and grain.⁴⁴ The managers at Catton did not choose the harsh option of beating their workers down to a bare minimum when there must have been a queue of potential employees. Instead they responded predictably by switching to cheaper cereals, by using cereals for bread rather than for ale, and by economizing on non-essential animal prod-

ucts. Independent wage earners and peasants presumably changed their consumption in years of shortage, but in much more extreme ways, for example by cutting out completely ale and animal products.

III

The study of the food given to harvest workers ought to have wider implications. Can we simply state that a normal lower-class daily diet throughout the middle ages contained thousands of calories with ample quantities of bread and *companagium*, and that the balance between cereals and meat improved considerably over the period 1250–1450?⁴⁵ The answer must be decisively negative. We must attempt to define the relationship between harvest workers' diets and those consumed by wage-earners of all kinds, especially in the nine-tenths of their lives when they were not working in the harvest field, and also to see how the harvest diets may have compared with those of peasants who consumed their own produce.

It is a simple task to show that some of the people who worked in the special circumstances of the harvest ate less well at other times. Some of those 'at the lord's table' on Norfolk manors were the demesne *famuli*, and the allowance of grain that they normally received was consistently inferior in both quantity and quality to the grain consumed in the autumn. The *famuli* received barley as their livery throughout the period, while the harvest workers were given a growing proportion of rye and wheat. The livery outside the harvest season increased in quantity during the upheavals of the fourteenth century, from a quarter every 10 weeks (about 4½ qrs per annum) to a quarter every 8 weeks (5½–6 qrs per annum). This was marginally inferior to the allowance in the harvest

42 M J Hatcher and E Miller, *Medieval England: Rural Society and Economic Change, 1086–1348*, 1978, pp 240–51.

43 Cf H E Hallam, 'The Climate of Eastern England, 1250–1350', *Ag Hist Rev*, XXXII, 1984, pp 124–32.

44 I Kershaw, *Bolton Priory*, Oxford, 1973, pp 52–8.

45 H E Hallam, *Rural England 1066–1348*, 1981, p 15, apparently supports this view.

season which often exceeded a bushel per week. For most of the year the *famuli* cannot have consumed much drink and *companagium*, as the 4s per annum cash wage of a *famulus* in the early fourteenth century, rising to 13s 4d per annum a century later, would not have bought ale, meat, fish, and cheese on the same scale as in the autumn. The same inequality between harvest provisions and daily fare is found throughout the country: the Cuxham *famuli* were given a mixture of 'currall' (low grade wheat), dredge (barley and oats), and peas, while the harvest workers ate wheat bread; and at Manydown (Hants) in the 1440s, where the harvesters were similarly well-fed, the *famuli* received barley and *berecorn* (winter barley). The *famuli* did not necessarily live entirely off their wages and liveries, as some of them had smallholdings, but it seems likely that their liveries reflect the types of grain eaten by agricultural wage-workers generally.

Nor is it likely that the householding peasantry would have eaten as well as the harvest workers. There is some similarity between the types of grain issued to harvest workers and the allowances of grain made to retired peasants (including better-off peasants) under the terms of maintenance agreements. So, for example, in the early fourteenth century retirement allowances in Hampshire contained wheat as a third or a half of the total, not unlike the bread-corn consumed by the harvest workers of Chilbolton, Combe, and Manydown.⁴⁶ Sedgeford peasants in the 1260s agreed to accept for their maintenance combinations of rye and barley, similar but rather superior to the mainly barley bread eaten by the harvest workers.⁴⁷ Also the emphasis on dairy produce and bacon in the pre-1349 harvest diet would have been typical of the peasantry. There, however, the

resemblance ends, because only an extreme optimist would expect peasants to eat as much dairy produce, fish, or meat as did the harvest workers. At Sedgeford in the late thirteenth century forty or so harvest workers had the use of the products of twenty or more cows, whereas the better-off peasants who had a cow or two would only have drunk a little milk and would have made as much cheese as possible in the summer and autumn for consumption during the winter.⁴⁸ The wealthiest peasants may have consumed more food than usual in the harvest time, and offered workers a share that was comparable with that provided by their rival employers in order to obtain labour, but they would have eaten more frugally at other times. Peasants were better off than harvest workers overall because of the relative security of their source of income, while the harvesters taken on in August would not all have had a guaranteed job from October to July. To quote a fourteenth-century poem, in words attributed to a herdsman, 'Better were meles many than a mery nyghte'.⁴⁹ The smallholding peasantry were especially disadvantaged in the bad harvest years, because they would not have produced enough from the land to feed themselves, and their meagre earnings would not have bought much extra food.

