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*

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Parliamentary Enclosure in the Uplands: the Case of the North York Moors

By JOHN CHAPMAN

I

IN the analysis of Parliamentary enclosure which has taken place in recent years, the effects of the process in the great upland moors of this country have been comparatively little considered. For the most part, attention has been focused on the elimination of common fields, the common pastures and wastes being considered as minor parts of the system. While this may well be a reasonable view in lowland England, where by the eighteenth century pastures and wastes were normally of no great size, enclosure in the high moors was a very different matter. The total moorland area allotted to an individual was not infrequently considerably larger than the whole of the rest of his holding, and the quality of the land was often admitted to be low, even by ardent advocates of improvement. Distance was a further problem, for although the fragmentation of holdings was often perpetuated by field enclosures,¹ the difficulties were rarely on the same scale as in the moors, where in extreme cases small allotments might be several miles from the home farm. The task of integrating these areas into the normal farming pattern was therefore considerably greater than that presented by the reorganization of the existing improved land. Thus although, for financial and administrative reasons, moorland and field enclosures were frequently included in the same Parliamentary Act, they were normally treated as entirely separate units from the point of view of the allotment, and the clauses dealing with the moorland might show significant variations from those concerned with the fields.

The prime necessity was to allow a greater degree of flexibility than in field enclosures, where the whole area affected was almost invariably enclosed compulsorily, with strict time limits for fencing the new plots. To impose similar conditions on moorland enclosures would have seriously strained the resources of many of those involved, so that, although the standard compulsory form was sometimes adopted, in other cases various devices were used to circumvent this difficulty. One principal method was to permit the Commissioners to exclude such areas, scheduled to be enclosed, as they considered unsuitable for improvement. Reference is made to these powers in certain Acts, while in others, although no specific mention appears in the Acts, areas were nevertheless excluded at the award.² Such "partial enclosures," as they may be termed, had the advantage that a detailed investigation of the quality of the land could be carried out, and, theoretically, no one should have been burdened with the cost of fencing land which was of no real

¹ See, for example, Maps 15 and 30 in J. Chapman, 'Changing Agriculture and the Moorland Edge in the North York Moors, 1750 to 1960', unpubl. M.A. thesis, London, 1961.

² E.g. Allerston.

value. In addition, the opportunity was often taken to clarify or reorganize the administration of the excluded areas by imposing a stinting system or formalizing a structure for their management, thus increasing the value of the pasture rights. On the other hand the fencing and improving of these excluded lands was now strictly prohibited by law, which had not always been the case before. Thus this method suffered from the grave disadvantage that the Commissioners were required to make an irrevocable decision about the potential of the land for improvement, a feature which depended more on economic and social factors than on innate physical ones. Their task was impossible, and their decisions inevitably appeared either excessively cautious or excessively optimistic in the changed conditions of a later period.

A second, more successful, method of overcoming the problem was the use of "permissive enclosure." The idea was extremely simple, for all that was required was for the enclosure Commissioners to set no fixed date for the fencing of the new land, and to allow any owner to continue to depasture his stock on the unenclosed allotments until such time as he chose to fence off his own lands. In practice the regulation of a permissive enclosure was usually rather more complex, but this scarcely altered the real merit of the arrangement, namely that it permitted enclosure and improvement to proceed at a pace determined by each individual, and he was therefore able to tailor his progress to the general economic climate and to his own personal resources. Thus it might be reasonable to suppose that a permissive enclosure would be followed by a much more rational and logical exploitation of the new lands than a compulsory one, where the heavy initial outlay would demand some attempt to extract an immediate return. In fact permissive and compulsory enclosures frequently occurred on the same moor, the less valuable areas being covered by the former, the rest by the latter, so the effect was to focus the earliest efforts at reclamation on one area of a township at the expense of another. It is not clear how widely permissive enclosure was adopted, for the phraseology of the clauses is often such that only a most detailed study of the award will detect it. However, it was commonly used in the North York Moors, and Edwards records one specific example, and implies the existence of others, in Denbighshire.¹ It also occurred on the Berkshire chalklands, at West Ilsey.² It was thus more than a purely local phenomenon, though it appears not to have been used in areas to which it would seem excellently suited.³

II

The North York Moors provide an interesting study in these different forms of upland enclosure, for a large number of separate Acts was involved, spread over a

¹ See Chapman, M.A. thesis, pp. 126 f., and J. W. Edwards, 'Enclosure and Agricultural Improvement in the Vale of Clywd, 1750-1875', unpubl. M.A. thesis, London, 1963.

² Berks. R.O., Q/RDc 70. I am grateful to Miss T. Smolaga for drawing my attention to this record.

³ For example, it was not used in Monmouthshire. See J. Chapman, 'Agriculture and the "waste" in Monmouthshire from 1750 to the present day', unpubl. Ph.D. thesis, London, 1972. Neither S. R. Eyre nor J. C. Crossley refer to it: S. R. Eyre, 'The upward limit of enclosure on the East Moor of North Derbyshire', *Trans. Inst. Br. Geog.*, 23, 1957, pp. 61-74; J. C. Crossley, 'On the rural landscape of Middle Wharfedale', unpubl. M.A. thesis, Sheffield, 1955.

period of more than a hundred years, and both permissive and partial enclosures, as well as wholly compulsory ones, occur. It is therefore possible to investigate the reasons for the differences in the form adopted, to examine the results of the use of these different forms, and to observe whether variations occur through time. Some problems of definition arise, for many of the awards included certain lands other than the open moors with which this article is concerned. Thus six of the twenty-three awards subjected to detailed analysis contained open field lands, and a twenty-fourth award, that for East Ayton, had to be excluded from the analysis as it proved impossible to distinguish accurately between field and moor allotments.¹ Five of the awards also covered extensive areas of low-lying marsh common in the Vale of Pickering, land physically of a very different nature to that of the moors. The principal problem of definition occurred with the remaining commons, often listed as stinted pastures, which might be adjacent to, and physically indistinguishable from, the moor, as in Cropton; or adjoining the village in the lowlands, as at Middleton, or at any point in between.² Inspection of the commons suggested a division at a height of 400 feet, lands below this being included only where they were merely parts of moors which were predominantly at a higher altitude. The figure is arbitrary, but in practice served well to exclude those lowland commons with little resemblance to the moors.

In the common moors, so defined, considerable physical variations occur. Most significant is the contrast between the soils of the bulk of the area, developed on the Deltaic series, and those of the southern strip, bounded roughly by a line from Burniston to Nether Sifton, and developed on the Corallian series. The former are predominantly thin and highly acidic, often waterlogged due to iron-pan development, and lacking not only lime but also other essential nutrients. While normally not totally incapable of improvement, they demand considerable effort and capital, and are agriculturally marginal under economically unfavourable conditions. The latter, in contrast, are on the whole lime-rich, well-drained Brown Earths of considerable agricultural potential. Between the two, both literally on the ground and in terms of agricultural value, lie the gleyed podsols of the Oxford Clay and Kelloways Rock. The deficiencies of the Deltaic soils were well known to contemporary agriculturists, and this may have been a determining factor in the absence of Parliamentary enclosure from the higher central and west-central Moors. In the lower areas these physical factors seem to have had remarkably little influence on the enclosure process. The decision to use permissive or partial enclosure seems to have been independent of the physical contrast, and even the actual division between compulsory and permissive areas within a parish often shows little correlation with this major pedological divide.³

The motives behind the Parliamentary enclosure movement in the North York Moors are difficult to evaluate in all cases, but there were undoubtedly several

¹ North Riding Registry of Deeds (N.R.R.D.), BA 13, 119-35. ² N.R.R.D., AT 1, 1-142.

³ A modern soil analysis appears in G. Anderson, 'Soils of the North-Eastern Moors of Yorkshire', unpubl. M.A. thesis, Newcastle, 1956. For contemporary comments, see J. Tuke, *General View of the North Riding of Yorkshire*, 1800, p. 206.

objectives, of differing importance from parish to parish. Although the preamble to every single Act makes reference to the desire to improve the land concerned, this was merely a conventional phrase and cannot necessarily be taken at its face value as the real reason why the enclosure processes had been set in motion. Furthermore, "improvement" did not have to imply reclamation in the usual sense of the word, for the act of fencing moorland, without any alteration in the quality of the pasture, was held locally to be an improvement, while there were possibilities for non-agricultural "improvements," such as timber-planting, which may have been in the minds of the promoters.¹

One motive for which clear evidence emerges was the desire to deal with the tithe situation. From the point of view of the tithe-owner, claims for stock kept on open moorland, often with no clearly defined parish boundaries,² were a constant source of dispute, especially where, as in much of the south-eastern moors, farmers frequently owned rights in respect of lands in two or more parishes. The situation was even worse when, as for example in Thornton Dale,³ the tithes themselves were split between several owners. The tithe-owners therefore had a strong incentive to back an enclosure and accept land in lieu of tithes, even if they had no intention of reclaiming their allotment. The landowners subject to tithe were sometimes equally in favour, since they saw the opportunity of freeing lands already held in severalty at the small cost of a part of their moor grazing. In the Roxby and Scaling enclosure of 1813 this seems to have been the sole objective of the proprietors, for on completion of the award all allotments, plus a number of old enclosures, were transferred to the tithe-owner in exchange for the extinguishing of charges throughout the parish.⁴ In others, such as Ebberston, it was at least a subsidiary motive, and the opportunity was taken to abolish tithes on old enclosures by means of a compensatory allotment on the moor.⁵ Such arrangements were not, however, universally popular with the landowners. The Act for Cropton made provision for abolition in the same way, but at the award all but two of the eighty individuals concerned opted to receive their full allotments and to make tithe payments in cash.⁶

The desire to obtain complete control over game-shooting was also significant, at least locally, as a motive for enclosure. Grouse-shooting rights were highly valued in the nineteenth century, as can be seen from contemporary sale catalogues,⁷ and their existence must be suspected as the reason for several large compulsory enclosures of land regarded at the time as unimprovable. This is implied in the case of the Lockton enclosure of 1866, for a letter of 1870 complaining of the delay in implementing its terms lists indiscriminate shooting as one of the principal abuses which the writer wished to have stopped.⁸ Egton, enclosed in 1848, would

¹ Chapman, thesis, pp. 102, 230 f. ² E.g. between Cropton and Pickering. N.R.R.D., AT 1, 1-142.

³ N.R.R.D., CS 7, 39-110. ⁴ Northallerton R.O. (N.R.O.), ZPA 645.

⁵ N.R.R.D., BE 3. ⁶ N.R.R.D., AT 1, 1-142.

⁷ E.g. sale catalogue of Beckhouse Estate, 1878, described as "an essentially sporting property." BM, Maps 137, c 1 (1).

⁸ Crown Estate Office, DL 45 10/6.

seem another likely example, though no similar specific reference has been traced.

In spite of these other motives, it does seem that the principal one in the majority of cases was to permit reclamation for agricultural purposes. A letter from the Crown Agent in Cloughton, setting out the advantages of the enclosure, clearly envisaged the improvement of the whole area, including the permissive sector, and the calculations of increased income were based on this assumption.¹ There is also evidence that at least some major landowners were preparing contingency plans for reclamation while the awards were in progress, even though these might not be fully carried out. The plan for the layout of the Duncombe allotment in Beadlam has survived, and the speed with which the Pickering reclamation was carried out suggests similar forethought.² The accounts of Marshall and Tuke provide clear evidence that belief in the possibilities of agricultural improvement, over-optimistic though this proved to be, was the driving force behind the Kildale enclosure,³ and the careful spacing on farmsteads of Pickering High Moor and Muffles Rigg, Cropton, leads one to the conclusion that reclamation of the intervening areas was the eventual aim. In respect of motivation, therefore, it would appear that the North York Moors differed little from England as a whole.

On the question of the timing of the movement, the situation is rather different. The view has frequently been advanced that the high prices of the Napoleonic period were a trigger to Parliamentary enclosure and to land reclamation, but this cannot be substantiated from the Moors. Of the thirty-five Acts relating to significant areas of moorland, twenty were passed before the outbreak of war and a further six after peace had returned. Expressed in directly comparable terms, enclosure Acts were passed at an average rate of one every 2.1 years between 1748⁴ and 1775, one every 2.6 years between 1775 and the start of the French wars, and one every 2.2 years during the hostilities, the most concentrated periods being 1769-75, with seven Acts, and 1784-90, with six. It must be concluded therefore, that the wars were of little significance; if the promoters of the Acts saw profits in reclamation, they saw them in ordinary peacetime conditions as much as during the wars. The postwar period was certainly characterized by a much slower rate of Parliamentary activity, with an average of only one Act every 8.8 years,⁵ but even here the impact of the postwar depression must not be over-emphasized, for two Acts were passed in 1813, when prices were already falling,⁶ and two more followed in 1817 and 1818. Only then did a significant gap occur, which lasted until 1848. Furthermore, the actual process of reclamation of land enclosed earlier does not appear to have been seriously interrupted in the postwar years.

The tracing of support for, and opposition to, enclosure is a major task beyond the scope of this paper, but it is worthy of note that no one class was exclusively

¹ P.R.O., DL 41/72.

² See manuscript plan of the proposed use of the Duncombe allotments, 1818, formerly in the Duncombe Park Estate Office, recently transferred to N.R.O., and Tuke, *op. cit.*, pp. 204-14.

³ W. Marshall, *The Rural Economy of the County of Yorkshire*, 1788, pp. 283-5, and Tuke, *op. cit.*, 202-3.

⁴ 1748 was the first, Faceby (P.R.O., L 210/127). ⁵ Up to the last, Lockton, in 1866 (C.R.O., ZPC).

⁶ See L. P. Adams, *Agricultural Depression and Farm Relief in England, 1813-1852*, 1932, pp. 30f.

involved, and there is evidence that the initial moves were made by different groups in different parishes. R. W. Crosland has demonstrated that in the field enclosures of the neighbouring townships of Fadmoor and Gillamoore the initiative came from the lord of the manor in the former, and from the small freeholders in the latter.¹ The same variations seem to have applied to moorland enclosures. Certainly there is ample evidence that the small freeholders had been concerned over the activities of squatters for a long period of time, and there were frequent demands that the lord take action against them.² Many freeholders must have welcomed enclosure as a means of preventing finally this erosion of their rights.

III

In theory Parliamentary enclosure should have resulted in the abolition of multiple rights over the same piece of ground, and the creation of compact block holdings. In practice it is well known that the latter objective was rarely achieved, and that certain vestigial rights over the new allotments, particularly in respect of minerals, were usually reserved to the lord. The North York Moors appear to have been especially prone to these divergences from the theory. It is perhaps not surprising, in view of the known mineral wealth of the area, that particular attention should have been paid to minerals, for example by the writing in of specific way-leaves in the event of their future exploitation, as at Moorsholm.³ More unusually, other residual rights often remained after enclosure. Compensation for turbary, in particular, seems to have defeated many of the Commissioners, for if a small area were set aside as a common turbary it would rapidly be stripped of its turf and become useless, while individual allocations of land in lieu of the rights were likely to be so small as to be of little value. Common turbaries were in fact set aside in three awards, the size ranging from an inadequate two acres at Easington to 250 acres, made possible by the retention of much of the High Moor as common at Ebberston; while in two parishes compensatory allotments were given, in East Ayton a standard 2 acres per person, in Beadlam an individually determined amount ranging from 0.89 to 2.85 acres.⁴ In a further five cases, however, multiple rights were retained, land being allotted to one individual with the proviso that those with turbary rights could enter it to cut turf or peat. Sometimes they were subject to constraints, as in Snainton, where they were restricted to a stated number of wagon loads per year, or in Harwood Dale, where the peat-cutter was obliged to leave the cut areas provided with drainage ditches; but in others, for example Egton, the turbary-right owner was apparently free to do as he pleased.⁵

The right to dig building stone occasionally produced similar remnants. This problem was less intractable, for it could be readily solved by setting aside a public quarry, a solution adopted in six awards. Ebberston additionally had separate public allotments for lime and sand quarries.⁶ Nevertheless, in Lockton, Moorsholm, and

¹ R. W. Crosland, *Yorkshire Treasure*, York, 1947. ² E.g. P.R.O., LR 2/186 (1610).

³ P.R.O., MAF 1/973 and 1/505.

⁴ N.R.O., ZPA 645; N.R.R.D., BE 3; N.R.R.D., BA 13, 119-35; N.R.O., Enc. 16.

⁵ N.R.R.D., BE 1 1-47; P.R.O., MAF 1/284; P.R.O., MR 807. ⁶ N.R.R.D., BE 3.

Snainton the inhabitants were given the right to dig stone, and in Snainton also limestone, in specified allotments made to individuals, thus again perpetuating a system of multiple rights.¹ The Lockton arrangement was particularly surprising, for it allowed the stone-diggers freedom to exploit any allotment, though compensation had to be paid for any diminution of value which resulted.

In regard to the land available for agricultural purposes, it has already been noted that in the North York Moors permissive, partial, and compulsory enclosures were all used. Of the twenty-three enclosure awards subjected to detailed analysis, five were partial, excluding areas deemed unsuitable for improvement, and eight contained permissive clauses, Allerston and Eskdaleside being both permissive and partial. These figures underestimate the real importance of permissive enclosure, for four of the permissive Acts covered more than one parish, as against only two of the compulsory ones, and the permissive Acts in general covered larger acreages. Of the fifteen awards involving over 1,000 acres of moorland, seven were permissive, and 37·65 per cent of the total area enclosed by the twenty-three awards was covered by permissive clauses (see table 1).

The question arises as to why it was determined to make some Acts permissive. From what has just been said it is clear that a large total area was one prerequisite, especially since Dunsley Moor, the only permissive enclosure under 1,000 acres, was distinctly abnormal. Only one allotment, assigned to the principal landowner, had such a clause, and the whole arrangement has the appearance of being devised to meet a specific requirement of a single powerful individual in a situation where permissive enclosure was not considered generally necessary.² However, size was not the sole criterion, for although the two largest were permissive, the third, Egton, was compulsory, as also were the other large enclosures at Harwood Dale and Sneaton.³

The additional distinguishing feature seems to have been the number of owners involved. An average of fifty-two allottees was concerned in each permissive enclosure, as against an average for all awards of only twenty-nine, and, in spite of the larger average acreage per permissive award, the average allotment per person was only 70·68 acres against the general average of 81·40. More significantly, the median allotment sizes for permissive awards are strongly clustered within a small sector of the overall range. While medians for the former all fall between 7·50 and 30·00 acres, only four of the remaining thirteen are within the same range.⁴ The implication is that permissive enclosure was normally likely to be put into effect only if a substantial number of individuals were entitled to allotments of a reasonable size. Where the overwhelming majority of allotments was under about 3 acres it was usually found possible to place them adjacent to an existing enclosed holding of the same owner, thus facilitating absorption and making permissive clauses unnecessary. Similarly, this device was not needed where the award was

¹ N.R.R.D., BE 1 1-47. ² N.R.O., ZPA 645.

³ P.R.O., MR 807; P.R.O., MAF 1/284; L.R.R.O., 60/1441.

⁴ Excluding Faceby and Harwood Dale, which each had only two owners.

TABLE I
DETAILS OF AWARDS

<i>Parish</i>	<i>Date of Act</i>	<i>Date of award</i>	<i>No of allotments</i>	<i>No of allottees</i>	<i>Total area enclosed</i>	<i>Permissive</i>	<i>Compulsory</i>
Allerston*	1809	1818	8	3	4,745·38	4,745·38	—
Beadlam	1817	1817	23	8	673·44	—	673·44
Cropton (a)	1765	1766	164	80	7,826·92	3,472·51	4,354·41
Easington	1808	1817	38	11	719·94	—	719·94
Ebberston*	1769	1775	29	21	1,675·88	—	1,675·88
Egton	1848	1854	147	16	6,888·82	—	6,888·82
Eskdaleside*	1760	1760	83	47	1,518·21	1,518·21	—
Faceby*	1748	1748	2	2	170·00	—	170·00
Hackness (b)	1818	1818	37	3	1,785·98	—	1,785·98
Harwood Dale	1858	1861	8	2	3,360·26	—	3,360·26
Kilburn	1813	1828	113	57	1,051·21	—	1,051·21
Kirbymoorside (c)	1788	1793	68	32	1,454·37	526·23	928·14
Moorsholm*	1862	1864	95	33	939·59	—	939·59
Mulgrave (d)	1776	1782	81	42	1,203·59	—	1,203·59
Newholme(e)	1793	1803	45	28	768·37	34·58	733·79
Pickering*(f)	1785	1789	393	140	8,210·33	5,908·56	2,301·77
Roxby	1813	1813	29	10	838·24	—	838·24
Scalby(g)	1771	1777	150	73	1,735·51	1,209·24	526·27
Silton, Nether	1794	1799	24	19	522·80	—	522·80
Snainton	1768	1773	6	3	968·75	—	968·75
Sneaton	1802	1802	15	5	2,742·40	—	2,742·40
Staintondale	1829	1829	80	20	1,453·02	—	1,453·02
Wykeham	1785	1787	58	15	3,286·30	3,124·19	162·11
Totals			1,696	670	54,539·31	20,538·90	34,000·41

* Partial enclosures. (a) inc. Cawthorne, Hartoft, Middleton, Wreton. (b) inc. Broxa, Silpho, Suffield cum Everley. (c) inc. Fadmoor, Gillamoor. (d) inc. Barnby, Ellerby, Hutton Mulgrave, Lythe, Mickleby. (e) Dunsley Moor. (f) inc. Newton. (g) inc. Burniston, Cloughton.

primarily concerned with one or two very large units. At least one side, at the point of contact with the old enclosed land, would usually be fenced already, and the owner might, in addition, be freed from the duty of fencing where his land met the parish boundary, so that the length of fencing per acre was normally small.¹ No great burden was placed on such an owner by compelling him to fence.

That there were exceptions to these rules seems to have been due to local whim rather than any other specific cause. Permissive enclosure was devised early, and there is no reason to suppose that later enclosers were ignorant of the idea.² Indeed the same Commissioners or landowners might participate in permissive enclosures,

¹ E.g. Sir J. Vanden Bempde Johnstone, exempted from fencing his Harwood Dale allotments along the boundary with Fylingdales Moor.

² Eskdaleside (1760) was the second Act.

and subsequently in compulsory ones where permissive clauses might have seemed appropriate. Thus the Dean of York was a party to both the Cropton award and later the Ebberston one, while Sir Charles Duncombe was involved simultaneously with Kirbymoorside and Cold Kirby.¹ Areally, permissive awards were concentrated in the south-east, but as the earliest, Eskdaleside, and the later Dunsley Moor award were both in the north, the idea cannot be regarded purely as a highly localized one. Nor was the perceived quality of the land a major determining factor, for the excluded land at Ebberston can hardly have been thought worse than its immediate, permissively enclosed, neighbours in Allerston and Wykeham.

IV

Mention has already been made of the fact that the details of permissive enclosure were not always uniform from parish to parish, and this applies even to the type of land subjected to it. In Eskdaleside and Allerston the poorer lands were excluded, all the better areas being permissively enclosed; in the other six the whole moor was enclosed, the better areas compulsorily, the rest permissively. Moreover, the care with which good and bad were distinguished varied greatly. Though a value of 3s. per acre per annum was often specified as the dividing line, in four cases the lower figure was rather arbitrarily assigned to certain traditionally defined areas, normally the "High Moors" of each township, and only in Kirbymoorside and Pickering do detailed examinations appear to have been made. In Pickering the line ran through the Low Moor, while in Kirbymoorside a complex division cutting across a series of traditionally recognized commons was devised.² Adjoining lands, divided only by a parish boundary, might thus be treated differently, as on the Cropton-Pickering border.

The rules governing the permissive areas varied greatly in complexity, and appear to have evolved through time. The earliest award, Eskdaleside, is couched in identical terms to a compulsory one, the only difference being the absence of any time limit on the fencing of the allotments.³ Areas deemed unimprovable were specifically left common, and on the remaining moor fencing was to be carried out "with all speed," no regulations being issued for its use while it remained open. It was thus clearly envisaged that the allotted area would be taken up within a short period, and the absence of a time limit was intended merely to allow the owners to proceed more slowly than normal. In practice the enclosure took on a permissive character, with some allotments apparently never fenced.

The second award, that for Cropton, shows a much more developed system.⁴ A distinction was made between the High Moors and all other commons within the townships concerned, the owner being compelled to enclose allotments on the latter within twelve months on pain of forfeiture, but being specifically allowed to decide if and when he wished to fence the former. The clauses applied to the per-

¹ N.R.R.D., AT 1, 1-142 (1765) and N.R.R.D., BE 3 (1769); N.R.O., ZEW 266 (1788 Act to 1793 Award) and N.R.O., AL 213/1 (1789).