The ratio between cereal-based foods (bread, oatmeal, ale) and *companagium*, measured in terms of value, provides a means of comparing diets. After the advance of the fourteenth century the harvest workers achieved a ratio of about 50:50. This places them well above the paupers of Sherborne hospital, Dorset, in 1439-40 (78:22) and somewhat superior to the carters employed by the same institution (62:38), or building workers at Bridgwater, Somerset, in 1420 (63:37), or

46 I am grateful to Dr J Z Titow for letting me see his transcriptions from the pipe rolls of the bishopric of Winchester (in Hampshire RO) of maintenance agreements.

47 Norfolk RO, DCN 5282; I am grateful to Dr J Williamson for this information.

48 M M Postan, 'Village Livestock in the Thirteenth Century', in *Medieval Agriculture and General Problems of the Medieval Economy*, Cambridge, 1973, pp 214-48; R H Hilton, *A Medieval Society*, 2nd edn, Cambridge, 1983, pp 109-10.

49 I Gollancz (ed), *Winner and Waster*, Oxford, 1921, 1365.

building workers at Wyre Piddle (Worcs) in 1377-8 (58:42).⁵⁰ Before the Black Death the harvest workers' provisions were markedly inferior to those of minor aristocrats. The accounts of Thurlby (Lincs) of 1341 (see Table 3) record both the harvest costs and the household expenses of the prioress of the poor nunnery of Stamford.

TABLE 3
Expenditure on Food at Thurlby (Lincs),
1340-1⁵¹

	Harvest workers	Prioress and companions
Bread	7s 1d (22%)	3s 4d (21%)
Pottage	6d (1%)	—
Ale	17s 8d (54%)	3s 2d (20%)
Meat	2s 8d (8%)	8s 2d (53%)
Fish	3s 6d (11%)	3d (2%)
Dairy Produce	1s 2d (4%)	3d (2%)
Spices	—	4d (2%)
TOTAL	32s 7d (100%)	15s 6d (100%)

Not only are the differences indicated by the ratios of cereal foods to *companagium* (77:23 for the harvest workers, 41:59 for the prioress), but the prioress also consumed such luxuries as spices and piglets. In the 1450s however, the ratio of 50:50 is found in the budget of the chantry priests of Bridport (Dorset), and is comparable with the harvest workers of the same period.⁵²

So the autumn diets that we have been examining can be located at the apex of the wage-earning classes, suggesting that the harvest workers formed an aristocracy of labour, much better off than agricultural workers in normal seasons, wealthier than some building workers, having similarities with the standards of the peasantry, and,

as the period developed, closing part of the gap between themselves and the lower ranks of the clergy or gentry.

Although the quantity and quality of their diet put the harvest workers into a special category, the changes in their food allowances reflect more widespread developments throughout the lower ranks of society. The *famuli*, especially those who did not receive the bonus of meals at the lord's table in the autumn, were given a higher proportion of wheat in their liveries in the late fourteenth and fifteenth century, though they rarely achieved the privilege of an entirely wheat diet. *Famuli* and servants generally were criticized by late fourteenth-century clerical and gentry writers for their demands for good ale, and fresh meat that was well-cooked and hot. Evidence after 1349 for a shift in agricultural production from arable to pasture suggests a general increase in meat consumption, and the professionalization of brewing may point to a greater volume of ale-drinking.⁵³

IV

The changes in diet so precisely measurable in the case of the harvest workers, and arguably affecting a wide section of society, seem to be capable of a simple demographic explanation. The quality of foodstuffs varied in inverse proportion to the size of the population, with cheap cereals being issued during the period of high and growing numbers of people in the late thirteenth century, and a switch to wheat and meat eating after the famines and plagues of the fourteenth century. However, closer examination of the changes suggests that more complex explanations are necessary. The early fourteenth century poses a problem, because there is

⁵⁰ Dorset RO, D 204/A14; R H Hilton, 'Pain et Cerveoise dans les Villes Anglaises au Moyen Age', in *L'Approvisionnement des Villes de l'Europe Occidentale*, 5e Flaran Journées Internationales d'Histoire, Auch, 1985, p 222; PRO, SC6 1071/5.

⁵¹ PRO, SC6 914/6.

⁵² K Wood-Legh, *A Small Household of the Fifteenth Century*, Manchester, 1956, *passim*.

⁵³ C Dyer, 'English Diet in the Later Middle Ages', in T H Aston et al (eds), *Social Relations and Ideas*, Cambridge, 1983, pp 210-16; P Clark, *The English Ale House: a Social History 1200-1830*, 1983, pp 20-38.

clear evidence then, especially in Norfolk, of improvements in the diet of harvesters, very much in line with the general tendency for both cash wages and real wages to creep upwards in the three decades between the agrarian crisis of 1315–22 and the first outbreak of plague in 1348–9.⁵⁴ This would be compatible with the controversial argument that the population had reached a ceiling by 1315, and that decline was beginning before the Black Death. However, direct evidences of population movements are few and contradictory. Essex figures support the view that population declined, while in a Norfolk example a continued increase up to 1349 has been argued.⁵⁵ Real wages may have increased in this period because of economic factors, notably the growing competition between industrial and agricultural employment, but with such a large agricultural workforce it seems difficult to believe that industry (such as cloth-making) could have generated enough employment to have a general impact on wages. The diet evidence – the most direct index of real earnings available to us – seems to support the view that population was declining and therefore causing a growing scarcity of labour, as is proposed by those who argue that population outstripped resources in the early fourteenth century. The discovery that individuals around 1300 were receiving food allowances in excess of 10,000 calories per day might seem to be incompatible with the idea that the same period suffered from problems of undernourishment. But, as has already been suggested, the allowances were in fact supporting whole families at perhaps 2000–3000 calories each per day, and the harvest

workers were located at the top of a hierarchy that included at the bottom wage-earners and smallholders who would have been much less well fed because of their low wages and intermittent employment. Above all, the harvest workers' food allowances were not much affected by the crises of subsistence, but the rest of society was not so insulated. Even the harvest workers who had lived quite well in August might have faced severe hardships at other seasons in such years as 1310 and 1323.

The changes in diet after 1349 took some time to have their maximum effect, in spite of the suddenness and the severity of the demographic catastrophe. This is partly because population levels, though reduced by 40 per cent or more in 1349, did not reach their lowest limit until after 1400. And the economy of the period 1350–75 had as one of its determining characteristics a succession of poor harvests and consequently high grain prices. Also the food allowances, as an element in wages, were subject to the complex combination of pressure and inertia that lay behind the increases in cash remuneration. The employees had to bargain for improvements, as at Appledram in 1354, where the provision of ale instead of cider was at issue. More ale was bought, explained the manorial officials to the auditors, 'because the reap-reeve would not drink anything but ale in the whole of the harvest time'. At any period of rapid social change time is needed to adjust to new circumstances, and the resistance of lords and employers provided a strong obstacle in the fourteenth century. As lords they had a grip on the *famuli* who were often also their serfs, and they could discipline them through the manor courts. Behind them lay the legal force of the kingdom, albeit inefficiently enforced, acting through the Statute of Labourers. The sense of shock felt by aristocratic employers at the new social climate was expressed in contempor-

⁵⁴ D L Farmer, 'Prices and Wages', in H E Hallam (ed), *Agrarian History of England and Wales*, II, Cambridge, 1988, pp 716–817.