² See maps, C.R.O., Enc. 9, and C.R.O., ZEW 266 respectively.

³ N.R.O., A.G. 19. ⁴ N.R.O., AT 1, 1-142.

missive area are of particular interest in that the Commissioners initially followed the normal compulsory practice of determining who was to pay for which fence in the event of enclosure. Any individual wishing to enclose could activate these clauses by giving a year's notice of his intentions, thus forcing his neighbours to fence those sides of his allotment. However, in the face of protests from the High Moor allottees the Commissioners were forced to back down, and the later part of the award states that, if the neighbour objected, the fencing charges were to be determined by agreement between the parties. The fencing clauses thus became purely guidelines, and faced with a total refusal to co-operate a would-be encloser had no choice but to fence the whole of his own allotment. Until enclosure was carried out the permissive area was to be regarded as common grazing, the number of rights due to an individual being determined by his acreage of unfenced land.

The essentials of the Cropton award were repeated in all the later ones, with occasional embellishments. Most complex of these was the Pickering Award of 1785, which incorporated a highly detailed series of regulations for the management of the unfenced portion of the moor.¹ A paid inspector was appointed to oversee the day-to-day running of the system and overall control was vested in an annual meeting of all right-owners, with one vote per common right. This marks a major evolution from the time of the Eskdaleside award, for such a structure could have been created only where those concerned believed that unfenced land was liable to persist for a long period of time. The twenty years' experience of neighbouring Cropton may well have convinced them of this, the more so since some individuals held land in both parishes.

V

Partial and compulsory enclosures show much less variety. Awards of the former type might incorporate either compulsory or permissive clauses for the land actually to be enclosed, and these parts are in no way distinctive. Their uniqueness derives from the decision to exclude certain areas of moor as unimprovable, and thus to perpetuate common rights, though on the poorer land only. A qualitative assessment of land value is implied, but in practice, as with permissive enclosures, the degree of care used in valuation varied. Thus in Ebberston the whole North Moor was arbitrarily excluded, while in Moorsholm some attempt was made to distinguish between "improvable" and "unimprovable" areas of the High Moor, only the latter being excluded.²

The enabling Acts are of little help in determining the extent of enclosure in these cases, for it was normal practice to include the whole moor, leaving exclusions to the Commissioners. Thus the Allerston Act stipulated 14,000 acres, whereas in practice less than 5,000 acres of moor, plus about 500 of open field, were included.³ Similarly, in Eskdaleside only about 1,500 out of the specified 3,500 acres were in fact enclosed.⁴ Furthermore, whether Parliament stipulated exclusions or not, there

¹ N.R.O., Enc. 9. ² N.R.R.D., BE 3; P.R.O., MAF 1/975 and 1/505. ³ N.R.O., ZJQ.

⁴ N.R.O., AG 19.

was no guarantee that the Act would be followed. Partial enclosure provides the best-documented case of Commissioners overriding the terms of the Act. The Snainton enclosure was to have been partial in form, excluding the High Moor, but when the Commissioners followed these instructions objections were raised by the three owners left with common rights on the unenclosed area. Finally, and highly reluctantly, the Commissioners accepted the written requests of the owners as conferring the necessary powers, and Snainton High Moor was compulsorily enclosed.¹

Compulsory enclosures, including the compulsory sections of permissive and partial ones, require few comments, for the variations were of little real significance. Only the differing restrictions on the uses of the new enclosures produced any impact on agricultural practice. It was usual to ban sheep, and sometimes other stock, for a period of seven years, a clause which created few difficulties in lowland situations but which, in the context of a poor upland area with a sheep-based economy, was likely to cause serious problems.² This was eventually recognized, and some later awards, for example Beadlam, omitted this ban, thus causing the minimum of upset to the existing farming system.³ Even then, however, the onus of protecting a neighbour's hedges from the sheep remained on the sheep-owner, in contrast to the permissive enclosure, where it normally lay on the encloser himself. Apart from this, variations apply to such minor details as to whether twelve months or 18 months were to be allowed for fencing.⁴

VI

Attempts to generalize about the pattern of allotments for the Moors as a whole produce little of value. Details of the sample by parish are incorporated in tables I and II, and the wide range of different situations can be readily appreciated. Information about the average and median size of allotments, 81·61 and 18·17 acres respectively, is in itself of little significance, for the range was considerable with a standard deviation of 373·19, and quartiles of 5·00 and 44·81. More significant is the number of allotments in the extreme ranges, 11·34 per cent falling below 2 acres, and 13·43 per cent over 100 acres. Even this is not necessarily as significant as might appear, for although many of the former were undoubtedly local smallholders and cottagers, this was not necessarily so. Some were landowners of considerable status elsewhere, whose holdings within the parish concerned happened to be insignificant, as for example Dr Turton, allotted a mere 0·19 acres in Mulgrave, but a total of 393·17 in Roxby and Sneaton, quite apart from any lands he may have owned elsewhere.⁵ Others were farmers from outside the area who had bought upland rights some distance from their home farm, as in the case of John Bell, a yeoman of Bank Head, Northallerton, allotted 3·97 acres in Nether Silton.⁶ Finally, some apparently small men were in fact merchants and traders, who by

¹ N.R.R.D., BE 1, 1-47. ² E.g. Allerston, N.R.O., ZJQ. ³ N.R.O., Enc. 16.

⁴ E.g. Moorsholm, P.R.O., MAF 1/975; Egton, P.R.O., MR 807.

⁵ N.R.R.D., BR 26, 32-74; N.R.O., ZPA 645; P.R.O., L.R.R.O. 60/1441. ⁶ N.R.R.D., CP 40/33.

TABLE II
ALLOTMENT SIZES

<i>Parish</i>	<i>Largest</i>	<i>Upper quartile</i>	<i>Median</i>	<i>Lower quartile</i>	<i>Smallest</i>	<i>Largest as percent. of total</i>
Allerston	4,709.36	—	27.28	—	8.74	99.24
Beadlam	530.39	28.41	15.96	13.16	6.46	78.76
Cropton	1,278.28	111.97	26.49	10.39	1.61	16.33
Easington	622.71	18.94	4.68	2.03	1.33	86.49
Ebberston	710.98	43.29	22.25	12.50	8.50	42.42
Egton	6,080.28	125.97	12.68	1.46	0.50	88.26
Eskdaleside	324.38	39.87	16.60	6.56	1.00	21.37
Faceby	130.00	—	—	—	40.00	76.47
Hackness	—	—	76.25	—	15.41	94.87
Harwood Dale	3,245.26	—	—	—	115.00	96.58
Kilburn	242.10	22.86	3.55	2.15	0.01	23.03
Kirbymoorside	921.82	23.19	8.79	4.77	0.72	63.38
Moorsholm	271.34	27.24	14.25	1.93	0.34	28.88
Mulgrave	713.61	10.81	5.22	1.41	0.19	59.29
Newholm	336.38	15.81	9.73	5.64	0.84	43.78
Pickering	968.09	53.34	29.05	21.68	0.29	12.01
Roxby	342.63	202.18	7.28	2.06	0.13	40.87
Scalby	417.45	19.03	7.61	2.86	0.43	24.05
Silton, Nether	330.69	24.86	5.89	1.32	0.09	63.25
Snainton	623.89	—	317.54	—	27.32	64.40
Sneaton	2,571.21	—	50.28	—	15.00	93.76
Staintondale	185.41	108.90	83.36	22.78	0.15	12.76
Wykeham	2,890.07	27.56	13.53	13.42	1.11	87.94
Of all allotments		44.81	18.17	5.00		

Figures refer to total land allotted to one individual.

virtue of their dwelling place were entitled to a share in the common, men such as Robert Knaggs, an alum manufacturer, allotted 0.34 acres at Moorsholm.¹

Further problems are created by the long-time-span covered by the Acts, and by the active market in land. The latter is hinted at by the numbers of exchanges and sales recorded in the awards, both while the enclosure was in progress and immediately afterwards, as in the case already mentioned at Wykeham, where Richard Langley acquired the whole High Moor by exchange.² More typically, Pickering recorded sales of just over 19 per cent of the moor allotments, involving in total slightly under 11 per cent of the whole moor. While a certain number of such sales were clearly primarily intended to reorganize the new holdings for the greater convenience of the owners, such as the complex of sales between John Woodill and Hodgson Stonehouse, or Thomas Harrison and the King, in Scalby,³

¹ P.R.O., MAF 1/975. ² N.R.R.D., CA 2, 11-28. ³ N.R.R.D., BQ 1/1.

a few individuals took the opportunity of building up substantial holdings. Thus William Huggitt, described as "yeoman," who had no land allotted to him, purchased almost 260 acres of Pickering High Moor from five different individuals.¹ There is no reason to suppose that this process stopped immediately the award had been completed, and an analysis of the surnames of owners in Kilburn shows that only nine of the thirty-seven allotments made in 1828 were still totally owned, and a further seven partially owned, by individuals of the same name in 1848.² Even allowing for some descent through a female line, a great deal of sale and exchange must have taken place. Hence it is difficult to determine the size and boundaries of units which were actually available for development and reclamation.

Nor can the total influence of individual estates be accurately determined. While it is theoretically possible to calculate the total allotments to institutional landowners, such as the King or the Dean and Chapter of York, the problem of sales remains; and in the case of individual owners only detailed family histories, with detailed studies of bequests and gifts, could possibly establish the truth. Furthermore, while the relationships between the George Vanden Bempde, involved in the Scalby (1777) and Wykeham (1787) enclosures, the Richard Vanden Bempde Johnstone of Hackness (1818), and the John Vanden Bempde Johnstone of Harwood Dale (1861) might present no major problem, the numerous Dobsons, Hodgsons, Hayes, and Allansons present almost insuperable difficulties.

VII

The significance of these problems may be appreciated by a study of the subsequent reclamation history of the enclosed parishes, from which it is clear that, although the contrast in enclosure form, whether permissive or compulsory, was indeed a major influence, the question of total size of an individual's allotments was also of importance. The different types of situation may be represented by four parishes, Kilburn (enclosed 1828), Sneaton (1802), Pickering and Newton (1789), and Allerston (1818), the first two compulsory, with many moderate allotments and a single dominant one respectively, the second pair demonstrating the same contrast in permissive enclosures.

In Kilburn improvement seems to have been extensive and rapid.³ All allotments were in fact fenced in the prescribed manner, and the smaller landowners, in particular, appear to have been active in improving them. So, too, do a number of individuals who bought up allotments to create larger holdings. Only one new farmstead was founded, the whole of the remaining area being attached to existing farms on the old improved land. It is impossible to be certain exactly how much land was improved at the maximum extent, or how much was subjected to unsuccessful attempts at improvement, but twenty years after enclosure, of the former moor recorded in the tithe award 62.75 per cent was in the arable, meadow, and pasture categories, 6.05 per cent was woodland, and 31.20 per cent was classified

¹ N.R.O., Enc. 9.

² N.R.R.D., ES 147/51 and Tithe Redemption Commission (T.R.C.), 42/198.

³ *Ibid.*

as moor or rough pasture. The description of a number of fields as "pasture and ling" strongly suggests that reversion was already under way, but the quantity was small, and 1848 seems to represent more or less the maximum extent of improvement.

However, it rapidly became apparent that the reclaimers had over-reached themselves. The First Edition Six-inch Ordnance Survey, mapped in 1856, shows a decrease in the improved area of 140 acres, or 25.97 per cent, and while there may be differences of interpretation between the tithe and Ordnance surveyors, all the evidence available from the Moors indicates that they were very minor.¹ Furthermore, successive editions of the Ordnance Survey over the next hundred years show a continuing story of steady reversion, so that by 1950 only about a quarter of the moor remained as improved land.²

An interesting contrast is provided by the parish of Sneaton, in which there were only five owners, one of whom, John Miles, received 93.76 per cent of the total area.³ Of the remaining four, two, with 22 and 50 acres, rapidly improved their lands while the rector, who may have had extensive holdings elsewhere, and John Brown, part of whose allotment presented physical obstacles to improvement, did nothing. Miles, the principal owner, proceeded at a measured pace. By 1856, when rapid reversion was already in progress in Kilburn, the reclamation schemes on his land were still proceeding.⁴ Little was done to extend existing farms, for the few acres of reclaimed land adjacent to the main area of the parish seem to have been taken in principally with the object of straightening the moor fences. The significant reclamation was concentrated on three new farms, New May Beck, Doves Nest, and Soulsgrave, of which only the first had achieved its final form by 1856. Doves Nest was built and had a good deal of improved land attached to it, though more was to be added in succeeding years, while Soulsgrave existed only in field plan, with no farmhouse, and only a very small acreage improved. Here improvement persisted well into the latter half of the nineteenth century, though almost all of Doves Nest, and three-quarters of New May Beck, were lost by 1950.

The two permissive enclosures show much less variation. In Allerston four owners were theoretically involved, but one, the King, was compensated entirely by a grant of old enclosures, and thus had no part of the moor.⁵ Of the other three, one, George Osbaldeston, received 99.24 per cent of the moor. Osbaldeston, like Miles, proceeded slowly with a planned expansion, and thirty years after the Award only about a tenth of the South Moor was enclosed, and only 178 acres, or 3.78 per cent of his allotment, was actually improved.⁶ Osbaldeston was fortunate in that Allerston moor was broken by a number of areas of improved land, notably Staindale and Crosscliff, but also by small patches near the former rabbit-warren. The Moor Cock Inn also provided a base. Thus he was able to incorporate substantial areas of his allotment in existing farms, or to provide new farms with a nucleus

¹ Chapman, M.A. thesis, pp. 207-8. ² Ordnance Survey, 1:25,000, Provisional edn.

³ P.R.O., L.R.R.O. 60/1441. ⁴ Ordnance Survey, 6 inches to 1 mile, 1st edn.

⁵ N.R.O., ZJQ. ⁶ T.R.C., 42/9 (1846).

of improved land from which to work. One Staindale farm of 40 acres received a further 113 acres of moor, and a 275-acre Crosscliff farm received an extra 9 acres, while a new 50-acre farm unit was created from a former "intake island" of 25 acres, plus 25 acres of moor. He also took advantage of the contemporaneous reorganization of the open fields to create Warren Farm from 200 acres of fields and 100 of moor, and the Moor Cock Farm from 6 acres of fields and 43 of moor. This process was almost complete by 1846, and in so far as the intention was to have the moor improved, was not particularly successful. For example, only 10 acres of the land given to the Staindale farm were reclaimed.

Only three farms were created from the moor without an initial base, all in the 25- to 30-acre range in 1846. This was a later phase of expansion and was not yet completed, for both Givendale Head and Black House were subsequently expanded. By 1856 a further 30 acres had been added, and during the rest of the century the area was more than doubled.¹

The Pickering and Newton case is especially interesting in that it incorporated extensive areas of both compulsory and permissive enclosure, and progress in the two can therefore be compared directly.² We have the evidence of Tuke that, as in Kilburn, the compulsory area was rapidly improved. He quotes the example of Richard Simpson who was allotted 315 acres of the Low Moor at Saintoft Grange and who reclaimed almost the whole of this between 1787 and 1791, beginning with 120 acres of the best land in the first year.³ Simpson's neighbours were obviously equally active, and by 1817 the entire compulsory area had been not merely fenced but improved, apart from some steep lands in Gundale Slack and Newton Dale.⁴ In contrast, the permissive allotments had received little attention, and even some of the better land remained unfenced. Reclamation was under way and the nuclei of many, though not all, of the later planned farms already existed, but extensions to these were normally undertaken at a leisurely pace compared with the burst of activity in the compulsory areas. Apart from the Stape and Raindale areas, where some urgency was shown, farms in the permissive area normally expanded at about 5 to 10 acres per decade, often with long periods of stagnation. Significantly, however, this slow process persisted through to the agricultural depression of the 1880's, while in the compulsory area reversion had already set in by 1856. Some 420 acres of land in the permissive area were reclaimed between 1856 and 1892, while the compulsory area lost approximately 160 acres to rough grazing.⁵

These results may be amply supported from other parishes. The Gillamoor and Fadmoor areas of Kirbyside (enclosed 1793), and Cropton and Hartoft (1766), show the same contrasts between compulsory and permissive areas; and purely compulsory enclosures, such as Nether Siltan (1799), follow closely the Kilburn

¹ Ordnance Survey, 6 inches to 1 mile, 1st edn (1856), and 25-inch series, 1st edn (1892).

² N.R.O., Enc. 9. ³ Tuke, *op. cit.*, pp. 204-14.

⁴ J. Greenwood, Map of the North Riding of Yorkshire, surveyed 1817.

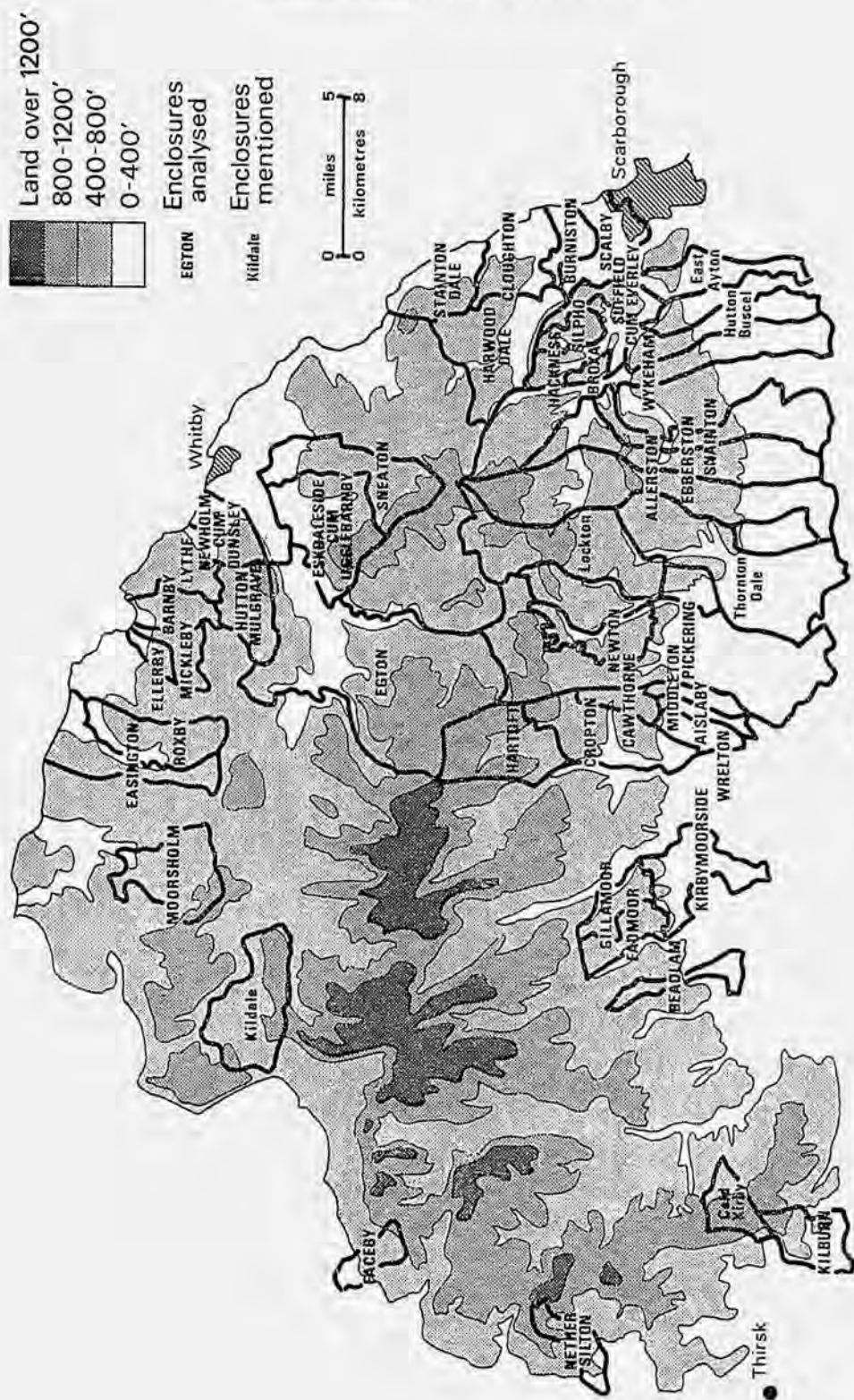
⁵ Compare Ordnance Survey, 6 inches to 1 mile, 1st edn (1856) with the 1st edn 25 inch (1892), and subsequent revisions.

pattern. In Cloughton (1777), where the moorland of the Scalby enclosure lay, the compulsory area had largely been improved by 1817, but little had been done to the permissive area, apart from extensions from such existing bases as the Falcon Inn. Only two new farms, Providence Heath and Moor Lodge, had appeared, and once again it is not until 1856 that extensive work on the new planned farms can be detected. In all about 374 acres of the permissive area, or 30.93 per cent, had been reclaimed by 1856. The date of the enclosure seems to have been irrelevant except in one respect: the handful of awards from the 1860's and 1870's produced comparatively little result. In so far as reclamation was the real objective of these late enclosures, a supposition upon which doubt has already been cast, it must be presumed that owners were overtaken by the depression and were unwilling to risk capital at a period when prospects of receiving any return were highly uncertain.

VIII

Though the Parliamentary enclosure movement in the North York Moors was contemporary with, and often legally incorporated in, the enclosure of neighbouring lowland areas, specific adaptations were made to take account of the problems of the environment. The most significant of these adaptations were associated with permissive enclosure, a system which freed the landowner from any compulsion to enclose or improve his allotments. This appears to have developed in complexity in the light of experience with earlier examples, and especially with the growing realization that permissively enclosed areas might remain open for long periods of time. Its use is not completely predictable, for the prejudices of individual landowners had to be considered, but it was by no means randomly applied, the normal prerequisites being over 1,000 acres of moorland, at least 15, and normally many more owners, and a considerable proportion of allotments over 10 acres.

The effect on the rate of improvement was usually to spread it over a long period of time. While reclamation under compulsory enclosures was as a rule a very hurried process, completed in the space of a few years, in permissive ones it usually ceased only about 1870, allowing anything up to a hundred years for the completion of schemes. Many individuals waited for a number of years, probably to accumulate the necessary capital, before embarking on any improvement, and when they eventually did so a complete new farm on a grid-iron pattern was often the result. Only where a single large landowner obtained substantial tracts of moor did compulsory enclosures exhibit these characteristics. It would seem that the time-lag was put to another good use in investigating carefully the quality of the land in the new allotments, for until the end of the nineteenth century reversion of permissively enclosed land was negligible, in contrast to compulsory areas, where considerable reversion is visible after about 1850. Thus many of the apparent anomalies in the process of reclamation and reversion in the Moors can be attributed purely to the form of the enclosure award.



George Garrard's Livestock Models

By JULIET CLUTTON-BROCK

A series of plaster models of domestic pigs, cattle, and sheep that were made by George Garrard between about 1790 and 1810 has been held in the British Museum (Natural History) since the beginning of this century. In view of the increasing concern for the conservation of rare breeds of livestock it is perhaps an opportune time to publish a description of these models, for they portray the favoured breeds at a crucial period in the history of livestock improvement. Many of the breeds which were the most commercially successful in 1800 (when oxen were still used for ploughing, and the production of tallow was a major industry) are at the present day either extinct or changed out of all recognition, although a few of the old breeds that have survived unchanged are now playing a new economic role in "farm parks" where they are exhibited as relics of a past agricultural age.

GEORGE GARRARD (1760–1826) was a painter who turned his attention to the making of casts and models of many subjects, but mainly of domestic animals. In this project he was sponsored by the fifth Duke of Bedford, who was the first president of the Smithfield Club (founded in 1798), and by the third Earl of Egremont, as well as by other members of the Board of Agriculture. Garrard called his house in Hanover Square, London, "The Agricultural Museum," and from there he sold his models.

In 1798 Garrard published a statement in the *Annals of Agriculture* to advertise his models; parts of this statement are quoted as follows:

Mr Garrard is now preparing the models from the best specimens that can be procured, under the inspection of those noblemen (the Duke of Bedford and the Earl of Egremont); and he proposes to publish a set of models, to consist of a bull, a cow, and an ox, of the Devonshire, Herefordshire, and Holderness cattle, upon a scale from nature, of two inches and a quarter to a foot. The price to subscribers two guineas each model, plain, and three guineas coloured after nature. Some observations will be published with each number, descriptive of the cattle, and the soil where they are bred in the highest perfection, with other interesting particulars, under the inspection of a nobleman of the first information, in matters relating to agriculture."¹

The models were to be ready for delivery on 1 July 1799. Garrard produced many more models, however, than those mentioned above, and between this date and 31 May 1810 (the date incised on several of the models), at least twenty-one breeds were represented (table 1). In 1800 Garrard published two volumes of coloured engravings of the cattle with an accompanying text which gives the history and precise measurements of the individual animals that he used (see table 1 for a list of

¹ G. Garrard, 'Proposals for Publishing a Set of Models of the Improved Breeds of British Cattle', *Annals of Agriculture*. xxi, 1798, pp. 166–7.

the breeds).¹ It is unfortunate that Garrard did not describe the pigs and sheep which he modelled in the same way as he did the cattle.

Although it is 173 years since Garrard wrote the introduction to his work on cattle his words still seem apt and are quoted, in part, below:

The Board of Agriculture having patronized several attempts at delineating livestock of different countries by Painting and Engraving, and it having occurred to the Author of this work that a picture (although it gives a most lively idea of colour, and general effect) rather exhibits a section or contour of the Animal than its real image, as ideas of thickness cannot thus be adequately conveyed with those of length and height, he was therefore induced to make proposals for executing Models of the Improved Breeds of British Cattle, in which the exact proportion, in every point, should be accurately preserved.

These works are not intended merely as matters of curiosity, they exhibit, at once, the ideas of the best Judges of the times, respecting the most improved shape in the different kinds of Livestock—ideas which have seldom been obtained without great expense and the practice of many years. It is presumed that, by applying to works of this kind, the difficulty of acquiring a just knowledge upon the subject may be considerably removed; and also that distant countries where they may be sent, will be enabled to form very perfect ideas of the high state of cultivation in which the domestic animals are produced at this day in Great Britain; and should further progress be made, these models will show what has already been done, and may be a sort of standard whereby to measure the improvements of future times.

Garrard lived at a time when the breeds of livestock in Britain were undergoing great changes as a result of the intensive experiments in improvement that were carried out throughout the country. There were two different approaches to improvement; firstly Bakewell's system of inbreeding of chosen stock, and secondly that of outbreeding, which is best described by again quoting Garrard: "It is considered, that there are no English cattle, sheep, horses, or swine, so early ripe and valuable, (or, perhaps so beautiful) as when mixed with those of France, Spain, Arabia, and the Indies."

The models of pigs, cattle, and sheep in the British Museum (Natural History) exemplify to perfection these two approaches to improvement and the stages that they had reached at the beginning of the nineteenth century. Unfortunately, however, the models have been somewhat damaged over the course of the years, and their original labels are often missing. It has been possible to identify the pigs and cattle, but the sheep proved to be more difficult, and only some of these models could be ascribed with certainty to their breeds. All the models appear to have been made to the same scale of 2¼ inches to one foot (slightly larger than one-sixth natural size). The models were on exhibition in the old Mammal Galleries at the

¹ G. Garrard, *A Description of the Different Varieties of Oxen Common in the British Isles: Embellished with Engravings*, 2 vols., 1800, no page nos.

beginning of this century together with the skeletons and mounted skins of many domestic animals. This exhibit was described in a guide by Lydekker.¹ All but four of the models were presented to the Museum in 1912 by the late Earl of Ancaster. The present Earl has written to tell me that they were originally obtained by his great-great grandfather, Peter Robert, Twenty-first Lord Willoughby of Eresby, who was much interested in the development of scientific farming. The remaining four models of cattle (of which there are unpainted duplicates from the Ancaster collection) are painted replicas made by the Museum in 1903 from originals in the possession of the Duke of Bedford.

The models are described here with comments and a short history of the breeds that they represent.

SWINE

Garrard's group of three pigs sums up in a most remarkably succinct and precise way the history of the domestic pig in Britain (Plate 1).

The Wild Boar

Although extinct in Britain by the end of the seventeenth century the wild boar was probably well known to Garrard, as it was frequently introduced to parks. For example, Harting quotes how "Sir Francis Darwin received a present of a German boar, and two Alpine boars and two sows, on his estate in Derbyshire in 1826."² There can be little doubt that the European wild boar, *Sus scrofa*, was the ancestor of the old English domestic pigs, and indeed it is possible that wild boar were crossed with domestic stock until late in historic times. The custom of putting swine out to pannage in the forests may have made interbreeding a common occurrence until the post-medieval period.

The Old English Boar

This is perhaps the most interesting of all Garrards' models, for this breed of pig (figured by Youatt³) gradually became extinct after the introduction of Asiatic breeds at the end of the eighteenth century. Youatt describes these swine as follows: "Where individuals of the pure old breed are met with, they will be found long in limb, narrow in the back, which is somewhat curved, low in the shoulders, and large in bone; in a word, uniting all those characteristics which are deemed most objectionable, and totally devoid of any approach to symmetry."⁴ These large coarse-bodied, lop-eared pigs were widespread throughout Britain, and may be included under the general name of the unimproved Berkshire.⁵

The Half-bred Siamese and English Sow

This model of a small, barrel-shaped, smooth-skinned, pink pig exemplifies all

¹ *A Guide to the Domesticated Animals (other than horses) of the British Museum (Natural History)*. Trustees of the British Museum, 1912, 56 pp.

² J. E. Harting, *British Animals Extinct within Historic Times*, 1880, pp. 77-114, 97.

³ W. Youatt, *The Pig*, 1847, figure p. 54. ⁴ *Ibid.*

⁵ R. Trow-Smith, *A History of British Livestock Husbandry 1700-1900*, 1959, pp. 154-8.

characters that the late eighteenth-century breeders were trying to produce. Chinese, Siamese, and Neapolitan pigs were probably brought into Britain continuously from 1770 onwards.¹ They were small, fat, hairless pigs with the distinctive "dish-face" that is so characteristic of all present-day breeds. The cross-breeding produced pigs which matured much faster, were small-boned, and much fatter than the old British breeds. By the middle of the nineteenth century the influence of the Asiatic crossings was to be seen in every British pig.²

Garrard's model is a most fascinating relic for it shows the precise form of a first generation cross between an Old British sow (which was soon to become extinct) and a Siamese boar.

CATTLE

By the beginning of the nineteenth century major improvements in cattle-breeding had been accomplished, and the shorthorn breeds were beginning to supplant the longhorns despite Bakewell's fame. Cattle breeds were, however, still multi-purpose, and the production of fat for tallow was of prime importance. In many areas oxen were used in preference to horses for ploughing, and cattle were not sent to market for slaughter until they were fully mature at five or six years of age. Every part of the carcass was of value, and the thickness and condition of the hide were crucial for sale to the leather industry.

Bakewell and his followers aimed primarily for early maturity; a barrel-shaped body, and a reduction in the amount of bone in the carcass; bone being the only part of the animal that was not of great value. By the time that Garrard came to write his description of cattle Bakewell had been succeeded by his nephew Mr Honeyborn, and the Collings brothers were achieving fame as the chief breeders and improvers of the Holderness shorthorn. The lives of these people are too well known to bear repetition here but for further information about them the reader may refer, amongst others, to the works of Housman,³ Trow-Smith,⁴ and Youatt.⁵

Garrard divided the breeds of cattle into four groups, the polled breeds (of which the Museum holds no models), the longhorns, the shorthorns, and the middle-horned breeds, which are here described first.

Devonshire Cattle

Garrard refers only to the North Devon cattle. These were widespread in the south-west of England, being supplanted by the South Devon breed towards the borders of Cornwall. The South Devons were a less-well-thought-of breed which in the words of Youatt "were equally profitable for the grazier, the breeder, and the butcher; but their flesh was not so delicate as that of the North Devons. They do for the consumption of the Navy, but they will not suit the fastidious appetites of the inhabitants of Bath, and of the metropolis."⁶

¹ *Ibid.*, p. 154. ² Youatt, *op. cit.*, pp. 52-65.

³ W. Housman, 'Robert Bakewell', *J. Roy. Agric. Soc. Eng.* v, 1894, pp. 1-31.

⁴ Trow-Smith, *op. cit.*, pp. 45-70.

⁵ W. Youatt, *Cattle*, 1860, pp. 226-38.

⁶ Youatt, *op. cit.*, p. 22.

In Garrard's view the North Devons were an almost perfect breed. The height of the oxen varied from 11 to 12 hands, cows from 11 to 12 hands, and the bulls from 12 to 13 hands (one hand = 4 inches = 10.16 cm). The large size of the oxen was particularly commended. Most of the ploughing in Devon and Somerset was done by oxen, and Garrard states that the oxen could be wintered in open sheds, and could be driven to London for slaughter without losing any weight.

There is a very fine group of Devon cattle in the collection of models (Plate 2), comprising an ox, a bull, a cow, and a calf. Garrard gives detailed measurements of the adult animals, and states that the cow and the bull were bred by Mr White Parsons and were in the possession of the Earl of Egremont. The bull obtained a prize at Lewes in 1797. The ox belonged to the Duke of Bedford, and was "in that yoke of oxen, mentioned in the Annals of Agriculture to have been purchased of Mr Pippins of Dulverton, to carry on the experiments at Woburn."

As well as this group of Devon cattle there is a model of "A Beautiful Fat Devon Heifer" which was owned by the Duke of Bedford, and which obtained a prize at Smithfield in 1802. The dimensions of this heifer were: height of hind quarters, 4ft 5ins; round chest 7ft 2ins; pole to tail, 6ft 8ins. The weight was: carcase 106 stone 1 lb; fat 19 stone 4 lb; total weight 125 stones 5 lb. (Note: 14 lb = 1 stone = 6.30 kg.)

A Fat Herefordshire Ox

There are two models of this ox, one unpainted from the Ancaster collection, and one painted but unfortunately with the head missing from the Duke of Bedford (Plate 3). The ox was bred by Mr Tully of Hunterton, near Hereford, and fattened by Mr Westcar of Creslow in the Vale of Aylesbury. It had a dead weight of 1,928 lb, of which 288 lb was fat. The ox obtained a prize from the Smithfield Society at Christmas, 1799, and it was six years old when it was slaughtered. It was sold for £100, the tongue for 1 guinea, and the hide for 3 guineas.

Herefordshire oxen were much used for ploughing. They were larger cattle than the North Devons, and all Garrard's engravings of the breed show the characteristic white faces with brown bodies. Youatt, however, states that the old Herefords were brown or red-brown with not a spot of white about them. He asserts that it was only in the fifty or sixty years before writing his book (1860) that it became fashionable to breed for the white face.¹

Sussex Cattle

This breed is well represented by the models. There is a bull, an ox, and a cow on one base, which are in good condition (Plate 4), and also a model of the fat heifer that was described by Garrard as "the handsomest Fat Beast that had ever trod the pavement of Smithfield Market." This heifer was bred by Mr Vittle of East Farley in Kent and sold to a Mr Kingsnorth who exhibited it at Smithfield in 1800. The dimensions of these cattle are given in a table by Garrard. The bull, ox, and cow

¹ Youatt, *op. cit.*, p. 31.

were from the Earl of Egremont's stock at Petworth in Sussex. The Sussex breed was said by both Garrard and Youatt to be intermediate in colour, conformation, and fattening potential between the Devon and the Herefords.¹ In Garrard's time Sussex cattle were much used for plough oxen; the history of the breed during the nineteenth century has been written by Boxall.²

Highland Cattle

At the present day the Highland cattle would certainly be classed in the group of long-horned cattle, and Trow-Smith states that they were long-horned in the eighteenth century.³ Neither Garrard nor Youatt, however, placed them in this group. There are models of a bull, ox, cow, and calf of the Highland breed in the Museum collection but they bear only a slight resemblance to the Highland cattle of today; the models have been painted the correct reddish-tan colour but the horns are quite short, in fact shorter than they are in the models of the Sussex and Devon cattle (Plate 5). In Youatt's day the Highland cattle were brown, black, brindled, red, or light dun in colour.

Longhorn Cattle

By 1800 the Longhorn cattle (or New Leicester breed) were over the peak of their short-lived success as an improved breed in England. The unimproved longhorns were large rangy cattle that were to be found in the North of England in the eighteenth century, and particularly in the Craven district of Yorkshire. The first person to attempt improvement was a blacksmith named Welby who had a herd from the stock of Sir Thomas Gresley, who lived near Burton-on-Trent. Welby was succeeded by Mr Webster of Canley, near Coventry (Warwickshire), who had cattle from the same stock and bought in more animals from Lancashire and Westmoreland for interbreeding. Then in about 1760 Robert Bakewell, who was already gaining a reputation for sheep breeding, turned his attention to cattle. He purchased a bull from Westmorland and two heifers from Mr Webster. From these animals Bakewell's entire stock of longhorns was bred.

Bakewell lived at a time when there was a rapidly increasing demand for meat although the population of Britain still did not exceed ten million. The old longhorns were not good plough oxen, and Bakewell exploited this fact. Before his time fat calves were slaughtered for veal, and lean well-grown animals were kept for work. Bakewell reversed the process and retained animals likely to breed him stock for the butcher rather than the plough. His improvements were achieved by close inbreeding, selection of favoured animals, and ruthless culling of unwanted stock. This is exemplified by the pedigree given below of the Fat Long Horned Ox that was modelled and figured by Garrard. As with the Herefordshire ox, the Museum holds two models of this animal (Plate 6), and there are also models of a

¹ *Ibid.*, pp. 40-6.

² J. P. Boxall, 'The Sussex Breed of Cattle in the Nineteenth Century', *Ag. Hist. Rev.*, XX, 1, 1972, pp. 19-23.

³ Trow-Smith, *op. cit.*, p. 112.

Longhorn ox and a cow in the collection. Detailed measurements of these cattle are given by Garrard. The fat ox, which was obviously a very fine animal with long wide-sweeping horns, was bred at Bakewell's farm Dishley Grange by his successor Mr Honeyborn. The ox was shown at Smithfield in 1799 when it was five years old.

*Pedigree of the Fat Long Horned Ox*¹

Westmorland bull = Canley cow from Webster
(Bakewell's original stock)

Twopenny (bull b.1765) = Twopenny's dam

cow = Twopenny = cow from Mr Webster's stock owned by Fowler
of Rollright, Oxfordshire

D (bull b.1772) = Young Nell

Shakespeare (bull b.1778) = Dandy

The Fat Long Horned Ox

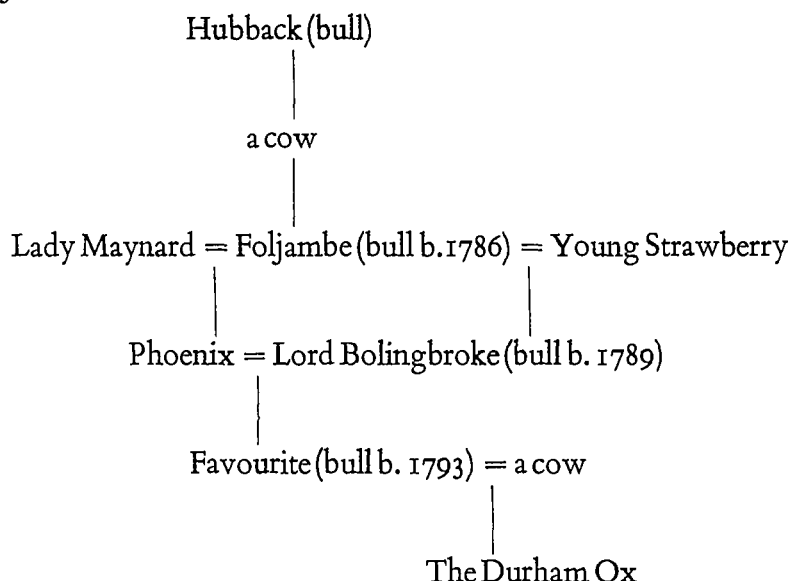
Holderness Shorthorn Cattle

Two models of a shorthorn ox are in the Museum Collection, one from the Duke of Bedford and one from the Earl of Ancaster; the former has been painted and the latter is unpainted. They agree very well with Garrard's engraving of the "Wonderful Ox" which was on exhibition in London in 1802. Garrard describes the ox as "belonging to the Tees-Water breed of Mr Collins stock, and the property of Mr John Day of Harmston, near Lincoln. It was no less distinguished for its uncommon beauty than for its weight (200 stone), being an example of perfection on every way" (Plate 7).

The history of this ox is known in detail, for an examination of the literature shows that the "Mr Collins", mentioned by Garrard as having been for many years the most distinguished breeder of Holderness cattle, is Charles Colling who was, together with his brother Robert Colling, the "Bakewell" of the Shorthorn breed. The Collings's Shorthorns are described at length by Youatt who calls the "Wonderful Ox" the "Durham Ox."² It was bred from a common cow that was put to Colling's famous bull, "Favourite," whose pedigree is well known and is given below:

¹ Adapted from J. Wilson, *The Evolution of British Cattle*, 1909, p. 119.

² Youatt, *Cattle*, p. 229.

*Pedigree of the Durham Ox*¹

At five years old, in February 1801, the Durham Ox was sold by Mr Colling to Mr Bulmer of Harmby, near Bedale (Yorkshire) for public exhibition for £140. At this time the live weight of the ox was 216 stone. Mr Bulmer obtained a carriage for his conveyance and travelled with him for five weeks, and then sold the ox and the carriage at Rotherham to Mr John Day on 14 May 1801 for £250.

Youatt writes that on 14 May, Day could have sold the ox for £525, on 13 June for £1,000, and on 8 July for £2,000. He resisted these offers, however, and travelled with the ox for nearly six years, until at Oxford on 19 February 1807 the animal dislocated a hip bone. On 15 April, when the ox was eleven years old, it was slaughtered, and after eight weeks of illness the carcass still had the following weights:

Four quarters	—	165 stone 12 lb
Tallow	—	11 stone 2 lb
Hide	—	10 stone 2 lb

Shorthorn cattle were imported from Holland at the end of the seventeenth century. They were at first given the name of "Holderness" after the name of the district in Yorkshire where they became established. Later (during Garrard's time) they were known as the "Teeswater" cattle, for this was the district in which the Collings brothers lived. The history of the Shorthorn breed in Britain is given by Trow-Smith, who also discusses why the improved Shorthorns were so successful whilst the Bakewell Longhorns failed to sustain their popularity in the nineteenth century.²

¹ Wilson, *op. cit.*, p. 123.

² Trow-Smith, *op. cit.*, p. 233-41.

Cattle from the East Indies

Models of a "Guzarat Bull," a "Bengall Bull," and a "Ceylon Bull" are in the collection. Measurements of the cattle that were modelled are given in Garrard's text, and there are engravings of the "Guzarat Bull," the "Ceylon Bull," and a "Bengal Cow with Calf." Garrard states that the Guzarat bull was the largest, and stood 15 hands at the top of the back with the hump projecting 6 to 8 inches higher. The Bengal bull was not so large, and the Ceylon bull was a dwarf animal only about the size of a goat (Plate 8).

There were several herds of exotic cattle and Indian buffalo that were bred in the British Isles during the eighteenth and nineteenth centuries. The models of the Guzarat and the Ceylon bulls were made from animals in the stock at Woburn Abbey; the Bengal bull was in the possession of Lord Salisbury. Exotic cattle were kept by landowners who could afford them, partly as fashionable curiosities, but also in the belief that by crossing them with native cattle improvements could be made, as had been achieved so dramatically with swine.

The crosses of British cattle with animals imported from India do not appear to have been generally favoured, however, although Garrard does quote from a letter written to him from Mr White Parsons, the celebrated breeder of Devon cattle, as follows: "I shall have the pleasure of shewing you my new Devons, which, as a painter, I know you will say have a finer claim to positive beauty than any you have yet seen—they are calves got by an Indian bull, given me by His Grace the Duke of Bedford, upon two year old Devon heifers, and are as fat as quails at a month old, and worth three guineas a-piece to kill, which proves the blending system to be right, as it is in favour of quick growth, small bone, and finest quality; and there can be no doubt but that their hides, flesh, milk and tallow will be of a superior quality and value."

The above quotation should perhaps serve as a word of warning to those who attempt to make comparative studies, such as those of the blood groups of different breeds of livestock.

SHEEP

Garrard's sheep have proved more difficult to identify than the cattle, and the breeds of only four out of the nine models have been determined with certainty. Garrard apparently left no engravings or descriptions of the sheep which he modelled, as he did with the cattle.

New Leicester Sheep

Faint writing across the back of a model of a very fat sheep says, "Fat Leicestershire Ewe, G. Garrard, May 31st, 1810". The new Leicester sheep was a product of Bakewell's policies of improvement. Better known perhaps, than the Leicester Longhorn, the New Leicester sheep was the most successful project that Bakewell undertook. As with his cattle, Bakewell reduced the bone and increased the fat proportions of the sheep carcase. Size and weight of fleece were at first sacrificed for

early maturity and the highly-prized barrel shape of the body. In 1783 the Dishley Society was founded, and the practice of letting out rams to farmers rather than selling them became financially very profitable. The rams were let for very large sums of money; in 1789 Bakewell made 1,200 guineas from three rams, and 2,000 guineas by seven others. Youatt asserted that by 1830 there was hardly a flock of long-woolled sheep in the British Isles that was not in some degree descended from Bakewell's New Leicesters.¹

The origins of the New Leicester sheep are not clear but it is probable that Bakewell used the local stock of long-woolled Lincoln and Leicester sheep which he inbred until he achieved the results he required. The fat ewe modelled by Garrard is probably typical of the highly bred Leicester of 1800. Housman describes a three-year-old wether belonging to a Mr James Bolton which when killed in 1787 had $7\frac{1}{8}$ inches of solid fat over the ribs.²

Southdown Sheep

Models of a hornless, white ram and ewe on one base can be identified as Southdown because another identical ewe has "Southdown" written very faintly across its back. These models must represent the improved Southdown as it looked at the beginning of the nineteenth century. The slight painting of the eye and hooves of the models suggests that the head was not intended to be black, and the breed had already lost the dark head and legs of the old Southdowns. This dark coloration and the horns were retained in small flocks of a related breed that survived in Norfolk. This was the Norfolk Horn which, when crossed on to the improved Southdown at a later date, produced the successful Suffolk breed; the last purebred Norfolk Horn ram died on 5 October 1973.

Several breeders were responsible for the improvement of the Southdown, but the most notable was John Ellman (1753-1832) who carried a breeding flock of 500 sheep on his farm at Glynde in Sussex. Unfortunately it is not known which individual animals were chosen by Garrard for his models but it is likely that for the Southdown breed it would have been sheep from the flocks belonging to the Duke of Bedford or Mr John Ellman.

Unidentified Sheep

There are five other models of sheep that cannot be certainly ascribed to particular breeds. One is a fine model of a ram, painted white, with long curled horns. An old label suggests that Lydekker believed this to be a Scottish blackface ram, but it is more likely to represent a merino. A merino ram similar to this model is portrayed in Garrard's oil painting "The Woburn Sheep Shearing, 1804."³

Two models on one base could represent shorn and unshorn rams of the New Leicester breed, and another model of a shorn ewe could also be a New Leicester, for it and the shorn ram look like a pair. To ascribe the remaining model of a large

¹ W. Youatt, *Sheep*, 1837, pp. 312-31. ² Housman, *op. cit.*, p. 15.

³ H. B. Carter, *His Majesty's Spanish Flock*, 1964, Plate I (frontispiece).

TABLE I

THE LIVESTOCK BREEDS DESCRIBED AND FIGURED BY GARRARD, TOGETHER
WITH A LIST OF THE MODELS IN THE BRITISH MUSEUM (NATURAL HISTORY)

<i>Breed</i>	<i>Described*</i>	<i>Figured*</i>	<i>Model in the B.M.(N.H.)</i>
<i>Swine</i>			
<i>Sus scrofa</i>	—	—	boar
Old English	—	—	boar
Half bred Siamese and English	—	—	sow
<i>Cattle</i>			
Devonshire	+	bull, cow, ox, fat heifer	bull, cow, ox, calf, fat heifer (2)
Herefordshire	+	bull, cow, ox, beautiful bull, fat ox	fat ox (2)
Leicester Longhorn	+	bull, cow, ox, fat heifer, fat ox	cow, ox, fat ox (2)
Sussex	+	bull, cow, ox, fat heifer	bull, cow, ox, fat heifer
Holderness Shorthorn	+	bull, cow, ox, fat ox	fat ox (2), bull? ox? cow?
Highland	—	fat Highland Scotch ox	bull, cow, ox, calf
Scotch	—	fat Galloway heifer	—
Irish	—	true native Irish or Kerry cow	—
Yorkshire polled	—	cow	—
Suffolk polled	—	bull, cow, ox	—
Shetland	—	bull	—
Norman	—	bull	—
Alderney	+	bull, cow, ox	—
Gujarat	+	bull	bull
Bengal	+	cow, calf	bull
Ceylon	+	bull	bull
<i>Sheep</i>			
New Leicester	+	—	fat ewe, shorn and unshorn rams? shorn ewe?
Southdown	—	—	ewe (2), ram
Merino	—	In a picture called "The Woburn Sheep-Shearing, 1804"†	ram

* Garrard, *op. cit.* † Carter, *op. cit.*

hornless ram to any breed would be mere speculation until more information is known about it.