⁵⁵ L R Poos, 'The Rural Population of Essex in the Later Middle Ages', *Econ Hist Rev*, 2nd ser, XXXVIII, 1985, pp 521–3; B M S Campbell, 'Population Pressure, Inheritance and the Land Market in a Fourteenth-Century Peasant Community', in R M Smith (ed), *Land, Kinship and Life-cycle*, Cambridge, 1984, pp 87–134.

ary literature as well as legislation. For intellectuals to comment on such mundane matters as servants' eating habits is in itself an indication that an upheaval had taken place, which seemed to threaten the social order. The relationship between lords and *famuli* was informed by paternalism, signalled in the accounts by the many gifts and tips given at various times during the farming year. To demand more pay and food, the *famuli* had to overcome habits of deference, no doubt helped by the more mercenary attitudes of the temporary hired hands who joined them in the autumn. Custom acted as a brake on innovation, as is shown by the formalized rules under which labour services were performed, whereby boon workers ate barley bread long after the harvest hands had changed to wheat. Village custom, enshrined in by-laws, must have influenced the bargaining over the rewards of harvest workers when they were being employed by the wealthier peasants.⁵⁶

So in the late fourteenth and early fifteenth century demographic factors influenced diet in the long term, but social pressures and institutional restraints slowed down the pace of change. Demography and nutrition interacted in very complex ways. Substantial improvements in food were achieved by the fifteenth century, most readily quantified in the case of the harvest workers, but clearly shown by the indirect evidence of plenty in falling grain prices and the relatively infrequent harvest failures between 1375 and 1520. This might have promoted earlier marriage, healthier children, and longer life expectation, so leading to population growth. On the continent, the diet of the lower orders improved in much the same way as in England, and in France and Italy the populations were growing in the second half of

the fifteenth century.⁵⁷ In England stagnation continued well into the sixteenth century. Was this because the English were peculiarly vulnerable to epidemics, or because they adopted customs, such as late marriage, which helped them to maintain their higher living standards? Whether we emphasize the influence of mortality or fertility at this period, there can be no doubt that this example shows that dietary improvement on its own could not promote population growth.⁵⁸

Changes in diet of the fourteenth and fifteenth centuries have been treated here as improvements partly because they were so regarded by contemporaries. Wage-earners strongly favoured white bread, fresh meat, and strong ale. The attractions of such a diet were largely social and cultural: in adopting this pattern of eating, the lower orders were aping the lesser gentry.⁵⁹ In nutritional terms the harvest workers' food of the thirteenth century contained the main elements of a healthy diet, including a combination of carbohydrates and animal protein, with vitamins A and D being provided by dairy produce, offal, and herrings. Outside the harvest season however all of these foodstuffs may not have been consumed regularly by poorer people. As the diet changed in the fourteenth century the contribution of fish and milk products declined, but probably not to such a low point that the recipients would suffer vitamin deficiencies. The new diet with its growing proportion of fatty meat would not be regarded as an improvement by modern nutritionists. But there

⁵⁶ On the general problems of this period, see R H Hilton, *The Decline of Serfdom in Medieval England*, 1969, pp 32-43; A R Bridbury, 'The Black Death', *Econ Hist Rev*, 2nd ser, XXVI, 1973, pp 577-92.

⁵⁷ On continental diet, see eg B Bannassar and J Goy, 'Contribution à l'histoire de la consommation alimentaire du XIVe au XIXe siècle', *Annales ESC*, XXX, 1975, pp 402-30; D Menjot, 'Notes sur le marché de l'alimentation et la consommation alimentaire à Murcie à la fin du moyen âge', in D Menjot (ed), *Manger et Boire au Moyen Âge*, I, Nice, 1984, pp 199-210; on population, Bois, *op cit*, 346-56; D Herlihy and C Klapisch-Zuber, *Les Toscans et Leurs Familles*, Paris, 1978, pp 181-8.

⁵⁸ Cf T McKeown, 'Food, Infection, and Population', *Journal of Interdisciplinary History*, XIV, 1983, pp 227-47.

⁵⁹ On diet as a 'system of communications', and an element in social competition, see M Montanari, *L'Alimentazione Contadina nell'alto Medioevo*, Naples, 1979, p 461; S Mennell, *All Manners of Food*, Oxford, 1985, pp 40-61.

can be no doubt that in terms of palatability a variety of meats eaten with wheat bread was a great advance on the stodgy monotony of barley bread. Throughout the period the sources of vitamin C must remain a mystery. The supposition must be that the amount of green vegetables, although so small as to virtually escape reference in our documents, reached a minimum level sufficient to prevent serious deficiency diseases. The main nutritional problem in the later middle ages was not the lack of specific vitamins and minerals, or the excess of fats that causes concern in a modern affluent society, but simply that at certain times, and especially in the late thirteenth and fourteenth century, those sections of the population who fell below the harvest workers' privileged standard of living survived on cereals with very little animal protein, and that in some years even the inferior cereals were scarce and expensive.