The series of models that is described here is not complete, for some of the models of cattle have been broken or lost, and some are quite badly damaged. The series is not, however, unique; it is probable that Garrard presented each of his patrons

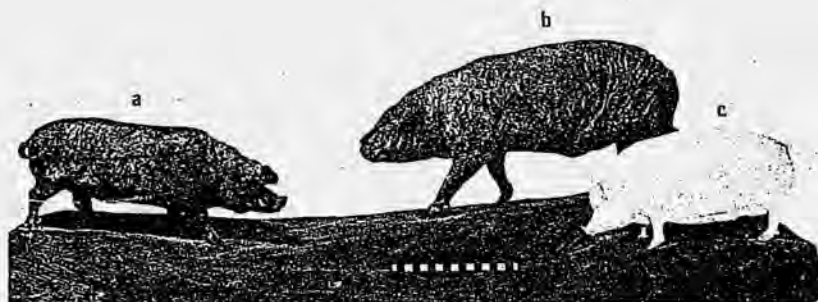


Plate 1: (a) Wild boar. No. 73 1611 (b) Old English boar. No. 73 1609
(c) Half-bred Siamese and English sow. No. 73 1610

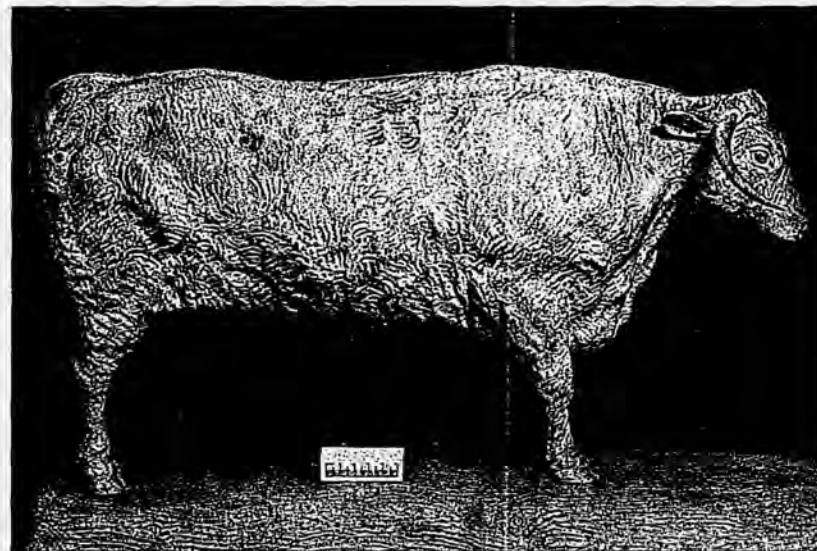


Plate 3: Herefordshire ox. No. 73 1591. Note: the horn is broken at its base and has fallen downwards.

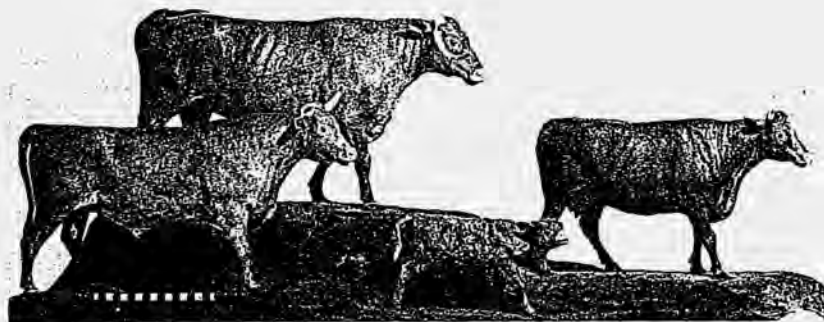


Plate 2: North Devon bull, ox, cow, and calf. No. 73 1597

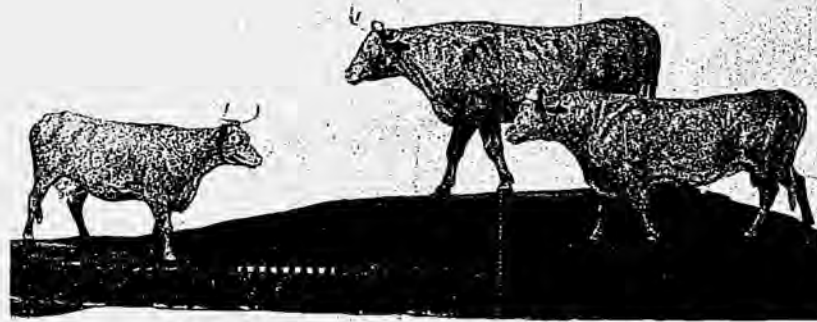


Plate 4: Sussex cow, ox, and bull. No. 73 1596

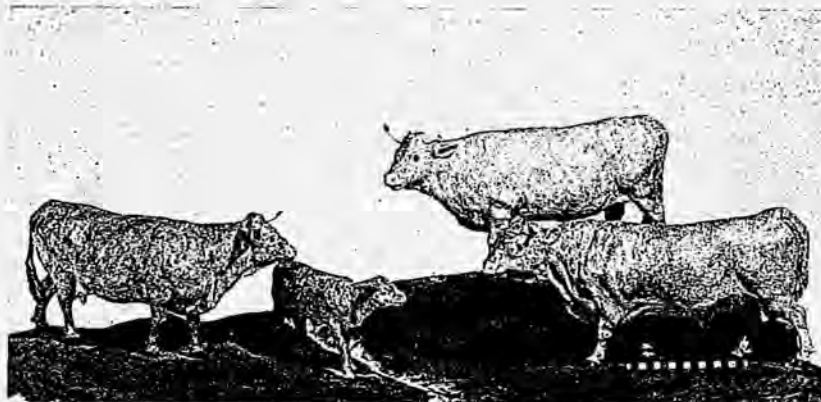


Plate 5: Highland cow, calf, ox, and bull. No. 73 1598

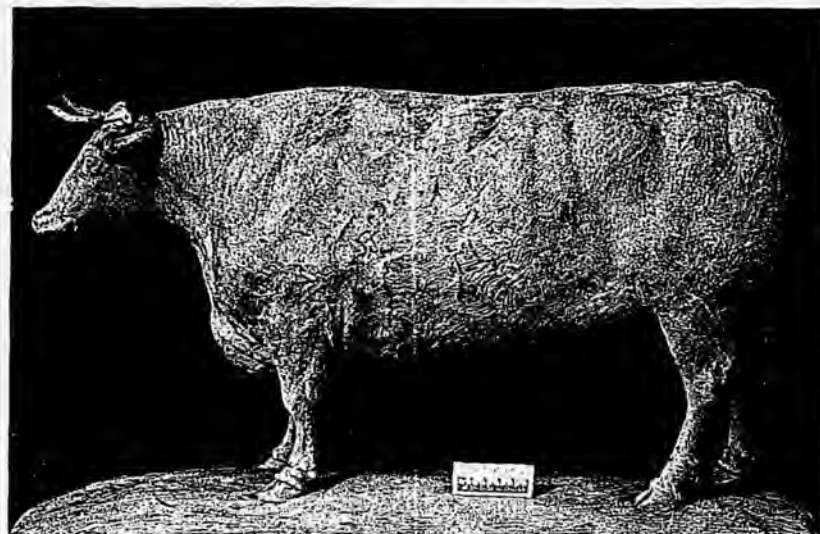


Plate 7: The Wonderful Ox (Holderness Shorthorn). No. 73 1587

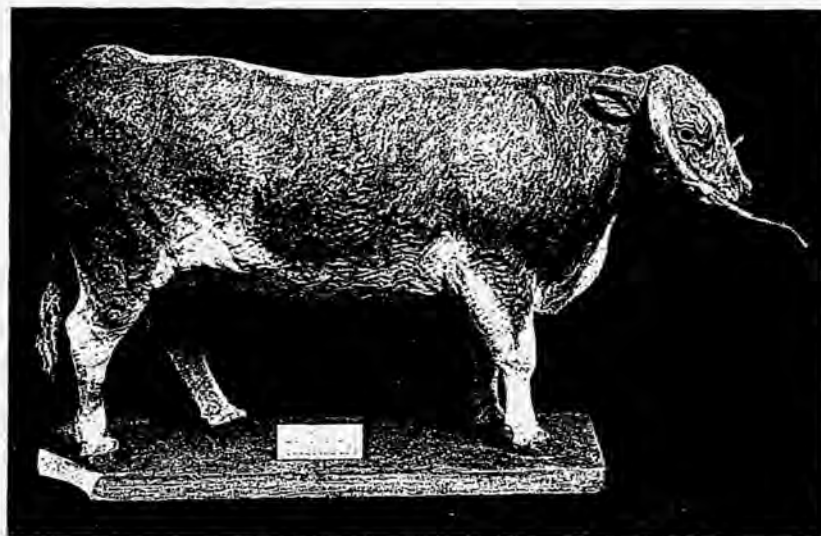


Plate 6: Fat Long-Horned Ox. No. 73 1588

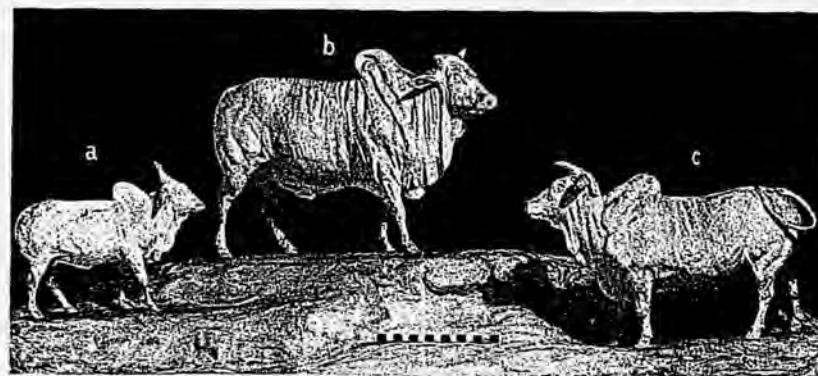


Plate 8: Indian cattle. No. 73 1600 (a) Dwarf bull from Ceylon (b) Gujarat bull (c) Bengal bull

with a set, and he was also successful at selling them. Fortunately some at least of these sets are still in private collections in Britain. There was a loan exhibition of Garrard's works held at the Cecil Higgins Museum, Bedford, in 1961.

Garrard lived at a time when the improvement of farm livestock was the primary aim of landowners throughout Britain. Before Bakewell the success or failure of livestock was ascribed to the goodness of the land and the feeding policies of the graziers. Bakewell and his followers were the first to start at the beginning and to concentrate on the breeding of the stock. In this they were using the (as yet undiscovered) laws of Mendelian inheritance, and were perhaps before their time in their understanding of concepts that a century later were formulated into the theory of evolution. It is lucky indeed that Garrard's models survive to show us these critical stages in livestock improvement in a manner which even the camera could not surpass, had it been invented in 1800.

OBITUARY

Mabel K. Ashby

THE British Agricultural History Society loses a most distinguished member with the death of Miss Mabel K. Ashby on 16 October 1975. After a very full life in education, at the end of which she was Principal of Hillcroft College for Working Women, Miss Ashby turned in retirement to the writing of history, and published in 1961 *Joseph Ashby of Tysoe, 1859-1919*. It was more than a history of her father, it was a careful study of village life in Tysoe, Warwickshire, that immediately received high praise for its sympathy, its insights into working life, and its poetic prose. It won for Miss Ashby the James Tait Black prize for the best biography of 1961. She then went on to write the history of Bledington in Gloucestershire (*The Changing English Village, 1066-1914*), in which she lived until her death.

Both Miss Ashby's books describe villages that had one factor in common: they worked out their destinies without a resident lord. Miss Ashby recognized this as a central factor

in shaping their personalities, and she rejoiced in it. "The great house," she wrote, "seems to me to have kept its best things to itself, giving with rare exceptions neither grace nor leadership to villages, but indeed depressing their manhood and culture." Accordingly, she viewed with admiration and pride the competence of the ordinary villager, backbone of the village community; this viewpoint shines through all her writing. Miss Ashby's work was greatly praised and widely read during her life, but it is equally certain that, as historians continued to uncover the deep and pervasive influences of social structure on economic development, they will find deeper layers of meaning in her thoughtful and perceptive studies.

Members of this Society who have attended past conferences will retain an additional memory of a quiet, dignified lady with a searching gaze and few words, but those always well-considered, pithy, and direct.

JOAN THIRSK

The Distribution of Wheelhouses in the British Isles¹

By KENNETH HUTTON

A WHEELHOUSE ("horse-engine house") is here defined as a small building immediately attached to a barn or very close to it, which has at some time contained a horse-wheel to drive a mechanism within the barn, usually for threshing (Pl. 1).

Wheelhouses have recently been shown to be far more common than casual observation would suggest, and J. A. Hellen has recorded 276 still surviving in Northumberland.² Now, with the help of over fifty members of the Vernacular Architecture Group and others, observations first made in the north of England have been extended to cover the whole of the British Isles. These have shown the existence of over 1,300 wheelhouses still standing in England, Scotland, and Wales; the distribution of these is shown in fig. 1. Two are also known in Ireland,³ five in Denmark,⁴ three in Holland,⁵ and one in East Germany;⁶ there are also some in open-air museums.

The particular type of distribution map used in fig. 1 was suggested by a reading of Bellamy.⁷ It has the great advantage that this mapping is less sensitive to the diligence of the observer than the plotting of each individual wheelhouse found; for example, in the Cleveland district of North Yorkshire, the filling in of one grid square (10 km × 10 km) may represent as many as twenty of the wheelhouses found by Harrison,⁸ whereas elsewhere it may merely show that wheelhouses are not entirely absent from Suffolk.⁹

The general picture is an intensification of that mentioned by Atkinson,¹⁰ i.e. "wheelhouses mostly occur in NE. and SW. England"; but there are also considerable numbers in Cumberland,¹¹ Dumfriesshire,¹² and Perthshire, some in Herefordshire and Shropshire, and a scattering elsewhere. In fact, the only English

¹ I wish to thank E. J. Connell who first aroused my interest, R. W. Brunskill who encouraged a wider and more systematic study, and all those very many people who have so generously made available without reservation their own individual or collective observations so as to make this a truly co-operative undertaking.

² J. A. Hellen, 'Agricultural Innovation and Detectable Landscape Margins: The Case of Wheelhouses in Northumberland', *Agric. Hist. Rev.*, xx, 2, 1972, pp. 140-54.

³ Cahir, Co. Tipperary (R. Hellier 1966); Kiltiernan, Co. Dublin (T. O'Neill 1972); N. Ireland had at least four covered horse-walks, all now destroyed (R. A. Gailey, W. A. McCutcheon).

⁴ Lundwall Nielsen, *Motor* (Copenhagen), 20, 1972, pp. 30-1.

⁵ As seen in 1973 in the neighbourhood of Wijchen, south of Nijmegen.

⁶ Tetzitz (54° 31' N., 13° 46' E.). ⁷ David Bellamy, *Bellamy on Botany*, BBC, 1972, pp. 68-9.

⁸ Anne and John K. Harrison 'The Horse Wheel in North Yorkshire', *Bulletin No. 8 of Cleveland and Teesside Local History Society*, March 1970, pp. 13-23; *Industrial Archaeology*, x, 3, 1973, pp. 247-65, 337-9.

⁹ S. J. Colman, TL 823691, TL 904384.

¹⁰ F. Atkinson, 'The Horse as a Source of Rotary Power', *Trans. Newcomen Soc.*, 33, 1960, p. 46.

¹¹ R. W. Brunskill, 'Design and Layout of Farmsteads in parts of Cumberland and Westmorland', *RIBA Neale Bursary 1963*, Manchester 1965, section 8.

¹² Sixty-two examples known to G. D. Hay, R.C.A.H.M., Scotland.

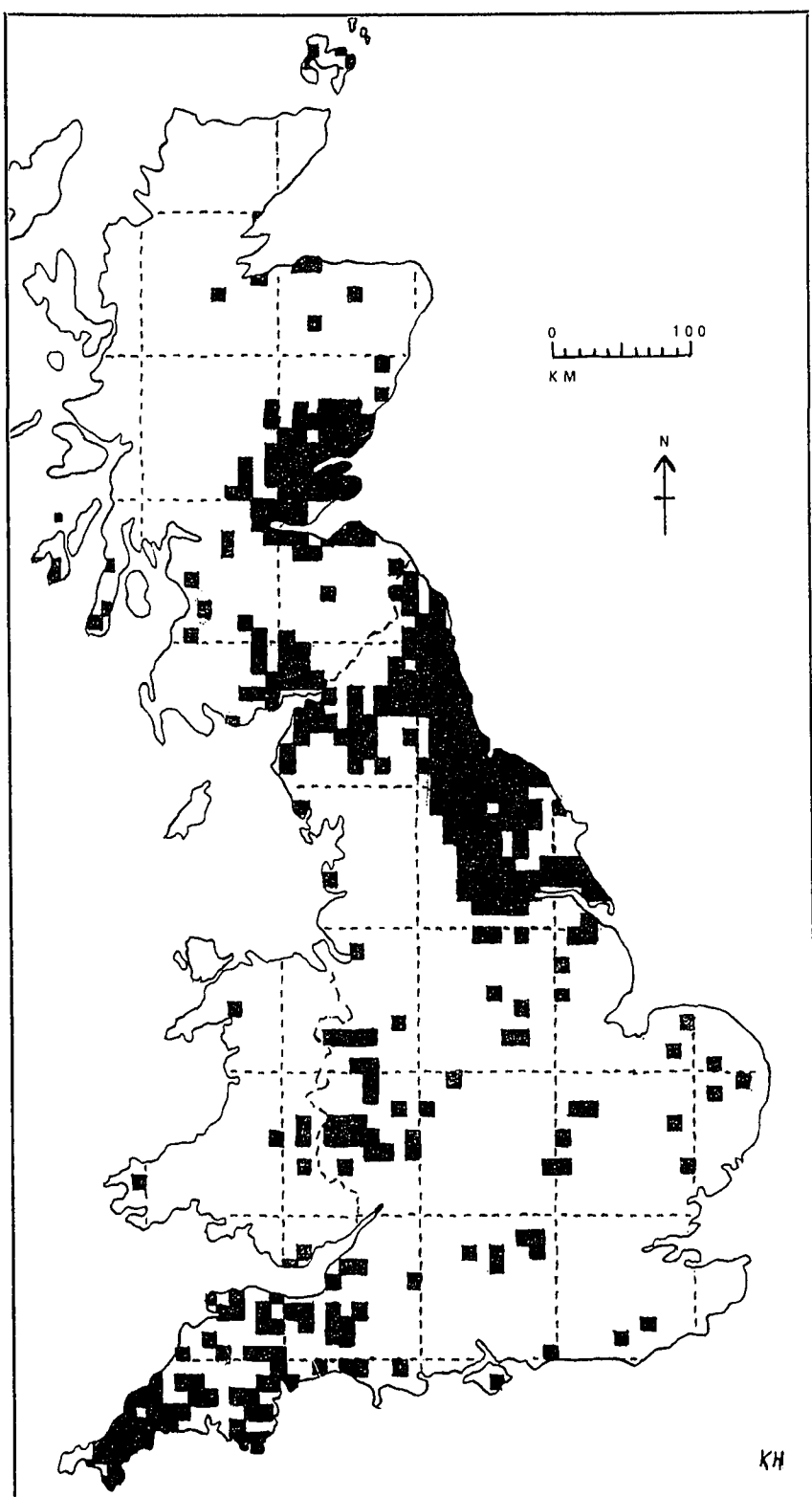


FIG. I

Distribution of horse-engine houses existing in Great Britain in 1973. National grid lines are shown at 100 km intervals; 10 km grid squares are shaded where they contain one or more horse-engine houses.

counties where none are known at present are Buckinghamshire, Cambridgeshire, Cheshire, Derbyshire, Essex, Gloucestershire, Hertfordshire, Middlesex, Northamptonshire, Oxfordshire, and Rutland. This prompts the question of why this should be so. To answer this question eight different hypotheses are put forward.

1. *Wheelhouses do exist elsewhere.* To a limited extent this is undoubtedly true, and I would certainly expect many more to be found in Scotland,¹ where Meikle invented the threshing-machine in 1785 in Clackmannanshire—a county which appears at present to be blank. Recently, Hellen subjected County Durham to his intense survey by 25-inch O.S. maps, and so increased the number of known wheelhouses there from forty to 200.² Similarly, a challenge to the two hundred keen-eyed members of the V.A.G. to disprove the hypothesis that thirty-one counties in England and Wales are devoid of wheelhouses has produced examples in twelve of these counties. Yet it seems most probable that the present general distribution map is not at fault because of the varying intensity of field-work in different regions. In a similar survey, the past twelve years of searching for buildings with cruck frames has increased the total number from 400 to 2,045 true crucks without very significantly altering the distribution.³

2. *Wheelhouses have been destroyed recently.* This is also true, and Hellen found that out of 575 Northumberland sites known in 1894, 299 “gingans” had been demolished or were unauthenticated by 1969.⁴ Similarly, Brunskill found that out of 227 threshing-machines powered by horse-engines in West Cumberland in 1852, only fourteen “gin-cases” survived in 1965.⁵ Anyone making a systematic local survey has to make a separate list of “wheelhouses destroyed” with their six-figure grid references.⁶

3. *Wheelhouses existed but were destroyed long ago.* It seems likely that most wheelhouses were built between 1800 and 1830, or at any rate between 1785 and 1851, after which time portable steam-threshers became the most up-to-date equipment.⁷ The latest known instances are the horse-engine house at Standen in the Isle of Wight, probably built between 1845 and 1853 (J. E. C. Peters), and two Cornish dates of 1857 and 1868.⁸ No later dates are known.

Now, between 1830 and 1832 occurred the “Captain Swing” breaking of 390 threshing machines, as shown in fig. II. This is largely the inverse of fig. I, i.e. no machines were broken in Scotland, in north-east England, or in Cornwall, where

¹ D. Bruce Walker has discovered over 200 wheelhouses, mostly in Angus and Fife, since this was written; twenty-eight extra squares have been added to the map (Fig. 1).

² J. A. Hellen, *Survey of 1972-3*.

³ J. T. Smith, ‘Medieval Roofs, a classification’, *Archaeol. J.*, cxv, 1960, pp. 138-9; N. W. Alcock, *Catalogue of Cruck Buildings*, Phillimore for Vernacular Architecture Group, 1973.

⁴ Hellen, ‘Agricultural Innovation...’, *loc. cit.*, p. 144. ⁵ Brunskill, *loc. cit.*

⁶ E.g., K. J. Allison, *East Riding of Yorkshire*.

⁷ Garratt’s portable horse-thresher, shown at the 1851 Great Exhibition, is on display at the Science Museum, London.

⁸ H. R. Hodge, ‘Horse Gears and Threshing Machines in Cornwall’, *Old Cornwall*, vii, no. 10, 1972, pp. 444-8; ninety-three examples known.



*Plate 1: Wheelhouse at Hooton Roberts, South Yorkshire, SK 483968, alongside the A630 road.
(Photo: National Monuments Record, Crown Copyright reserved).*

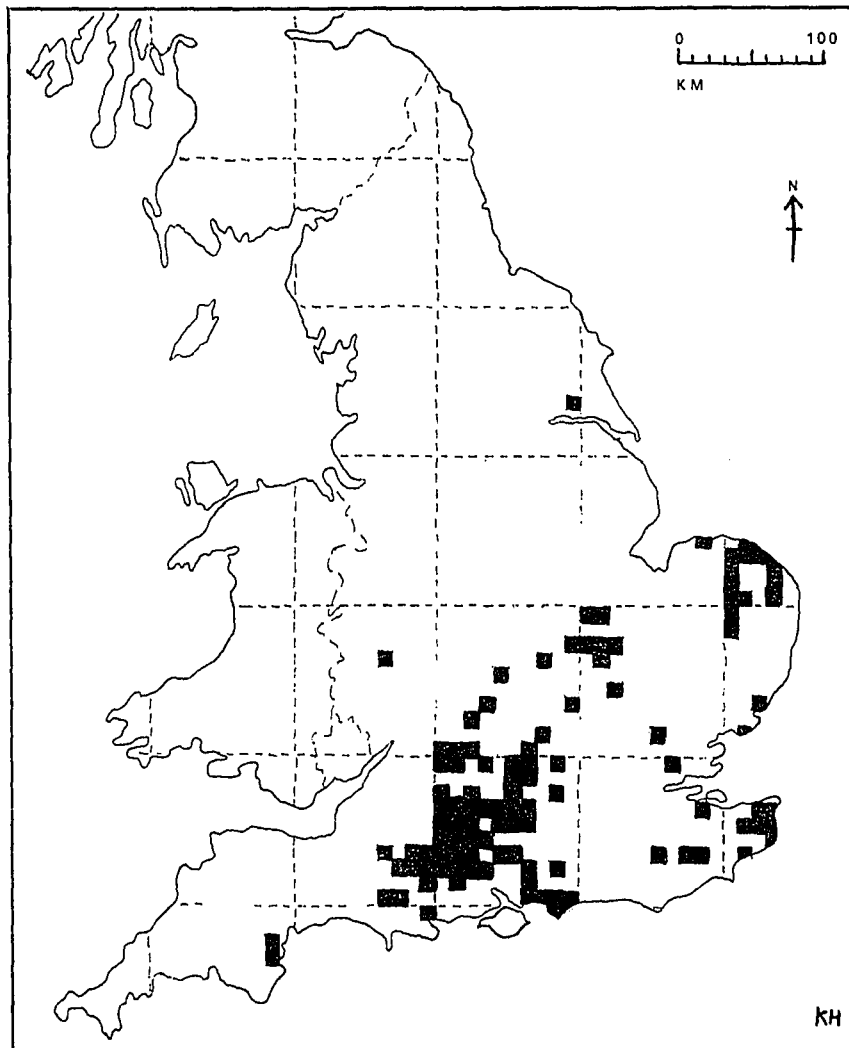


FIG. II

Threshing machines broken in 1830-32 during the "Captain Swing" riots. National grid lines are shown at 100 km intervals; 10 km squares are shaded where they contained one or more threshing machines recorded as destroyed in this period.

wheelhouses still abound today (about 150, 800, and 100 respectively). On the other hand, the heart of the Captain Swing riots was in Wiltshire and Berkshire (grid square SU); here forty-seven out of 100 small grid squares were affected, and by now only eight wheelhouses are still known.¹ This is only a suggestion, not proof; it is not known that the broken threshing-machines were connected to wooden horse-engines in wheelhouses which were also destroyed, but this seems probable as the portable iron horse-engine was not invented until 1841.

¹ E. J. Hobsbawm and G. Rudé, *Captain Swing*, 1969, pp. 312-58.

4. *Horse-engines occurred, but not in separate houses.* In Denmark, although horse-engine-houses are known, sometimes the horse-wheel occurs in an ordinary farm building;¹ this is also the general practice in South Africa,² and in Holland,³ and it has been observed in the West and North Ridings of Yorkshire.⁴ In Staffordshire the characteristic piece of machinery was the open *horse-walk*, twenty-eight examples of which have been recorded by Peters;⁵ this is well known in other parts of Britain,⁶ in Denmark,⁷ in Sweden,⁸ in Poland, and Czechoslovakia,⁹ and in the United States.¹⁰ It might be suggested that in the drier or warmer parts of Britain the horse did not need a building as protection, but in fact it seems that it was the older-fashioned "overhead" wooden engine which needed the protection.

5. *Horse-engines were not needed because other cheap power was available.* In Wales and in Ireland water-power was abundant, and wheelhouses are uncommon;¹¹ but in Scotland and in Northern England, although water-and wind-power were used for threshing so also was horse-power.¹² East of a line from Portland Bill to the Humber it looks as if agricultural labourers were the most abundant source of power, as they did not have alternative sources of employment in industry, and so their wages remained low.¹³

6. *In the South-West, the shortage of manpower on the coast during the Napoleonic Wars encouraged the building of wheelhouses.*¹⁴ This contemporary reference might well account for Cornwall and Devon, as well as Dorset.

7. *Wheelhouses occurred only where roof-coverings other than thatch were available, i.e. slate, stone flags, imported pantiles, because "horse-engines produced threshed straw which was useless for thatching", presumably because it was broken, or shorter, or in disorder.*¹⁵

8. *Wheelhouses exist mostly in the Highland Zone.* Cyril Fox's "Highland Zone"¹⁶ is normally a region of pastoral farming, and so perhaps machine threshing was

¹ As in Frilandsmuseet, Farmstead from Lundager, Funen, Building no. 71; see *English Guide*; Kongevejen 100, Lyngby, Denmark, 1966.

² James Walton, *International Molinological Conference*, Arnhem, 1973.

³ Nederlands Openluchtmuseum, *Guide in English*, Arnhem, pp. 46, 57, 68, 70.

⁴ SE 153214, Toothill Hall (James Walton); NZ 716074, Castle Houses (Ashley Sampson).

⁵ J. E. C. Peters, *Development of Farm Buildings in Western Lowland Staffordshire up to 1800*, Manchester, 1971, p. 103.

⁶ Alwyn D. Rees, *Life in a Welsh Countryside* (Montgomeryshire), Cardiff, 1950; also Caithness, and islands of Coll, Islay, and Orkney.

⁷ Hjerl Hede Open Air Museum, Jutland, Denmark, Building no. 37.

⁸ Frilandsmuseet, Swedish farmstead from Halland, Building no. 54.

⁹ G. I. Lerche, National Museum of Denmark, Photoarchive.

¹⁰ R. M. Candee and A. L. Cummings, private communications.

¹¹ H. D. Gribbon, *History of Water Power in Ulster*, Newton Abbot, 1969.

¹² E.g. Blanchland, Northumberland, waterpowered thresher (Frank Atkinson).

¹³ E. L. Jones, 'The Agricultural Labour Market in England 1793-1872' *Econ. Hist. Rev.* 2nd. ser., xvii, 2, 1964, pp. 332-8. E. H. Hunt, 'Labour Productivity in English Agriculture 1850-1914', *ibid.*, xx, 2, 1967, pp. 280-93.

¹⁴ William Stevenson, *Agriculture of Dorset*, 1812, p. 144, quoted by Stuart Macdonald, 'The Progress of the early threshing machine', *Agric. Hist. Rev.*, xxiii, 1, 1975, p. 74.

¹⁵ Brunskill, *loc. cit.*

¹⁶ Cyril Fox, *Personality of Britain*, Cardiff, 4th edn, 1947, p. 88.

related to the extension of agriculture into a zone where it was less appropriate. But the Great Plain of York, full of existing wheelhouses, is not part of the Highland Zone.

Conclusions

- (a) The distribution of the wheelhouses still existing in this country is probably the result of many different factors as suggested above.
- (b) The building itself is highly characteristic,¹ between 6 and 10 metres wide, polygonal or circular or rectangular, almost always single-storeyed, and attached to a larger and higher building with a hole for a driving shaft linking the two. (Direct-drive machines have therefore been omitted, e.g. the housing for cider-presses in Worcestershire, for brickworks in Sussex,² and for water-pumping generally, e.g. Kent, Surrey, and Sussex.)³
- (c) The local names vary widely; covered gin-house, covered horse-walk, engine-house, gin-case, (gin-circle), gin-gan, gin-gang, gin-house, gin-race, (ginny-ring), (horse-course), (horse-gang), horse-gear, horse-mill, (horse-path), (horse-track), horse-walk, horse-wheel, round-house, track-shed,⁴ wheel-house, wheel-rig, wheel-shade, wheel-shed. Peters has therefore suggested the systematic name of 'horse engine house', for all except the bracketed versions which refer to an *uncovered* horse engine.⁵
- (d) The building materials are similarly characteristic of vernacular building styles before the railways transported standardized bricks and slates throughout the land. Thus, Sussex has thatch (in spite of hypothesis 7), North Riding has pan-tiles, Northumberland has some stone tiles; Devon has some granite pillars, Norfolk wooden poles or flint, Berkshire weatherboarding, East Riding brick, West Riding white magnesian limestone, Bedfordshire has ironstone, Northumberland sandstone, and Finchale in County Durham has beautiful hexagonal ashlar pillars taken from the adjacent Abbey.⁶
- (e) It is good to think that at least two of these horse engine houses will be preserved for posterity in open-air museums; one is preserved already at Beamish (Co. Durham, NZ 212549), and another will be at Singleton (Sussex, SU 875127). They will compare with the two at Cloppenburg (West Germany, 52° 51' N., 8° 4' E.), the one at Bokrijk (Belgium, 50° 57' N., 5° 30' E.), and the unbelievably tiny one at Arnhem (Holland, 52° 0' N., 5° 52' E.), which is only four metres wide, suggesting that the horses were very small, and were used very inefficiently.

¹ R. W. Brunskill, *Illustrated Handbook of Vernacular Architecture*, 1970, pp. 142-3.

² J. Hoare and J. Upton, *Sussex Industrial Archaeology—A Field Guide*, Chichester, Summer 1972, pp. 2, 27, 28.

³ Hugo Brunner and J. Kenneth Major, 'Water Raising by animal power', *Industrial Archaeology*, ix, 2, 1972, pp. 117-51.

⁴ G. A. Dean, *Essays on the Construction of Farm Buildings and Labourers Cottages*, Stratford, Essex, 1849: "Put the track shed on the N. side of the barn and open to the cool breeze."

⁵ J. E. C. Peters, Glossary, p. 208, in Brunskill, *Illustrated Handbook*...

⁶ A. R. Hare, Durham University Geography Department.

Coprolite Mining in Cambridgeshire

By RICHARD GROVE

IN the second half of the nineteenth century the coprolite-extraction industry in Cambridgeshire and the Isle of Ely was the only real alternative employment to agriculture. From the surviving documents it is possible to discover a good deal about the social and economic involvement of the county, as well as obtaining an impression of the industry itself.

Coprolite is the term used for a particular phosphate, largely comprised of marine animal remains, found in a geological stratum called the Cambridge Greensand which lies at the base of the chalk and above the Gault Clay (fig. 1). The proportion of phosphate to other minerals was much higher than in other phosphates sources previously known, such as guano. Its most important use was as a fertilizer, but during the First World War pits were reopened to provide coprolite as a raw material for munitions.¹ The initiation of the industry depended on interrelated factors, the most important of which was the establishment of the occurrence of the Cambridge Greensand in an outcrop between Barton in Bedfordshire and Soham in Cambridgeshire. Although its contents were first analysed by Professor J. S. Henslow of Cambridge University, it was first used, almost accidentally, by a miller of Burwell, John Ball, in 1851.²

Before describing the spread of the industry and its effects, the method of extraction must be mentioned. Generally speaking the workable layers of coprolite did not exceed three feet in thickness, and men rarely worked at more than 20 feet below ground; and with certain exceptions land worked for coprolite was reclaimed as extraction proceeded. Ac-

cording to Jukes-Brown (1875),³ and evidence produced at the inquest into the death of a miner in a working at Bottisham Lode in 1876, fields were worked by a system of double trenching.⁴ Topsoil was moved to the side of the field and longitudinal trenches dug.⁵ As the coprolites were extracted from each trench, subsoil and topsoil were replaced. Metal shoes, known as "creepers," prevented slipping in the wet clay. The coprolite was then washed to remove the clay in washing mills powered by horses. Transport to the processing factory followed, where the blue-grey nodules were ground and mixed with sulphuric acid to produce a soluble superphosphate. Incidentally, fenland "dug over" in this way was much better farming land afterwards. The light surface layers and peat were marled, and prevented from blowing away. The practice of marling was later killed by high labour costs.⁶

The occurrence of the strata was known by 1849 but mining did not start until John Ball (according to Lucas) discovered how well his turnips were growing in 1851, and ground the phosphatic subsoil in his windmill.⁷ Even then major mining operations were not undertaken until 1858, when the Cambridge Corporation saw the opportunity for fruitful exploitation of Coldham's Common. Enormous quantities of water were needed to wash coprolite, and without the presence of artesian water in the Lower Greensand, down to which wells were bored, the industry could not have existed. Additional factors held development back. Farmers were at first reluctant to have their high-quality fen soils excavated: a traditional market was lacking; the railway network until 1851 was limited; and

¹ H. H. Rogers, Ministry of Agriculture, Trumpington, personal communication.

² A. J. Jukes-Browne and W. H. Penning, *Memoirs of the Geological Survey of Great Britain*, 1, 1881.

³ A. J. Jukes-Browne, 'On the relations of the Cambridge Gault and Greensand'. *Quar. Journ. Geol. Soc.* Jan. 1875.

⁴ *The Cambridge Chronicle*, Nov. 1876.

⁵ Mr Reginald Stanbridge, Cambridge University Farm, verbal communication.

⁶ E. A. R. Ennion, *Cambridgeshire*, 1951, p. 221.

⁷ C. Lucas, *The Fenman's World*, 1931, pp. 30-1.

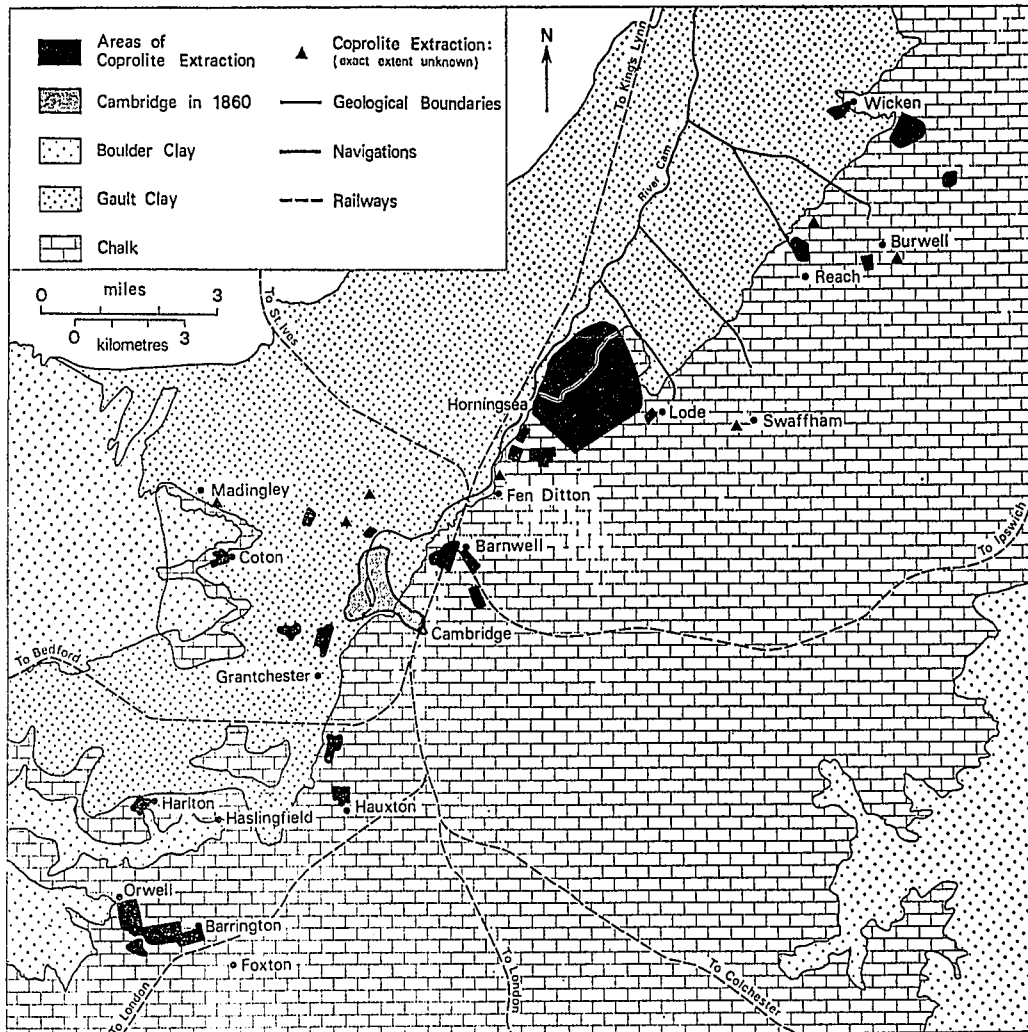


FIG. I
Coprolite mining in Cambridgeshire.

river tolls in Cambridgeshire were high.¹ Inaccurate geological knowledge hampered operations. Although the coprolite was first discovered in north Cambridgeshire, exploitation spread at first in the south, and only later in the valuable agricultural land in the fens. This was in spite of the better quality of seams to the north. But no bridge existed across the Cam to reach the railway from the eastern fen until 1872, and the old fenland lodes were at first in too bad a state to take large industrial lighters. This lack of facilities, and the realiza-

tion of the profits that farmers were making in the south, prompted the rebuilding of old equipment in the north; for instance, in 1871 Swaffham and Bottisham Lode Commissioners books the following entry is included: Ordered that the Clerk apply to the South Level Board for permission to scour out the Bottisham Lode fit for navigation and that the navigation is so bad up the Lode . . . that parties in charge of Barges throw off the lock doors to enable them to get up the Lode.²

¹ Cambs. C.R.O., Cam Conservancy accounts and toll records, 1851-64.

² *Ibid.*, *Swaffham and Bottisham Lode Commissioners books*, 1871.

A letter from the South Level Board reads:

I hear upon good authority that the Coprolite raisers who now use the Bottisham Lode for the conveyance of coprolites, experiencing so much difficulty through the bad state of the Lode, have resolved to take the coprolites to Fulbourn Station with the aid of a traction engine . . . if the coprolites are lost those tolls [8d./ton] will not be worth half of what they are at present.

Subsequent correspondence dealt with the installation of a staunch lock in the following year at a cost of £750, "identical to those on the Brandon river."

As early as 1863 the effect of expansion was being felt on transport; mostly transport of coprolite to the factory. This was noted in the minutes of the Kneesworth and Caxton Turnpike Committee at their annual general meeting on 1 January:

Ordered that the surveyor do obtain 13 tons of Granite for the better repairs of the Road near the Old North Road Railway Station and 30 yards of Gravel for the South end of the Road; ordered that the Clerk write to the Secretary of the Bedford and Cambridge Railway Company to complain of the unsatisfactory state of the Railway bridge [It had been built only three years before] at the Old North Road Station and the approaches thereto

Ordered that in consequence of the increases in traffic occasioned by the opening of the Bedford and Cambridge Railway and the Coprolite works notice to be given in due course the holder of the tolls of our intention to defer to the existing lease at the end of the present term. The surveyor was ordered to employ a fit person to be stationed at or near the Old North Road Station for the purpose of ascertaining the amount of traffic as a guide for the erection hereafter of a new toll gate near that station.¹

This early conflict between rail and road interests shows that the turnpike was not get-

ting its share of the profits from the already large amount of coprolite traffic originating from workings and factories in the Abington Pigotts and Clopton area.² The railways, by 1878, had taken over the bulk of transport, the Great Eastern Railway Company charging only ½d. per ton per mile for coprolite fertilizers.³ However, Colchester and Ball of Burwell still ran their own fleet of steam-tugs and lighters from their factory on the lode to adjacent railheads.

Estate maps of 1870-4 for Eye Hall Farm at Clayhithe show that other farmers resorted to building their own tram-roads to quays on the river. Thirty thousand tons were shipped from this one farm in 1873.⁴ Even then only sites adjacent to navigations could be exploited. The balance between profits from normal agriculture and the costs of transporting the bulky coprolite must surely have been an important production factor. From 1861 to 1875 an increase in the amount of coprolite raised occurred, building up to boom proportions. This is gathered from price fluctuations, parliamentary production accounts, and land-sale documents.⁵

Contributory factors to the boom were the demands from abroad (for instance from Queensland where there was a phosphate deficiency), the formation of a domestic market for coprolite through growing awareness by the farmers of its possibilities (today 75 per cent of phosphate in British soils is artificial), and the activity of companies occupied in working the mineral and speculating in coprolite land. The success of the latter, and its future importance to the county, are exemplified by the brothers Samuel and Joseph Fison. Samuel leased and worked mines at Stow-cum-Quy, Horningsea, and Haslingfield. Joseph dealt in processed artificial manures at Shelford. A rapid series of takeovers and mergers took place starting in the late 'seventies. Prentices, a Suffolk firm, took over the Cambridge Artificial Manure Company in 1878, and were in turn bought up by Fisons, who already had control of the Bedford firm of Packards.⁶

¹ Cambs. C.R.O., L9.5. ² *Ibid.*, Surveyors notebooks, R57/24/27/1.

³ D. I. Gordon, *Regional History of the Railways of Great Britain*, IV, 1968.

⁴ Cambs. C.R.O., R124/P59-61. ⁵ *Ibid.*, C76/99; R54/25/81; 296/SP51.

⁶ P. Williams, Fisons Agrochemicals Ltd, personal communication.

Carter Jonas, now leading estate agents specializing in large sales of agricultural land, were founded in 1871 with capital gained in buying land before the boom and selling it to merchants at highly inflated prices for mining purposes.¹ Characteristics of the boom include the deepening of pits to over 30 feet, as at Orwell and Coldham's Common, changes in the way land was "activated,"² the use of heavy machinery for processing, and the sale of land solely for coprolite working (indicating the importance of confidence in its value) as in this example:

Land for sale in Barrington and Orwell parishes . . . facilities available for mining extensive veins of coprolite . . . most eligibly situate in the County of Cambridgeshire within one mile of Shepreth and 2 miles of Foxton Station on the Cambridge Branch of the Great Eastern Railway.³

Instead of a land agent or coprolite merchant approaching a farmer to work his property, land was simply rented out or sold to coprolite merchants. Rents seem to have been regular throughout the period despite the variation in price of the processed product. The processor effectively controlled land and markets, and to some extent firms such as Fisons must have hoodwinked farmers into underestimating possible profits.⁴

An important indicator of production is the rise or fall of prices for processed coprolite. In the coprolite industry these are particularly difficult to find, and when the information is there difficulties arise in finding exactly comparable products stocked by the various retailers. The following price table is compiled from several sources, but most of the quotations are taken from advertisements in *The Cambridge Chronicle* between 1867 and 1881.

PRICES OF FERTILIZERS DERIVED FROM COPROLITES

Date	Manufacturer	Price per ton (at works)
		£ s.
1867	Cambridge Manure Co., Duxford	5 10 } 2½%
1871-March	Cambridge Manure Co., Duxford	5 10 } per cash
1871-April	Cambridge Manure Co., Duxford	4 10
1875	Cambridge Manure Co., Duxford	4 10
1875	Joseph Fison of Shelford	6 10
1875	Reynolds of Coton	6 0
1875	Cambridge Manure Co.	4 10
1879	Prentices of Duxford	3 10
1881	Prentices of Duxford	2 10

It should be noted that both Fisons and Reynolds delivered free any quantity within a 50-mile radius of Cambridge.

The Duxford company quoted the price of guano, the only possible competitor to superphosphate, at £15 10s. per ton. Additives to the superphosphate, such as corn and root manure, were also sold at a slightly competitive price. The number of people advertising in 1875 is particularly characteristic of the boom period. In other years there was never more than one manufacturer advertising.

There are two possible reasons for the slow decrease in the prices quoted above. The first is that it was a natural response to a very large increase in the supply of fertilizer due to the extensive mining. In the last few years when prices decreased more rapidly this was the result of another factor, imports; this must be considered separately.

In its geological introduction to the county,

¹ Carter Jonas Ltd, personal communication.

² E. Porter, 'The Coprolite Diggers', *Cambs. Hunts. and Peterboro' Life*, May 1971.