Finally, too simple a demographic explanation of agrarian history would suppose that agriculture could adjust itself easily to the new demands by shifting from arable to pasture. This was the trend, but it involved difficult structural changes for those peasant communities whose agrarian system was closely involved with grain production. The fifteenth century saw in the midlands the development of specialized pastoral farms of a novel kind as landlords, lessees, and wealthier peasants took advantage of the growing market for meat. In particular they were responding to an increased demand for beef. Cheaper grains and legumes, once grown largely for human consumption, must have been used more often as fodder crops. We are only beginning to appreciate the interac-

tion between consumption and production in the medieval economy.

Appendix I

The calculations in Table 2 are based on the assumption that 1 quarter (2.9 hl) wheat made 510 lb (231 kg) of bread; that 1 quarter of barley made 336 lb (152 kg) of bread; that 1 quarter of oats made 180 lb (82 kg) of meal (E J T Collins, 'Dietary Change and Cereal Consumption in Britain in the Nineteenth Century', *Ag Hist Rev*, XXIII, 1975, p 108; D W Kent-Jones and J Price, *The Practice and Science of Bread Making*, 2nd edn, Liverpool, 1951, pp 290-1; W Tibbles, *Foods. Their Origin, Composition and Manufacture*, 1912, p 425).

Other assumptions are that 1 quarter of malt made 60 gallons (273 l) of ale (in late medieval household accounts the figure ranges from 60 to 100 gallons, see Dyer, *op cit*, p 203), and that animal carcasses weighed as follows: cattle 250-450 lb (113-204 kg); pigs 70-90 lb (32-41 kg); sheep 31 lb (14 kg); geese 8 lb (4 kg); poultry 1-2 lb (0.45-0.9 kg). And that fish weighed: cod 6.6 lb (3 kg); herring ½ lb (0.2 kg) (L Stouff, *op cit*, pp 186-9, 301-19; I Kershaw, *op cit*, pp 157-8; H Clarke and A Carter, *Excavations in King's Lynn, 1963-1970*, Society for Medieval Archaeology Monograph, 7, 1977, pp 403-8). Meat and fish weights have been reduced for waste, and calorific values have been calculated, from figures supplied in A A Paul and D A T Southgate, *McCance and Widdowson's The Composition of Foods*, 4th edn, 1978. For example, it is assumed that 74% of a pork carcass was edible, and that in boiled form its calorific value was 286 per 100 g.

Canadian Papers in Rural History

Volume VI

Feudal Society and Colonization: A Critique and Reinterpretation of the Historiography of New France.
Roberta Hamilton. This is a major book-length study. It is a full re-evaluation of the historical literature on early Quebec.

Hardcover only

420 pages

"Do You Want Your Daughter to Marry a Farmer?": Women's Work on the Farm, 1922. *Mary Kinnear.*

Corporate Structures and Local Economies: The Case of the Williams Lake District Lumber Industry.
Mary McRoberts.

Pre-paid orders:
\$22.50 post free

The North American Wheat Futures Market During World War I. *Robert E. Ankli.*

"A Little Province Like This": The Economy of Nova Scotia Under Stress, 1812-1853. *Julian Gwyn.*

Institutional and bill-
later orders must be
accompanied by an
invoice: \$35.00 post free

Moving Goods and People in Mid-Nineteenth Century New Brunswick. *Graeme Wynn.*

What Ontario Wants, Canada Gets: The 1886 Margarine Debate. *Welf H. Heick.*

"The Site of Paradise": A Settler's Guide to Becoming a Farmer in Early Upper Canada. *Terence A. Crowley.*

Did Farm Size Matter? An 1871 Case Study.
William L. Marr.

Langdale Press
R.R. #1
Gananoque
Ontario
Canada
K7G 2V3

A Statutory Chronology of Southwestern Ontario, 1792-1981. *Thomas A. Hillman.*