³ *Cambs. C.R.O.*, 2ab/SP843. ⁴ *Ibid.*, L70/58: Letters.

the *Post Office Directory* for 1879 says of coprolite production: "In 1877 there were raised from this seam in Cambs. and Beds. [at Potton] 55,000 tons of phosphatic nodules, valued at £150,000."¹ This is confirmed by parliamentary accounts published in the year 1891 which give information on the total mineral production of the United Kingdom and quote a value for phosphate of lime, unprocessed, of 54,000 tons, valued at £150,000.² The slight discrepancy in tonnage is very acceptable for Victorian accounting, and a definite conclusion can be drawn, which is that Cambridgeshire was producing practically all the raw-material phosphate for fertilizer in Britain. The following values from the parliamentary accounts are of considerable interest in following the progress of the boom:

PRODUCTION OF PHOSPHATE
PARLIAMENTARY ACCOUNTS OF 1891

Date	Tons ('000s)	Value in £'000s
1860	30	60
1861	37	75
1862	—	—
1867	37	70
1868	37	71
1869	—	—
1870	35	50
1871	36	51
1872	35	50
1873	150	388
1874	256	628
1875	258	625
1876	69	200
1877	54	150
1878	34	74
1879	30	71
1880	31	87
1881	50	98
1882	50	102
1883	52	104
1884	—	—
1885	30	50
1886	20	32

Date	Tons ('000s)	Value in £'000s
1887	—	—
1888	10	16
1889	22	43
1890	20	38

The value of the mineral compared with other U.K. production shows that in the boom period it had a great deal of economic importance, mostly through exports. In 1874 exports of coprolite were worth £628,000, i.e. more than tin (£605,000), of which Britain was a major producer. The main ports of export appear to have been Ipswich, King's Lynn, and London, where coprolite was quoted on commodity markets from 1873. The significance of the trade to Ipswich is clear from the name "Coprolite Street," given to a street leading down to the waterside.

The fall in production of coprolite was by no means as sudden as the rush had been in the 'seventies. There was a primary lull in 1878. An increase then followed until 1885, probably associated with the agricultural depression when farmers were driven to mining by falling food prices. There were various reasons for the decline after 1885. First of all the most easily accessible seams had been worked out, and the best lay under Cambridge itself.³ Large, easily worked measures of phosphate had been discovered in the U.S.A., in New Jersey. Exploration stimulated by the Cambridge discovery uncovered deposits of phosphate and nitrate in Chile, the Gilbert and Ellice Islands, Spain, Argentina, and South Africa.

The first warning of disaster came in 1884 with falls in rentals of coprolite land, as at Barrington, where rents fell by £10 per acre a year. Carter Jonas, who had made his fortune in prospecting, started to sell land at Clayhithe in 1885 with much coprolite still unworked. The factory equipment at Bassingbourn was sold in 1895, and the last pits near Cambridge closed at Barnwell in 1898, when they were losing 6d. for every ton processed.⁴

¹ Kelly's *Post Office Directory*, Cambridge, 1879.

² Cambridge University Library, Parliamentary accounts: minerals, 1860-90.

³ B. C. Worssam and J. H. Taylor, *Geology of the Country around Cambridge*, 1968, p. 33.

⁴ Cambs. C.R.O., 296/SP241.

However, the industry had made a tremendous impact on Cambridgeshire, in terms of population distribution, employment, and future industrial activity. The mining of coprolite was probably almost entirely manual, and very little mechanization was introduced into the actual extraction process. Thus a large amount of labour was needed. The work, as has been seen, was dangerous, but employers could afford to compensate for this with high wages, especially when the returns on digging were so often great. Dr Charles Lucas thought that the weekly wage varied between £2 and £3, without the seasonal variation of the much lower agricultural wages. Furthermore, Cambridgeshire had no real competing industry other than agriculture. The inevitable result of these united factors was a large influx of labour to the coprolite workings. Druce, quoted by Darby, considered that the county, which through the nature of its agriculture should have suffered most from the agricultural depression of the 'seventies and 'eighties, but in fact suffered less than any other in East Anglia, was saved by its large alternative source of employment in coprolite mining.¹ Later on, heavy unemployment again arose as a result of foreign imports, a situation that might have been prevented had there been protective duties. In a way one could maintain that the county was the victim of Victorian "*laissez-faire*".

It is difficult to pinpoint the precise constitution of the new labour force. The bulk of it may have been farm workers seeking employment during "dead" seasons, going back to the farm when a particular working was exhausted. There are two other sources of labour to be considered: firstly, there is the considerable body of vagrants and beneficiaries of the poor-rate. That this source was significant is borne out by a note in the charity accounts for the parish of Haslingfield.² According to the secretary of the Charity Committee, workings were opened in 1867, partly because they would alleviate the employment situation, and, incidentally, lower the monetary contribution of the farmers and parish gentry to the poor-rates. Another important source was the immigrant Irish navvies, who were now in a

surplus situation because of the decrease in railway-building activity. To a large extent these accounted for the increase in population of rural areas described below. The labour was certainly not all of a temporary nature. One worker is quoted in *The Cambridge Chronicle* of November 1876 as saying: "I have been working in the diggings these last seventeen years." Some men merely moved around from site to site with a particular contractor.

The effect on population was the most obvious sign of a thriving and large-scale industry. Families moving in from outside the county caused a temporary rise in population in the 1870's. The cause of this temporary rise in population of villages in Cambridgeshire has often been queried, and the coprolite mining is the only possible reason for it. The rise interrupts a more general pattern of static or decreasing village population, through drift to the towns and the agricultural depression, complicated by a slower increase in population of villages nearer to Cambridge, a result of the town's rapid expansion in the period 1860-1912. These latter included Chesterton, Histon, and Cherry Hinton, all affected by the mining as well. The national census returns only have been used to illustrate the rise of population in the villages, but these show the rise quite sufficiently. Fig. 11 shows some typical instances, but one especially, Orwell, is most striking. At the bottom of the 1881 Census return for the village, the enumerator has noted the increases in numbers as a result of "demand for labour in the coprolite diggings." Out of the 145 villages in Cambridgeshire, seventy-three show a sudden rise in population in 1871, and then a fall. All of these seventy-three villages are within three or four miles of a phosphate outcrop. No village in the "coprolite belt" shows a decrease for the period, while, on the other side, few villages outside the belt show an increase. Socially, too, the labourers provided new problems. Many landowners who had leased their property to coprolite merchants for exploitation were worried about the gangs of workmen in the same way as others had been alarmed by the shanty settlements of navvies building railways and canals earlier on in the century. In several

¹ H. C. Darby, *The Cambridge Region*, 1938, pp. 120, 127. ² Cambs. C.R.O., R.59/27/1/2, 2/5.

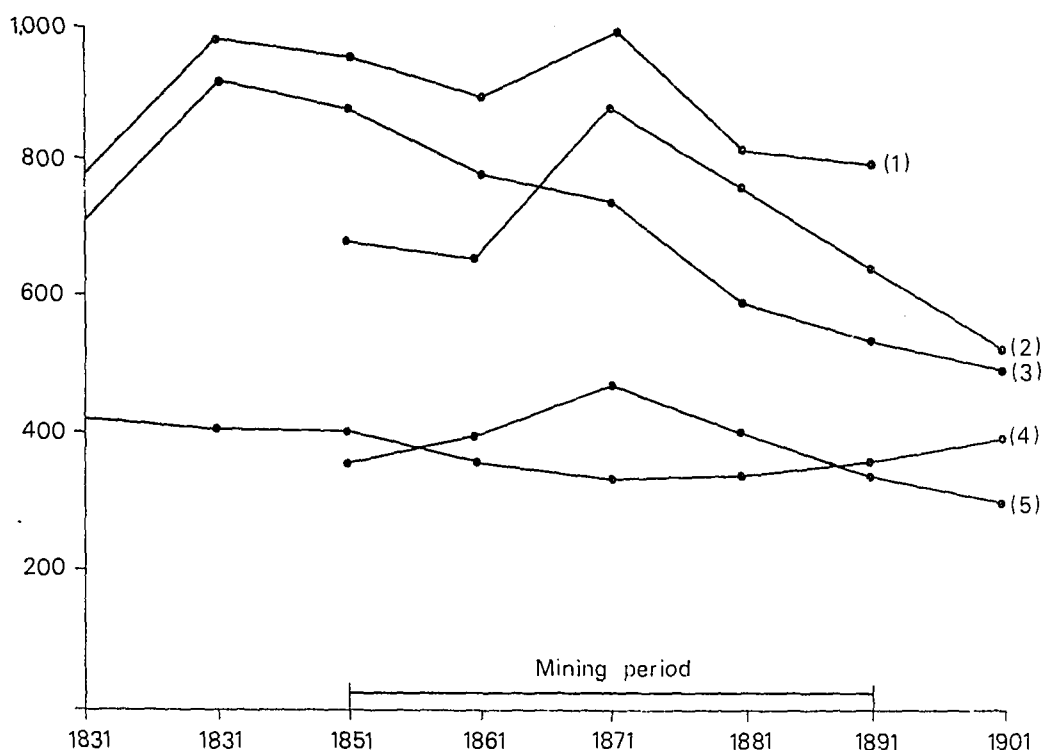


FIG. II

Population of villages during the mining period:
 In the Coprolite belt: 1-Bourn, 2-Orwell, 3-Haslingfield.
 Other parts of County: 4-Shudy Camps, 5-West Wrating.

agreements, for instance that in 1872 between William Woodham and Frank Hills for digging at Shepreth, the landowner reserved the right to eject from his property "any unruly, unreligious, drunken or otherwise persons" to whom he objected. Others, however were more constructive.¹ An agreement dated 30 December 1863 between Sir Charles Beldam and the brothers Fordham stated that Fordhams should relet a small piece of ground (owned by Beldam) on the Bassingbourn Road as "Charles Cooper and other persons employ a large number of men and boys in raising and crushing coprolites in the Parishes of Abingdon Pigotts and Bassingbourn." Charles Cooper wished to erect a small building there at a cost of £65 so that the aforesaid

workers "may have access for the purpose of reading and receiving mental, moral and religious instructions and of being supplied with Tea, Coffee and other unintoxicating refreshments." Beldam also provided that no drunken workers, or those possessing intoxicating liquors on their persons, should be allowed on the premises.² According to Wentworth-Day, the Irish navvies, "who were the cause of many bloody fights in the villages," organized an annual fair at Upware called "the Bustle." Richard Fielder, the self-styled "king of Upware," was in charge of the proceedings. There were dancing-booths, skittle-alleys, and winkle stores. Lucas says that "there were 'bough horses' made of green branches, in which every sort of itinerant pedlar sold beer,

¹ Cambs. C.R.O., R5314/181, 2.

² *Ibid.*, R56/20, 546.

mead—then extensively made at Wicken and other Fen villages—whisky, gin, and rum.”¹

Alternative employment was later provided from two sources within the same spatial context as the fertilizer industry. First the lime and cement-making industries,

started in 1902 simply by digging deeper into the chalk.² Today Barrington has one of the biggest cement-works in the country. Fisons Agrochemicals, too, evolved from the coprolite processing business, and in 1973 employed more than 10,000 people all over the country.

¹ J. Wentworth-Day, *History of the Fens*, reprint 1969, pp. 200–1.

² Fisons Ltd, personal communication.

THE BRITISH AGRICULTURAL HISTORY SOCIETY

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Agricultural Science and Experiment in the Eighteenth Century: an Attempt at a Definition

By G. E. FUSSELL

PLATO in the *Phaedrus* made the statement that the invention of writing would weaken, if not destroy, memory. Its result would be a forgetfulness in the minds of those who use it because they would not exercise their powers of remembrance. Writing was an elixir of reminding, and would allow pupils to read many things, thus gaining the appearance of learning. If he had been living in the present he would no doubt have remarked upon the changes taking place in the use of language as a result of the indiscriminate use of the art in propounding the vast extension of knowledge made since his day, and on the galloping way in which it is recorded, often by a torsion in the meaning of words.

This last can lead to confusion and often does. Words should not be used with a novel significance, or one known with exactness only to the writer, because that involves explaining this novel use to the reader, not a very easy job. This practice leads only to confusion between them, possibly entire incomprehension, certainly only a misty, foggy degree of clarity. It may be permissible in advancing technology, where processes and parts that were not known until they were invented must needs be made identifiable in words as well as in fact; but it is deplorably present in some of the less exact disciplines where it is presumed that previously unrecognized areas of knowledge are being discovered.

The reverse is equally true. When I was in America in 1967 I was accused of giving a too restricted meaning to the word "science" as applied to the investigations into plant physiology and nutrition in the narrower sense; and

it was argued that I should have included as "scientific" the various trial plots cultivated with various well-known as well as novel crops, or of manures tried out on a limited scale and by quite imprecise methods in attempts to win the premiums offered by the various improving societies in the eighteenth century, perhaps more particularly the premiums offered by what has become the Royal Society of Arts. Some of these trials were described in my essay, 'The Technique of Early Field Experiments'.¹

The technical changes in the conditions of life in the most mechanized countries, and the extreme rapidity of modern transport, have had a serious impact on the use of language. The widespread education of total populations, if only sufficient to make the majority literate and readers of the ephemeral products of the day, has supplied a means of exchange of words and phrases, often used in a loose and ill-defined sense, both in the written and in the printed vocabulary. Unfortunately this tends to be reflected in writing, popular and erudite.

Henry Hallam feared this a century and a half ago. He felt that "where literature is on the decline . . . there will be no longer any standard of living speech, nor any general desire to conform to it, if one could be found; and thus the vicious corruptions of the vulgar will entirely predominate. The niceties of ancient idiom will be totally lost; while new idioms will be formed out of violations of grammar sanctioned by usage, which among civilized people would have been proscribed at their appearance."²

Oliver Wendell Holmes was even more severe in the *Autocrat of the Breakfast-Table*, in

¹ G. E. Fussell, 'The Technique of Early Field Experiments', *J.R.A.S.E.*, 96, 1936.

² Henry Hallam, *View of the State of Europe in the Middle Ages*, III, 1819, p. 318.

which he declared that "to trifle with the vocabulary which is the vehicle of social intercourse is to tamper with the currency of human intelligence. He who would violate the sanctities of his mother tongue would invade the recesses of the paternal till without remorse, and repeat the banquet of Saturn without remorse."

Maturity of this kind is rarely to be found at the present day when every excuse is made for popular locutions that have no precision, and that attach new meanings to words whose purpose has been sanctified by ancient usage; but that is a consideration which has become only a cock-shy. Indeed, Brian Foster has produced a book not to excuse but to laud these verbal iconoclasm.¹ He is only one of the protagonists of the new prose. Its critics in the popular press do not have so great an impact: all must bow to the modern or, shall I say, the uncritical.

The contrast I am trying to define is well marked by what was perhaps the first demonstration plot and the careful investigations of van Helmont into plant nutrition—both events of the seventeenth century. These things are perhaps too well known to need any very detailed exposition here. Van Helmont concluded that water was the sole nutrient of plants, in which, in point of fact, he was not too far wrong, because it is now accepted that water provides a medium for the nutrients in the soil solution to be absorbed by the plant. This was an elementary scientific experiment leading to a working hypothesis, although that hypothesis, like all others, has been, or is likely to be, superseded. Bacon, before van Helmont, had tried out the effects on germination of soaking seeds in solutions of various substances, but admitted that his results did not lead anywhere.

Walter Blith, on the other hand, a man who had been one of Cromwell's captains, was possibly a practical farmer, and his comparative trial plots are the first recorded, if not the earliest carried out. In the course of these trials, which lasted several seasons, he measured the results by an untreated plot, i.e. one that got no manure, which he supposed would act as a

control; but the whole affair was so perfunctory that no reliance could be placed upon the results, because there was no arithmetical criterion. Nothing, apparently was measured. Nothing is related of the amounts of the different manures applied, or of the treatment of the control plot, and no measure of the harvest of the different crops reaped from the various plots in the successive years. Nor is there any indication of the soils in which the trials were made.² All this, which in modern times is elementary, was not in the consciousness of a man who sought information from what may be regarded as the first trial plots. Clearly, this trial, novel as it was, cannot be assessed as scientific in any sense of that word as it is understood today. The work done by van Helmont was!

Other people were working on what may be described as scientific lines. Amongst them the English exemplar, after Ray, is the Rev. Stephen Hales. The most critical could hardly denigrate his efforts to understand the underlying principles of plant life. Such work was being done while many members of the Royal Society were engaged upon toys and curiosities. These had little relation to the problems of the farmer, who was unaware of more than his normal difficulties created by the vagaries of the weather, the incidence of disease in plants and animals, and the awkwardness of the workers.

With the formation of agricultural societies, the earliest being the Society of Improvers in Agriculture founded in Scotland in 1723, a mild passion for trial plots was inflamed, and far too much importance was placed on their rather limited results. This development was more or less in parallel with the so-called agricultural revolution of the late eighteenth century. Premiums and medals were offered for this and that, e.g. growing 3 acres of one crop or another. The Society for the Encouragement of Trade and Manufactures was one of the most prolific in making such awards, and the opportunity of winning a premium or medal became greater as the number of societies increased. Prominent were the Highland and Agricultural Society and the Bath and

¹ Brian Foster, *The Changing English Language*, 1968, *passim*.

² Walter Blith, *The English Improver Improv'd*, 1652, pp. 136-7.

West, and related were the numerous farmers' clubs etc., of more limited membership and consequence. These premiums and medals were fine, and there can be little doubt that they encouraged some degree of improved farming, though probably limited to a minute area of the countryside in the neighbourhood of the so-called experiments. The apotheosis of this sort of thing was Arthur Young's 2,000 experiments made in the brief space of five years, and described in his *Course of Experimental Agriculture*, of 1770. Most, if not all, of these efforts were no more than trials to see what happened, but carried out with no controls, and without any appreciation of the numerous and varied matters that must be taken into consideration if any adequate comparison with what may be called normal farming was to be advantageously made; and indeed there is no indication, and probably little possibility of being able to produce the same results, if they appeared advantageous, in the following years.

All the same, Young, characteristically, had the essence of the matter. He realized that an untreated plot was some kind of control upon the results obtained. In the *Annals of Agriculture* he described a series of experiments on the food of plants. These were really trial plots treated with a variety of substances that then might have been supposed to have provided the plant with nutrient. Some were rather eclectic to modern ideas: but he himself admitted that experiments of this sort would never have uniform or consistent results. The only consideration that seems to have been taken into account was that these trials (they were not in the modern sense controlled experiments) were carried out "in the same soil." Like Blith, from whom he may have learned, Young kept one plot untreated as a rough sort of control. He also made some "pot" trials which were the noble ancestry of many modern inquiries of a similar sort. He was a man of the most singular penetration, considering the mental environment of his era. He promoted the idea of an experimental farm which, as is well known, came to nothing at that time, and for long thereafter.

Carrying out trials was fraught with danger in that age of aristocratic domination of the

land and the people who served it. Young realized that no agricultural trial could be carried out in less than six months, few in less than one year. Many demanded three, four, or six years to effect. The expense of this was very great, and disastrously the process was in the hands of clowns, and "what is oftentimes much worse of ill-educated, conceited, ignorant, pert bailiffs, who find either pleasure or profit in a miscarriage." Shades of Tull! The higher ranks were no better. When out shooting, sportsmen would often trample on a trial plot, and vermin, rabbits, rats, and such would consume the crop. Nobody could control the sportsmen, and the vermin of a smaller kind were equally difficult to restrain. Contemporary social and feral conditions were not indeed favourable to agricultural trials although this statement must be qualified. Many farmers and landowners were trying new ideas, as I suppose they always had, but not in the controlled, precise manner of the modern research station, though even that remarkable institution will doubtless be superseded as our descendants progress further—into what it is quite undesirable to think. It would be possible to labour the point about what was called agricultural experiment in the eighteenth century, but enough has been said to show that many farmers and landowners were making trials of this and that, not only upon the growth of crops in variable conditions of soil structure, drainage, and manuring, but also into a variety of methods of breeding and feeding animals.

Meanwhile, the scientists were investigating the physical constitution of plant life, the absorption of a variety of plant foods, the intake and exhalation of gases and so forth; and, in addition, were occupied with the composition of the atmosphere, the inhalations and exhalations of vegetable life of all kinds. Later all this became of the utmost importance to the farmer when knowledge was sufficiently advanced to make it helpful, and the farmer was sufficiently educated (if such there at first were) to appreciate what it meant to the success or failure of his operations. The wide gulf between scientific experiment and the trial plot of the amateurish kind was difficult to pass over, and it was not bridged until well into the nineteenth century, dare it be said,

until the work of Thaer, Lawes and Gilbert, and Liebig.

A trial is not an experiment though an experiment is a trial. A trial is planting a crop and waiting to see what happens. This is in a sense, I suppose, an experiment, but it is not a scientific experiment from which definite results can be secured, results that enable the crop to be grown in subsequent years with a substantial foundation for the expectation that it will behave in the same way. The single trial was the sort of thing for which the premiums were offered in the eighteenth century, e.g. for growing 3 acres of this or that, and recording what happened. This sort of thing was not a scientific experiment, a process that was not fully developed until well into the nineteenth century. However, as Hugh Kearney has pointed out, "experiment for its own sake is apt to be pointless."¹ A trial plot of potatoes, for example, may have resulted in a useful crop, but it was not a guide to what might happen in the next year or the year after that, although optimistic people might think so. In order to secure that kind of certain knowledge something quite different and much more complex was necessary, and checks and cross-checks must be imposed. It was not until the 1840's or thereby that such methods were devised and more or less perfected. There is always in the most carefully planned experiment a number of unknown and uncontrollable factors, as modern scientists would be the first to acknowledge. Nevertheless, if a scientific experiment is reasonably planned and repeated, results can be deduced that will make it possible—within limits—to duplicate the conditions and cultivate a crop with a proper expectation of success.

But in or about 1750 a Frenchman made a field trial on the control of black bunt very much on the lines of modern trials of the kind, which may be looked upon in some sense as the progenitor of this method. He laid out several sets of plots arranged in rectangles of

six plots each 18 feet long by four plots wide. Careful record was made of the different treatments applied, manuring, and so on, checked by an untreated plot, and the results were carefully recorded. A good many factors were neglected, but this is in many ways quite the modern process. This experiment was defective, but it was as ingenious as was possible in the circumstances of the day. Even with the modern random distribution of trial plots over an experimental field, and care to make the conditions as uniform as possible, there can be no guarantee that the yield of the best plot can be repeated on a larger area, which is in fact always doubtful. Moreover, in the major part of this kind of work no notice is taken of the cost of production, a major consideration, and one upon which Young was insistent, perhaps because of the separation today of the scientist and the economist.

It is an impertinence on my part, but I would like to suggest (no new thing) that "scientific method" is to formulate a hypothesis based on exact work, test, and confirm it or cast it aside and proceed from a new base. This was the method adopted by Stephen Hales and other eighteenth-century scientists, but until it was vulgarized it is my belief that the findings of the early scientists were unlikely to reach the farming districts or the farmers working there. On this point I am a confirmed agnostic after some fifty years of reading on the subject.

"Incredulity is a grand power," said Blackmore's *Cripps the Carrier*. He was speaking of the ordinary affairs of life, but maybe it is an even greater power in scientific and historical investigation; and so I would like to say that trials and demonstration plots are in some sense educational, while scientific research is, or should be, directed to the discovery of new knowledge; though its application must be left to those who can make use of it in a practical way. This is the distinction that has been criticized, but I do not think conclusively, if at all.

¹ Hugh Kearney, *Science and Change, 1500-1700*, 1971, p. 49. Cf. D. S. L. Cardwell, *Technology, Science and History*, 1972, p. 111.

Review Article: British Field Systems

By ERIC KERRIDGE

IN *Studies of Field Systems in the British Isles*, edited by A. R. H. Baker and R. A. Butlin, we have a highly useful and informative book.¹ All students of agricultural history will feel grateful to the editors and contributors for bringing together so much interesting and important matter, and applying it to a systematically retrospective study of the origins of British field systems. There is much to be said for following in the footsteps of Howard Levi Gray and Marc Bloch and "reading history backwards," in the best possible meaning of this phrase. As Marc Bloch put it, "Here, as elsewhere, it is change that the historian seeks to grasp. But in the film he is examining, only the last frame remains perfectly clear. In order to reconstruct the faded features of the others, it behoves him first to unwind the spool in the direction opposite from that in which the pictures were taken." Bloch argued that the paucity of documentation for the remote past of the rural landscape necessitated a thorough study of more recent phases, including the present, before moving backwards to study their antecedents. This attitude makes sense in all historical studies, for the historian sees the past and the present as one single entity and has only one mind with which, more or less clearly, to perceive it. There is nowhere more appropriate than in the study of field systems for the retrogressive method, and this is far and away the best application of this method to this subject.

It goes without saying that the mere adoption of the retrogressive method cannot necessarily be expected to lead immediately and unerringly to the desired goal. It is no magic wand, and "reading history backwards," in the best sense, may all too easily degenerate into doing it in the worst, that is by carrying false assumptions about the present (and past), and reading them into the old books and documents. In this way, Gray carried German racial theories with him wherever he went, with dire results for his conclusions. It would be less

than candid, too, not to admit that, despite all our admiration for Marc Bloch, and our detestation of his murderers, his mechanical theory of the origins of field forms, though it may be more acceptable ethically than Gray's, is hardly more correct or intellectually satisfying.

The editors of this book are the first to admit that "The time is not yet ripe—perhaps it will never be ripe—for an ultimate synthesis." The retrogressive method has yielded no startling conclusion, and only limited results. We are told that there were marked regional contrasts between uplands and lowlands (pp. 143, 187); that Gray's broad conclusions are vindicated in the West Midlands (p. 231); that the "East Anglian open field system was both more complex and more advanced than that which prevailed in the majority of Midland parishes" (p. 322); that in and about the Chiltern Hills, "whatever their racial origins . . . the majority of early settlers preferred, for some reason, which is not immediately apparent, to cultivate their land in intermixed strips" (p. 374); and that "ethnic explanations of . . . field systems . . . are no longer particularly convincing" (p. 625). If these conclusions seem disappointing, it is only because expectations were too high. Progressively or retrogressively, sooner or later, the student finds himself on the brink of the great void of the unknowable unknown, where is no record and no literary evidence. History without records is a brick without straw. Where neither record nor literary evidence exists, no history can be, and where no history, no knowledge. Speculation about the unknown future may often be correct, but about the unknowable past, never. Very likely we shall have to reconcile ourselves to the reality that the early origins of field systems are unknowable. This acceptance need not be difficult. Each individual's knowledge of even his own day and age is but slight and fragmentary, which is why it is best to leave each man to earn his own livelihood as he thinks best, why we should all mind our own

¹ Cambridge U.P., 1973; xxvi + 702 pp. £11.

business, and why the heads of government should keep their noses out of it. Since we have to live with the fact that most of what goes on nowadays will never be known to any individual person or to any organized group of individuals, it can hardly be surprising to learn that much of the past is unknowable to us. That is why historians concentrate on things they have evidence of.

In some readers' minds this train of thought may eventually sow small but nagging doubts. Outside the fanatics of the Third Reich and the race-relations industry, were ethnic explanations of the origins of field systems ever particularly convincing? Was it really necessary to fill several hundred pages with rather turgid prose before discarding the racial theories, when there is, for the time of their supposed origination, no evidence whatsoever of the existence of races or of field systems or of any influence of one upon the other? And if one argues that race had no effect on field systems, is not one tacitly admitting the racist argument that such things as races, racial purity, and race relations actually exist?

History and geography have this in common, that they are both disciplines and not subjects. Field systems are the subject here, but what is the discipline? Although their wording falters a little at one place, our editors deserve every praise for their clarity on this point. As they so rightly say, "No single formal intellectual discipline can provide a comprehensive solution to the problem of so complex a subject as the past structure and organization of field systems. The value of multi-disciplinary contributions is indisputable, but of equal significance is the contention that each discipline . . . can bring to the study a particular expertise or approach which will often provide or stimulate new ideas about form, function, and formation. In this volume all the contributors save one are trained geographers, with particular interests in the field of historical geography. . . In essence geography is primarily concerned with spatial organization, with the description and analysis of locations and distributions of largely anthropocentric features of the earth's surface . . . with cartographic analysis playing an important role."

But these are historical geographers. Does this mean that their approach, after all, is

multi-disciplinary, combining geographical and historical disciplines? Not necessarily. Historical geography means, usually, a study in which the data are drawn from the past, while the outlook is geographical. Geography—at least this is how the geographers see it—is simply carried into the past. From the historian's point of view, however, this notion enshrines two serious misapprehensions. First, all geographers, all statisticians, all applied economists, and, indeed, almost all people study the past and data drawn from the past. What else is there to study? The present is too fleeting to catch before it has become the past, and the future is not here yet. All geographers study data drawn from the past, some just go back a little further, that is all. Secondly, studying the past, studying present data drawn from the past, need not make one a historian, for all sorts of people, including archaeologists and statisticians, do that, without in the least becoming historians. A historical geographer is, then, a geographer who goes further back than most, but not necessarily a historian, whose discipline, mercifully, confines him to the consideration of record and literary evidence in one form or another. That the contributors to this book are not exactly the parthenogenetic offspring of Clio may be shown from several instances, and most revealingly by their regarding of archaeological finds (pp. 24, 28, 30), "relict features" in the landscape, which "may be studied as primary documents" (p. 31), and place-name derivations (pp. 276–7), as admissible evidence. Nor is the book by any means free of errors of fact and misinterpretations of evidence of a kind that a trained historian could reasonably be expected to have avoided; but let us gloss over these. No one can blame a geographer for not being a historian.

This is a geography book and must be judged as such. Is it good geography? Has geographical discipline been strictly adhered to or has it been violated? Exactly here, the present reviewer is least able to rid his mind of doubt. Is it really good geography to study agriculture by reference to administrative and political boundaries? Some of these chapters are devoted to counties, ancient or modern, like Northumberland, Durham, Yorkshire, West Midlands, and East Midlands; one to a former kingdom, to wit, East Anglia, which is

erroneously made to include Cambridgeshire; two to the kingdoms of Scotland and Ireland; and two to what are called North Wales and South Wales, which are not divisions of any known kind, neither political, ethnic, administrative, commercial, natural, or agricultural, there being no boundary whatsoever either between the two of them or between either of them and the rest of the kingdom. Two other chapters are formed by reference to the points of the compass, giving North-west and South-east England, but are then subdivided into counties. The remaining chapter, although called 'The Chiltern Hills and their environs', is actually devoted to the counties of Oxfordshire, Buckinghamshire, Bedfordshire, Hertfordshire, and Essex. Should Harwich, Coggeshall, and Dagenham really be considered as the environs of the Chiltern Hills? Why were neither modern nor ancient county boundaries taken, but intermediate ones from the late nineteenth century? How can counties or administrative districts ever be, in an agricultural study, more than areas for the collection of data that must later be sorted according to a genuinely geographical conception of the subject? It would have been understandable to have taken the old English kingdoms, or to have followed Gray's similar scheme, for then any tendency to differentiation along state boundaries could have been isolated and identified. Was there really, for example, an "East Anglian open-field system", devised by one of our kings perhaps? One might have thought that the theory of natural regions was by now sufficiently established to have warranted testing the data against them, in order to see whether field systems in any way conformed to these physical, climatic, and biological divisions. Yorkshire, it is true, is subdivided into physical regions, and "East Anglia" into soil regions (rather inaccurate by the way—Marshall would have called this map a "vile daub"); but hardly one of these regions is studied in its entirety, and most of them are summarily split up and parcelled out, like so many orphans, to various county authorities, so bearing eloquent testimony to the baleful influence of the old Board of Agriculture and its ridiculous president and secretary. Yet even if natural regions had consistently been taken

as terms of reference, this would still have fallen a whole universe short of the requirements of good geography, which demanded simply that the field systems be discovered, identified, located, and divided into regions defined and delineated according to the field systems used in them. Had this been done consistently and comprehensively, the regions emerging would likely have been more or less coincident, in England, with early medieval agricultural countries. That this opportunity was quite overlooked, and its theoretical basis not in the least understood, is quaintly illustrated by a conclusion arrived at (on p. 419), that "Regional variations in farming enterprise were but one of the many facets of the spatial and temporal diversity of the field systems of Kent." This puts the cart before the horse. Obviously, in early medieval England, the diversity of field systems was the chief element in regional agricultural variations. Close adherence to geographical discipline would have shown this.

This strange quotation makes one wonder whether it is a wise course to single out field systems and try to study them apart from agricultural history, apart from rural history, apart from general history. When it becomes possible to write of "the deformations from normal practice that were caused by the impingement of one field system upon the other" (p. 281), is not one running into the danger of institutionalism? "The term 'field system'," according to Gray, "signifies the manner in which the inhabitants of a township subdivided and tilled their arable, meadow and pasture land." (He uses "tilled" in a wrong sense.) Then how can one field system impinge on another unless the inhabitants of one township impose it on those of another, and how could they possibly do that? We must beware of using institutions to drive people off the stage of history. Rather than this should happen, it would be better to abandon the term "field system" and all its unfortunate *Raumforschung und Raumordnung* connotations. The present reviewer has, usually, eschewed it, without feeling any great sense of loss.

However, one thing about this book is not in the least doubt—its great utility.

Annual List and Brief Review of Articles on Agrarian History, 1974¹

By RAINE MORGAN

THIS year's crop of articles is more than usually wide-ranging, with some useful new departures. Though not a new approach, the potential value of oral testimony to the study of agrarian history, even for the pre-1850 period, is now becoming clear. Carter (41) argues that the neglect of oral evidence has created an imbalance in Scottish agrarian history, while something of its usefulness is revealed in the way in which Cregeen (65) marries reminiscence with published surveys and estate papers to depict the social and agricultural organization of the west Highlands. There are also some important contributions to the study of innovation and decision-making. Two separate studies (23, 177) emphasize the importance of risk and uncertainty as factors inhibiting farmers from taking up apparently profitable systems. Fenton examines the distribution of different harvesting practices emphasizing the importance of local geographical and economic factors (93).

For the prehistoric period Piggott (207) summarizes current thinking on the question of whether the evolution of society and agriculture owed more to in-migration than to indigenous developments, and supplies a useful bibliography. The value of studying the landscape as a whole rather than by sites in isolation is demonstrated by Cunliffe's investigation (68) of man's interaction with the environment on a small area of Hampshire chalk downland, from 7,000 B.C. Also interesting is a discussion (117) about the recently discovered Late Glacial elk which extends the known range of human occupation of upper palaeolithic man and adds to our knowledge of his tools and hunting techniques. For the

slightly more recent period the Butser Ancient Farm Project has provided some useful information about Iron Age agriculture. Reynolds (221) reports that yields of winter-sown emmer and spelt appear to compare favourably with those in the early twentieth century, and suggests that winter-sown crops were grown as an insurance against the failure of the spring corn. His experiments also raise some interesting questions about methods of grain storage in the prehistoric period (220). More conventionally Gillam *et al.* (108) describe a fourth example of pre-Roman ridge-and-furrow plough marks on Northumberland clay soil which may suggest wider exploitation of heavy land at this period than previously thought.

The medieval period remains comparatively neglected. Bridbury (28) contends that the sixteenth century had more in common with thirteenth-century problems of demographic pressure and soil fertility than with seventeenth- and eighteenth-century achievements. From the published exchequer pipe rolls for the period 1155-1216 Harvey (127) finds a perceptible increase in the level of demesne farming after 1184. Fieldhouse (95) marries information from two documentary sources to highlight the regional disparities in the distribution of wealth in the Richmond area in Tudor times. The interdependence between agriculture and industry is shown by Davies-Shiel's study (242) of ash-burning in Medieval Lakeland which linked the rural population with lead-smelting and woollen manufacture.

The early modern period yielded the largest body of literature. In an important article Holderness (135) questions the "Habbakuk thesis" that land purchase in the eighteenth

¹ The date of publication is 1974, unless otherwise noted. References to relevant articles that have been inadvertently omitted should be sent to the Bibliographical Unit, Institute of Agricultural History, University of Reading.

century was "in favour of the large estate and great Lord," and argues that in Lincolnshire at least the period was characterized by the continuous rise and fall of gentry families, and by the exchange of land between families of equal standing. Once again field systems come in for attention. Harvey's article (121) provides a useful analysis of factors influencing the proportion of common field land in townships of the West Riding, showing that this proportion was less and that enclosure advanced earlier as one moved upwards from the valley bottom. He contends that the plentiful supply of suitable land which may have encouraged the development of a mature common field system may later have been responsible for its decline as a shortage of pasture developed. Bailey and Galbraith's investigation (9) of Surrey field systems reveals more features in common with those of eastern counties than of the Midlands. Hodd (133) summarizes his findings from a study of runrig in the Carse of Gowrie, which suggests how it may have evolved once co-operation among tenants and the annual exchange of ridges ceased. Cregeen (66) looking at the same system in the West Highlands supplements his investigation by oral testimony. Various reactions to the sixteenth- and seventeenth-century "fodder crisis" are examined. For Dorset, Bettey (14) links increased sheep numbers with the competition for grazing rights on chalk downs, progress in enclosure by agreement and the creation of expensive and technically complex water meadow. In Lincolnshire, on the other hand, Holderness (134) finds the pressures reflected in the increased interest shown by upland farmers in coastal marshland grazings, which resort may explain initially much slower spread of the "new" fodder crops than in southern counties.

The 1801 crop returns for the two further counties are added to the already large body of published data (202, 269). Overton's study of the Cornish statistics includes some reference to factors influencing crop distribution, while Pounds's detailed analysis (212) and constructive handling of farm account material from east Cornwall for the mid-eighteenth century highlights among other things the

importance of casual female labour and liberal use of off-farm dressings. Parish records provide material for two articles which throw light on the status and movement of travellers; Furbank *et al.* (102) point out that while long distance migrants from the south of England to a west Midlands parish were all classed as vagrants, most of those from the north were skilled workers; while Oosterveen (200) summarizes findings from Hawkshead in Lancashire suggesting that the proportion of footloose grew significantly after 1700. The apparent facility with which individuals moved into different trades and up the social scale is demonstrated by a few brief studies (196, 201); Newman's Kentish labourer (196), for example, rose to market gardener and fruiterer during the Napoleonic wars. The available literature on the course of real wages between 1750 and 1850 is reviewed by Flinn (99) who concludes that while there were only small changes before 1810-14 there was a crucial transfer of wealth to the wage earner in the immediate post-war period, although the agricultural labourer fared least well in this respect, managing merely to maintain his level of real earnings. Clay (54) provides a useful index of the course of land prices during the seventeenth and eighteenth centuries.

For the period after 1800 there are several contributions to the study of hitherto much neglected Welsh agriculture. Howell (144) attributes the failure of peasant producers to grasp new opportunities created by the railways partly to physical constraints, but more to "myopic concern for farming as cheaply as possible," and unwillingness to adopt any improvement that might lead to rent rises. Griffiths (113) looks at agriculture between 1830 and 1875 but dwells mainly on the size and ownership pattern of Welsh landholding, concluding that the main characteristic was the dominance of smallholdings and their gradual decline. Davies (70) examines the background to the upsurge of freehold farming to the later nineteenth and early twentieth centuries, while on English agrarian history Taylor (255) reviews the literature on the dairy industry. Whetham (277) describes the background of the 1920 Agriculture Act and the effects of its repeal. Midlands agriculture

comes in for a good deal of attention; Phillips (206) draws on the tithe files and apportionments to establish the difference between light and heavy land farming, confirming that a dichotomy existed but was diminishing around 1840. Richards (224) uses estate documents to show how the exigencies of changing factor costs and agricultural prices stimulated capital investment and agricultural "improvement" in the first half of the nineteenth century. Records from the same Leveson-Gower estates are used by Wordie (288) for a different purpose. His study of the changing pattern of landholding in this already enclosed heavy land area during the eighteenth and early nineteenth centuries shows a substantial increase in holdings in the under 20 acre range at the expense of the 20 to 200 acre farms, the latter also declining relative to the increasingly dominant larger farm. The account books of a nineteenth-century Northamptonshire cattle dealer provide the basis for Colyer's study (59) of livestock marketing. In the field of rural industry Horn (141) describes the implications of working conditions in the pillow lace and straw plait trades for child health and education. Rural unrest is a recurrent theme; Beattie and Westman (11, 275) correlate food prices and criminality in the medieval and early modern periods, while Manning (182) suggests that Tudor enclosure riots were "conservative" and small scale. Shelton (239) shows how the gentry initially sided with labourers in the 1766 hunger riots but transferred allegiance to the ruling class when unrest intensified, while attitudes of landowners to rural protest in the nineteenth century are examined by James and Richards (149, 222). Taking a different perspective Arnold (6) considers why the Kent labourers' union enjoyed relative success during the 1870s compared to Arch's national movement.

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Book Reviews

M. I. FINLEY, *The Ancient Economy*. Chatto & Windus, 1973. 222 pp. Map. £3.50.

Professor Finley is an image-breaker and his writing is caustic and salutary, nor would I care to quarrel with his surgical analysis of the ancient economy. He points out that the modern conceptions of economy did not exist among the Greeks and Romans, not because they were fools, but because the economic structure of their societies was different, in that it did not constitute "an enormous conglomeration of interdependent markets" (Roll). The rest of the book is virtually an essay written to demonstrate the reasons for this: the lack of a conception of the relationships and trends to be deduced from statistics, the absence of a system of planned investment involving calculations of costs, labour output, overheads, transport, and the state of the market, which did not exist on a world scale. A major factor blocking the development of a world market was the expense and difficulty of transport (Finley might have done well to mention here the researches of Lefebvre des Noëttes); hence all the cities which attained exceptional size were near the sea or close to navigable water-ways—Athens and Rome alone subsisted on grain imported from any distance.

There were also psycho-social obstacles: the Graeco-Roman attitude favoured wealth but saw agriculture and land primarily as the basis of leisure; liberty was the freedom from the necessity of working physically. The Greek prohibition which prevented non-citizens from holding land restricted credit because the non-citizens, who conducted the lion's share of trade and manufacture, could not lend on mortgage. Nor in Rome did the *equites* constitute *in toto* a business class; only a minority of them were publicans, contractors, and moneylenders; the *equites* no less than the senators, as Finley observes in his chapter on 'Order and Status', were landowners; there was little correspondence between class (in terms of wealth) and economic function on the one hand, and social status on the other.

Status among the senatorial aristocracy, indeed, prevented them from engaging in commerce in the accepted sense, ready as they were to acquire wealth by grant, purchase, conquest, or confiscation. Precisely this attitude it was, thinks Finley, which explains the absence of any drive to increased productivity by technical innovation. But the agriculture of the large estates was not simple subsistence agriculture, for they produced large incomes—and there's the rub. The aristocratic status attitude, nevertheless, was also one of the factors determining the non-productive character of the ancient city; Finley follows Max Weber in stating that the ancient towns were primarily centres of consumption, and in those which were entrepôts of trade the merchants were predominantly foreigners and non-citizens.

In treating of labour, Finley points out that the term "slave" covers a number of differing categories, from the convict labourer in the mines to the rural helot and the slave carrying on an independent business for his master. It was the status-revolution in the later Roman Empire, which by levelling the poorer citizenry down to the same status as the tied tenant and the *servus casatus*, reduced the greater part of the rural population to dependent involuntary labour, and this development was rapid in proportion as the sources of slavery dwindled. Moreover, the gruelling taxation of the late empire could not be passed on by the big landlords to slaves, but it could be passed on to *coloni*.

Examining tenurial and rural problems, Finley finds that statistics on the size of holdings are scarce and unreliable but he thinks that on the whole small holdings were unrentable because of the surplus of smallholders' sons who had to be employed on them. Large landowners, on the other hand, seeing land as the basis of leisure and uninterested in increased production, a quick turnover of capital, or the exchange of goods, were under no impulse to improve their estates.

As to the cities, Finley's major problem is

to explain how they paid for those needs not furnished by the agriculture conducted by their landowning citizens and their tenants? His answer is, by agricultural produce and by invisible exports—tourism (I assume that includes cult-income) and re-exports. No single ancient city, wrote Hulme (Finley concurring), attained importance by virtue of its manufactures. The establishment of the Roman Empire, states Finley, led to urban growth as a means of increasing services, but not of enlarging urban production, and urban revenue was never invested to increase it. In medieval Europe the rural nobility were consumers of the urban products; not so in the Roman Empire. As the latter developed, craftscentres were withdrawn more and more to the rural estates, resulting in an atrophying of the city as a productive unit. One factor in all this was the absence of a productive credit machinery; the ancient world never discovered fiduciary money or the concept of a public debt. (Without disputing this finding, it might nevertheless be interesting to mention that the *Anonymus de rebus bellicis* writing in the fourth century, did propose something like it, as C. E. Stevens has pointed out, drawing our attention to leather money found at some place in north-western Britain.) Few loans to expand production can be traced; there were no permanent business partnerships aimed at combining resources, and crafts organizations never endeavoured to control prices or to extend free production. Selling and buying were the province of non-citizens, and big capital was in the hands of the landed aristocracy.

All this produces the further conclusion that ancient imperialism was not mercantile imperialism and did not involve capitalist exploitation. Ultimately the imperial government, by concentrating in its hands army-supply, withdrew from the market the economic potential of the wealthy class, which thereupon entrenched itself in its autarkic estates, and so a dyarchy was born which presaged the feudalism of the European Middle Ages.

Like most worthwhile books, Finley's inquiry poses as many questions as it answers. I confine myself to some minor matters,

which may possess major implications. In analysing concepts differing in oriental and Graeco-Roman society, Finley states that "the word 'freedom' cannot be translated into any ancient near-Eastern language, including Hebrew." Whether or not the matter is relevant, it is desirable to correct this misstatement for the sake of numerous potential readers. There are three words in Hebrew for freedom, the earliest of which occurs in Leviticus, the latest on coins of A.D. 70. Finley defines Mediterranean as a unified region of light-soil agriculture—perhaps too sweeping a statement, as an examination of the ancient occupation of the red soils, the *rendzinas*, and the alluviums of some ancient Mediterranean countries might show. The Mediterranean "on the whole is no place for nomadic peoples"; no doubt, but the nomads of North Africa and Arabia thought otherwise, witness the expansion of Islam, and the nomads should never be left out of account when we estimate the major problems of the region. In his general thesis of the non-existence of large marketing areas in the Roman Empire, Finley may be overstating his case. Against Wheeler's cautionary tale of the single terra sigillata bowl in Gothland, here cited, we may quote sites where terra sigillata potters' stamps run into hundreds; the problem is not export over the frontiers but internal circulation. Dunning showed that an industry producing shale vessels in southern Britain in Roman times sold up to a radius of 200 miles in the earlier period, its customers including seven villas—and to a radius of fifty miles in the later period. Both figures are well beyond the "four to five miles" deduced by Messrs Hodder and Hassall for the radius of Romano-British market centres; in any case the distribution of the products of several local Romano-British pottery industries, to say nothing of oysters and coal, is sufficient to refute their deduction. Nor can statements on the autarkic economies of later Roman estates be accepted without qualification: archaeology offers contrary evidence (see *Agrarian Hist. Eng. and Wales*, I, ii, pp. 247-48), and the problem becomes one of assessing it. My own view is that it was precisely the non-autarkic character of the estate economy

which led to its swift demise in some provinces under barbarian conquest—more especially Britain. As to the landowner's incentive to increase production—granted a non-capitalist mentality and the non-availability of liquid capital to apply it—how are we to interpret Finley's complementary statement that the big estates produced large incomes? Cheap labour and the thorough exploitation of manpower are not sufficient. Surely, this also implies good maintenance and accounting, sound cultivation, likewise much improvement in the restricted interior sense, and efficient planning within the accepted framework. Moreover, the examination of a number of reasonably excavated villas in western Europe (e.g. Ditchley, Bignor, Wittersbach, Mayen, Köln-Müngersdorf), of investigations in Syria, and relevant passages in the Talmud, show that their buildings could develop from a single hutment in the first century B.C. or A.D. to a complete range of residence plus *bâtiments d'exploitation* in the third and fourth centuries. Evidently the incentives to increase rural production existed, and cannot be explained solely as the results of massive taxation or the demands of prestige spending. Or, to take a piece of literary evidence: when Nero and Seneca extended big loans to British notables in the early sixties of the first century, were they merely for consumption? This is the period of the first systematic organization of the *annona* in the province, and also of the first villa-building; could all these loans have been expended on consumption and prestige-building, or were they also spent on the increased productivity without which the invested capital could not be repaid?

Hulme's axiom that no ancient city owed its growth to its manufactures, and the associated statement that the mercantile elements were preponderantly non-citizens, also evoke questions. Did none of the sons of *equites* who joined the municipal aristocracies engage in commerce? And is either axiom proven with regard to such oriental cities as Carthage, Tyre, and Sidon? Were these places mere, entrepôts, and were their aristocracies purely landowners? And what constituted the *raison d'être* of the Nabataean kingdom? It may be

significant that despite recorded imperial legislation suppressing the crafts guilds in the towns of Asia Minor, they nevertheless survived sturdily, as inscriptions indicate, and if they were not composed of citizens in Tarsus, guilds apparently took the place of *phylae* in a number of other Asiatic cities. Did they owe this toleration to the probability that their manufactures were essential to the imperial economy and more particularly to the army?

A point may also be made concerning the relative absence of technological progress, especially in connection with agriculture, in the Roman Empire. This may be a fact, but should not cause us to ignore the revolution created by the spread of Graeco-Roman civilization, with its concomitant diffusion of improved tools, new plants, and perhaps rotations. All this meant a great rise in bulk production. Was all the private enterprise responsible for this the result of mere search for status?

Moreover, were no Roman imperial wars commercial in aim? What about Augustus's expedition to Arabia? and even if Trajan's annexation of the Nabataean kingdom was purely political (a term which begs the question), it gave Rome control of the centres distributing wares from Arabia and India to Syria and the Mediterranean—and whatever Trajan wanted, there is a limit to the economic blindness which we may legitimately ascribe to him and his advisers. Finally, Professor Finley could perhaps have said more of the economic importance of the Roman imperial crown-domains. Remarkable in the empire was the hiatus between direct political influence and economic power where the privileged classes were concerned: notable exceptions were the Jewish patriarchate and the ephemeral principate of Palmyra—fringe exceptions perhaps, but useful to emphasise some of the *arcana imperii*.

One correction. A peculiar error on page 145, para. 2, line 1, should be corrected in a second edition or impression: here the word "absence" surely should be "presence". It should be added that Professor Finley's bibliography as embodied in his notes will be invaluable to all interested readers.

SHIMON APPLEBAUM

K. D. WHITE, *A Bibliography of Roman Agriculture*, Institute of Agricultural History, Bibliographies in Agricultural History, no. 1. University of Reading, 1970. xxviii + 63 pp. 85p.

All of us read too much, and generally three-quarters of what scholars read in their special fields they find to be superfluous and repetitious; they read much of it just in case. Good bibliographies are one way out of the dilemma, and if the bibliographer can add a word of guidance to enable his beneficiaries to discriminate he will be saving them much useless effort. For the same reason, woe to the reviewer of a bibliography, because he is sure not to have read anything like the works listed in it.

This one begins with a useful and quantitatively temperate introduction devoted to the importance of Roman agricultural history, and the formulation of some major unsolved questions which have to be answered in that field. There follow sections on the literary and archaeological evidence, the environmental conditions of Italian farming, the Roman agricultural writers and their respective values. There is then an analysis of the attitudes of ancient writers to various problems, including markets and labour, efficiency and productivity, incentives to progress, traditions and innovations; and then come conclusions, one of which is the recommendation to use given contemporary agricultural systems for the undersanding of ancient farm-management and output.

To write two or three lines summarizing a high proportion of the works listed must have been the devil of a job, and we should be lenient here, but the validity of such short notes is, as I stressed above, a vital part of the bibliography. How useful, in fact, are they? One can only judge by scrutinizing instances well known to oneself. On pp. 25 and 34 we find as an item C. Thomas, *Rural Settlement in Roman Britain*. White's summary reads: "Distinguishes regional differences, noting gradual trend towards symmetrical planning of farms and better standards of building construction." Now the work is in point of fact a symposium of articles by various specialists, including Professor Thomas, and edited by him, on rural settlement in Roman Britain;

the papers were given at a conference held on the subject by the Council for British Archaeology. Their contents are far more varied and revolutionary than White suggests, and where the problem of the Romano-British settlement pattern in the south-west of England is concerned, constituted a major breakthrough. I do not wish to be hypercritical, but this is a demonstration of how difficult the task really is of isolating the essential. To take another case of a different nature: Adam Dickson's *The Husbandry of the Ancients* (1788) "excludes animal husbandry; also typical mediterranean techniques, e.g. viticulture. Good on soil, ploughing, manuring. Now much outdated." But, as one of my seniors said, Dickson is one of the few who have written sense on Roman agriculture, and how many works of this sort have we from the pens of working farmers? Out of date—maybe; but surely the fact that Dickson wrote before the agricultural revolution had got into its full stride is precisely one of the chief merits of the book for students of Roman agriculture!

On another tack, I find the Middle East somewhat under-represented; the study of the Nabataean-Byzantine irrigated cultivation of the Negev has a respectable literature (much of it in English), and a little consultation with Israel scholars could have obtained the requisite list. Centuriation—no reference to the work of Margary and Nightingale: I am prepared to back Nightingale's find as genuine Roman land division. Among villas, the absence of F. Fremersdorf's masterly report on his splendid excavation of Köln-Müngersdorf (published 1933) is a blemish; this is, to the best of my knowledge, the only case where every structure in the farmyard of the villa was excavated and defined; the economic implications were analysed by Schmitz (*Bonner Jahrbücher*, 139, pp. 80 ff.). For the same reason one regrets the absence of direct reference to the reports on Anthée (Belgium) and Martres-Tolosannes (southern France), although briefer accounts on them are to be found in Grenier (no. 413), which is classed, somewhat inadequately, under "Estates and estate management." Under Roman Britain I see no specific references to literature dealing with field-systems. Under agrarian

legislation, add Courteois *et al.*, *Tablettes Albertini*, 1952, on the Mancian lease. There is doubtless much discussion of ancient economic theory (or the lack of it) in the works listed here: in another edition much useful bibliography on the theme could be drawn from Finley's *The Ancient Economy* (1973). And lastly, can prehistoric agriculture be separated from Roman agriculture in the provinces? However, there are doubtless limits to what space will permit. What about a much-needed bibliography of prehistoric agricultural studies?

Misprints in this publication would be a sitting target. Rather should we investigate the sociological causes for the decline of good proof-reading in the present decades. But I cannot refrain from quoting (p. 20): "The authors agree [sic] that there has been in historic times a small but significant decrease in rainfall." This is only one reason why White's bibliography will find a permanent place on my shelf.

SHIMON APPLEBAUM

G. E. FUSSELL, *The Classical Tradition in West European Farming*. Newton Abbot, David & Charles, 1972. 237 pp. 13 plates, 12 figs. £4.20.

In this volume Dr Fussell utilizes all his formidable expertise in the literature of European farming to consider the problem of the extent to which the medieval and later farming books were based upon their classical forerunners, both Greek and Roman. Since this is a subject with which most English readers will not be very familiar it is most useful to have Dr Fussell's analysis of the classical writers and his assessment of their continuing influence even into the nineteenth century. He believes that this influence has been generally underestimated, and states (p. 11) that the "debt that modern farming owes to the classical tradition has been obscured and confused in the studies of agricultural historians." It would have been interesting if he had explored this theme more systematically in his chapter on the classical authors, but the implication is that modern historians have not fully appreciated the extent to which classical writers were familiar with leguminous fod-

der crops like lucerne, clover, and beans. Although it cannot be argued that anything like a Norfolk four-course rotation was used in Roman times, it is clear that fodder crops were sometimes used as catch-crops between cereals, partly to improve soil fertility. As long ago as the fifth century B.C. Xenophon noted that some Greek farmers in Macedonia and Thessaly ploughed in beans as a green manure; while Roman writers, like Pliny the elder and Marcus Columella, were familiar with lucerne and praised it highly as food for livestock.

Dr Fussell has divided his immense subject into six chronological chapters, of which the first on 'Farming Systems of the Classical Era' is perhaps the one which will be found most interesting because its subject is probably the least familiar. The works of the leading classical writers on farming, the Greeks Hesiod and Xenophon, and the Romans Cato the censor, Varro, Marcus Columella, Pliny the elder, and Palladius, are all usefully analysed. It seems that Marcus Columella, who lived in Spain near Cadiz in the first century A.D., wrote the best treatise.

The subsequent chapters cover the early Middle Ages, the fourteenth and fifteenth centuries, the sixteenth century, and the period 1700 to 1820. By the end of the eighteenth century the scientific and empirical approach had largely displaced classical authority.

During the classical period the Romans improved on Greek methods, principally by establishing a three-course rotation of two cereal crops (usually wheat and barley) and a fallow in place of the Greeks' simpler two-course crop and fallow system. Neither Greeks nor Romans were particularly good at livestock husbandry, which is not surprising in a Mediterranean climate. For the same reason they were good at cultivating vines, olives, and fruits. There was apparently little advance in farming technique between the birth of Christ and the end of the Roman empire.

The classical tradition was carried on in medieval times in two streams. The Greek was incorporated in a work called *The Geoponika*, written in Byzantium in the tenth century. It was a collection of farming advice made from earlier Greek and Roman works, many

now quite unidentifiable. The Roman tradition was carried on by Petrus de Crescentius, a thirteenth-century lawyer from Bologna, whose work *Liber Commodotus Ruralium* ran to twelve volumes. It relied heavily on earlier classical authors but also included advice based on his personal experience in travelling all over Italy and beyond the Alps. Because it was concerned primarily with Mediterranean farming it has never been translated into English.

In fact England was the country where the classical tradition was least felt. This was partly because Mediterranean practices were unsuited to the English climate (though the classical works were frequently translated and reprinted in Germany) but more importantly because English farming writers adopted an empirical approach almost from the beginning. The first printed book on English farming, Fitzherbert's *Boke of Husbandrye* (1523), was not based on the classical models and gave advice derived from practical experience. Most of the better-known authors of the pre-scientific age, like Thomas Tusser, Sir Richard Weston, Walter Blith, and John Worlidge, followed the same principle. An exception was Leonard Mascall, whose *The First Booke of Cattell* (1591) was largely based on classical sources.

On the continent, as might be expected, the classical tradition was much stronger. Not only were the originals frequently reprinted but well-known later works were impregnated with the classical ideas. Prominent examples are Camillo Tarello's *Ricordo d'agricoltura* (late sixteenth century) in Italy, Conrad Heresbach's *Rei rusticae libri quattuor, universam rusticam...* (Cologne, 1570) in Germany, and Oliver de Serres's *Le Théâtre d'agriculture et mesnage des champs* (1600) in France.

By the eighteenth century the classical tradition was dying. Dr Fussell believes that Jethro Tull's experimental work in England in the early decades signalizes the birth of a new, inquiring, scientific spirit. It soon spread to France, and thence over the Continent.

The most important question arising from Dr Fussell's study is: did this long ascendancy of an ancient tradition act as a brake on the development of European farming? This is

very difficult to answer, because although we know how often the classical works were reprinted (and it was frequently), we do not know whether any practical farmers (as opposed to landowners with literary tastes) ever read them, or whether they were influenced by them. Dr Fussell implies that it would have been difficult for farmers in the Mediterranean regions to have improved on the classical methods in the pre-scientific age, and therefore that the continuance of the tradition can have done no harm. We have seen that it had very little influence in England (or in the Netherlands). It may have had some inhibiting effect on experimentation in France and Germany, but we cannot be sure.

Dr Fussell has written a book which will be of considerable value to the specialist trying to sift the European farming literature, and one which the general reader will find not uninteresting, particularly the excellent opening chapter on the classical farming writers.

M. A. HAVINDEN

D. B. GRIGG, *The Agricultural Systems of the World: an Evolutionary Approach*. C.U.P., 1974. ix + 358 pp. 48 tables, 25 maps. £6.60 hardback; £2.75 paperback.

This scholarly, well-documented, readable but occasionally irritating book is the fifth title of the *Cambridge Geographical Studies*. For non-geographers, the key to its interest and fascination lies in its sub-title: *An Evolutionary Approach*. The introduction is followed in Part One by chapters on the early history of agriculture; the diffusion of crops and livestock; and technical and economic changes in agriculture. Part Two then broadly follows Finch's (1957) version of Whittlesey's world map of types of agriculture. The major types of farming discussed in succeeding chapters in this part are: shifting agriculture; wet rice cultivation in Asia; pastoral nomadism; "Mediterranean" agriculture; mixed farming in Western Europe and North America; dairying; the plantation system; ranching; and large-scale grain production. Each of these chapters opens with a brief account of the current characteristics of the relevant type of agriculture and then goes back to its early history, leads up to the "modern period", and in

most cases ends with a good summary. Then follows a short concluding chapter, an appendix (after C. D. Darlington) on regions of plant domestication; references; a thirty-five-page bibliography; and a rather inadequate index.

This text is so full of historical interest that it is difficult to know which chapter or sections to recommend to the agricultural historian. But chapters 1 (Introduction), 2 (Early history), 4 (Technical and Economic Change), and 14 (Conclusions) would serve a first course followed by a second course—chosen from the chapters on types of farming—which might be one either familiar or exotic to the reader. But whichever way he approaches the book he will find it reflects three underlying themes.

The first is that explorers, merchant adventurers, military conquerors, or the mass migrations attributable to population growth took with them (by accident or design) their own familiar species of crops and stock but, more important, their knowledge of and prejudices about their own familiar farming systems and agrarian structures. The migration of the farmer's mind—"squared neat between the hedgerows of his brain" (to use an apt phrase of Vita Sackville West)—was probably as important, for better or for worse, as the diffusion of economically or nutritionally useful species. Where he could not stamp his "inherited" system or species on new lands, he either adapted his old practices or adopted the species and techniques of his new locality—or perished in a failure often unrecorded by history.

The second is that over the 10,000 years since agriculture was introduced, techniques and thence systems have intensified and slowly improved yields both in the homelands and in newly settled or conquered lands. Thus, in the case of wet rice (i.e. "paddy" or as Grigg calls it *savah* rice), broadcast seeding was replaced by careful transplanting, and yields were raised by better soil cultivation, more weeding, more green or animal (including human) manure, better varieties, and perhaps double cropping, e.g. a wet rice and a dry wheat crop in the same year.

Third, growing population pressure (which

Grigg aptly terms *nutritional density*) was met by better husbandry if migration was not feasible. This phase lasted until about A.D. 1600 when "there was probably very little difference in agricultural productivity between Europe, India and China" (p. 284), and the New World and Australasia were still in a very primitive stage. Then came the European steps towards rotational farming and simple but labour-intensive mechanization—what one might call *ecological revolution*.

Finally, from 1850 onwards the ecological revolution yielded to what Grigg terms the "agricultural revolution"—perhaps *agro-industrial revolution* would be a better description. This was based on urban industrialization, better transport, and, no doubt Grigg would now add, non-renewable fossil-fuels. This post-1850 revolution created the great gulf between the agricultures and diets of "developed" and "developing" countries.

How, the reader may ask, can we close this gap? The above rather free interpretation of Grigg's approach suggests to this reader that the growth of the nation state and of increasingly parochial nationalism rules out migration, and that we cannot rely on rapid industrialization of "developing countries" to feed their rapidly growing *nutritional densities*. This leads to the second course. Can farm people in the developing countries, by sheer good husbandry and labour intensity, bring food output from the European yield levels of the seventeenth century (about 770 kg./ha. for wheat in Britain) to those of say 1880 (when U.K. wheat yields were about 1,750 kg./ha. as against 4,500 kg./ha. today) to meet a predicted doubled *nutritional density* within thirty to forty years? In other words, can man apply the seventeenth and eighteenth century "ecological revolution" of western Europe to developing countries or must he rely on an "agro-industrial revolution" which has yet, in many areas, still not been born, and which may be too late to meet the potential nutritional densities of A.D. 2010?

Finally, some minor criticisms. Too many local or vernacular terms are left undefined, e.g. *inquilinos* (p. 132), *caingin* (p. 108), *canadas* (p. 141), *saeter* (p. 193). The bibliography rarely gives the publishers' names, and some-

times also omits the place of publication. The index is inadequate. The one-and-a-half-page concluding chapter is too short. After so much research effort one feels that the author could have given us a considered distillation of the knowledge he has acquired and of the principles which appear to him to have emerged from what must be a unique study in depth. In particular, one would appreciate his conclusions on the critical question (p. 5) "does increase in *nutritional density* lead to new, more intensive types of agriculture, or do new farming techniques permit higher densities, or do they proceed simultaneously?" But these are no more than blemishes on an excellent, though-stimulating book which, from this reviewer's travels and reading, is difficult to fault on contemporary facts.

A. N. DUCKHAM

PHILIP GRIERSON, *English Linear Measures: an essay in origins* (Stenton Lecture 1971). Department of History, University of Reading, 1972. 37 pp. 50p.

This pamphlet, a slightly fuller version of the original lecture, examines the evidence for the origin of the standard English measures of length. Beginning with the laws of King Ethelbert of Kent in the early seventh century, textual and material evidence is presented, discussed, and meticulously footnoted. The main theme is the derivation of nearly all basic measures from natural objects or natural actions; the barleycorn, the palm, the foot, the journey between rests. Henry I is supposed to have distributed a standard yard based on the length of his own arm, while in sixteenth-century Germany the shoes of the first sixteen men out of church, placed end to end, gave the length of the perch. The use of parts of the human body as units of measurement was so widespread that similarity of such units between societies is in itself proof of nothing: Grierson is scornful of the "mathematical romanticism and diffusionism run mad" of those who build speculations on the chance resemblance of measures used thousands of miles and hundreds of years apart.

The standardization of these units, and their fitting into an arithmetical relationship

with each other, came long after their invention. In England the smaller units were re-defined in the twelfth century in terms of the newly created yard, leaving an awkward relationship of $5\frac{1}{2} : 1$ between this new measure and the perch; the perch being part of a sequence through the furlong to the mile which resisted change. However, another basic point which Grierson stresses is that the existence of uniform standards did not mean that everyone used them. Different commodities retained their peculiar units, and local communities retained their customary measures: how many of us, he asks, will adapt immediately to metres and kilometres? The result is that rough comparisons of measurements based on "natural" units such as the foot are possible, but greater precision is illusory. Indeed, some of Grierson's own comparisons may overestimate the interest in accuracy of early writers and minimize the tendency to estimate distances and areas by eye or from local tradition.

In all, this is a fascinating little booklet, and necessary reading for anyone intending to use quantitative analysis of early measurements. Professor Grierson should be made to give us the lecture on English weights, which he had to cut out, and then another on areal measures.

ROBERT S. DILLEY

EDMUND KING, *Peterborough Abbey, 1086-1310*. C.U.P., 1973. xiv + 288 pp. £5.60.

The sub-title, *A Study in the Land Market*, does less than justice to Dr King's work, which proves to be much more than a study in the buying and selling of land. In successive chapters he discusses the knights of Peterborough, the freeholders, the obedientiaries, the customary tenants, the lay officials, and the organization of the estate. Not all the problems examined by Dr King call for such elaborate discussion. For example, the desire of peasants to provide holdings for their younger sons and dowries for their daughters operated from time immemorial, according to G. C. Homans; but this simple and convincing thesis is relegated to a footnote.

A particularly interesting chapter is devoted

to the colonization of Northamptonshire. Premising that the clearance of woodland and reclamation of fen must have been a continuous process from the refoundation of the abbey in the tenth century, but does not begin to be recorded in detail until the early twelfth, Dr King shows us the abbot first leading his knights and free tenants in opposition to the crown and its oppressive enforcement of forest law, then later engrossing as much as possible of the assarted land by purchase and exchange. The conversion of woodland to arable was followed by the conversion of fen to pasture; but the process was not uniform, and no single pattern emerges for the estate as a whole.

H. P. R. FINBERG

EDWARD T. MACDERMOT, *The History of the Forest of Exmoor*, revised edition by R. J. Sellick. David & Charles Reprints, 1973. xvi+480 pp., illus. £6.50.

Exmoor, mostly in west Somerset but some large part in Devon, was described by Camden as "a filthy, barren Ground" and Defoe added "And, indeed, so it is." It has a long and varied history and was probably a vast common pasture in prehistoric times and for a long while afterwards. What is more, it has attracted to itself two first-class histories, MacDermot's *History*, which first appeared in 1911, and C. S. Orwin's *The Reclamation of Exmoor Forest*, which appeared in 1929, and in revised edition in 1970. Further, these two books complement each other neatly in date, for MacDermot takes the story down to the final enclosure in 1820, and Orwin virtually begins at that point and deals with the great work of reclamation that followed this enclosure. Rarely can it have happened that two books dovetail so neatly, and books, too, written by distinguished scholars, and of equal value.

Edward MacDermot was a barrister by training, but was able to settle on Exmoor where he spent the last part of his life collecting materials for his *History*, and tramping all over the moor in all weathers; and latterly in writing his fine *History of the Great Western Railway* which became a model for later railway histories.

This new edition includes a good deal of new material which MacDermot collected down to the time of his death in 1950. Now edited by Roger Sellick, with a short account of MacDermot's life, this will become the standard history, not only of Exmoor in particular, but the standard by which all other histories of such a type of country will be judged.

The author searched every scrap of record from Domesday Book onwards: the footnotes show a brilliant array of conscientious scholarship. It is odd that Domesday makes only one rather cryptic entry to this Moor. It belonged to the King, who exacted every third penny of rents for the pastures, and every third animal. In later records we see that various parishes miles away from the Moor pastured their animals there during the season, just as they did for miles around Dartmoor. Technically the moor was a royal forest, i.e. subject to Forest Law. Economic historians will know that this did not mean a forest in the physical sense of the word, and indeed Exmoor is almost devoid of trees to this day except in the deep sheltered valleys. So MacDermot, being a lawyer also, devotes a great deal of space to Forest Law, to the successive Wardens, to the courts, and to permabulations of the Forest. All of this is done in massive detail, but so far as agriculture is concerned it is nearly all, naturally, to do with cattle, sheep, and horses. Nevertheless, the agrarian historian will derive much material from this quarry. There are eight maps to guide him around, and a number of additional photographs which were not in the original edition.

MacDermot's *History* of Exmoor is a masterpiece and will always remain the standard work. We may add little bits here and there in the course of time, notably perhaps on the pre-Domesday period, but that is about all. It is a pleasure to have this book back in circulation again since it had become very scarce, and indeed practically unobtainable. This, and the reprint of Orwin, covers the entire ground: the publishers are to be congratulated on making both classics available to us again.

W. G. HOSKINS

HENRY A. LANDSBERGER, *Rural Protest: Peasant Movements and Social Change*. Macmillan, 1974. xi + 430 pp. £8.

This is a comparative history of rural protest spread over four continents and over a time-span of a thousand years, to which a dozen specialists from different parts of the world were invited to contribute under the guidance of a master-plan. For Dr Landsberger, its editor, in briefing his authors, sent them precise guidelines in the form of a questionnaire, based on his own researches on the Latin American peasant and raising such questions as: what were the societal changes preceding the emergence of a peasant movement? what were the movement's goals and ideologies, its means and methods and mass base? and what were the movement's allies, and the conditions of success and failure?

The authors' "answers" to these questions occupy the major portion of this book; and, for the reader's convenience a summary of their findings and how they relate to the initial guidelines is given by Dr Landsberger in an introductory chapter; and it is fascinating to see how far the contributors have been able, or been willing, to work within the analytical framework provided. Some have clearly done so with greater readiness, or greater success, than others; and this was not simply a matter of the author's choice but also of the material that he had to hand. Among the most successful chapters in this respect are Dr Hilton's study of peasant society and feudalism in medieval Europe, Landsberger's own study of the English Peasant Revolt, and Longworth's on the Pugachev rebellion in Russia, which skilfully combine attention to their own particular problems with conformity to the model prescribed; and two modern studies, the first by Alexandrov on peasant movements in developing countries, and the second by Huizer and Stavenhagen on rural protest and reform in Latin America. The least successful is probably Molnár's and Pekmez's chapter on rural anarchism in nineteenth-century Spain, which is less an analysis than a recital of events. Two studies on peasants in politics, which have been written from somewhat differing ideological viewpoints, are Galaj's on Poland and Jack-

son's on Eastern Europe. Finally, there is Hobsbawm's study of "social banditry" which, with the best will in the world, lends itself less readily than any other to the Landsberger model; for, in the author's own words, his banditry is "not so much a form of peasant movement as a symptom of peasant unrest." Yet this is one of the few chapters in the book in which a serious attempt is made to discuss not only "politics" or goals but also the ideology or *mentalité* of the people concerned.

The book, in fact, contains some excellent pieces, and it is, moreover, an invaluable compendium of rural protest in both medieval and modern times. But has it, seen as a whole, been able to realize the aims that its editor had in mind? Does anything like a common pattern emerge from its pages? The real problem is that, even within the context of a single country in a short period of history, peasants form a disparate group; and even if we follow Eric Woolf in lopping off the landless labourers, they do not belong to a single social class. All serious students of rural protest have found that there is no such thing, and there never was, as a *typical* peasant, and have been compelled to divide the rural population into separate interest-groups, the number of which may vary from one country to the next. Thus Landsberger cites Lenin's division into three—the well-to-do, the "middle", and the "poor" peasants—in the case of Russia, and Mao's five categories, of small landholders, sharecroppers, poor peasants, farm-labourers, and handicraftsmen in the case of China; and it is doubtful if even Mao's more generous formula, if given a wider application, would take account of Indian "untouchables" or Mexican *colonos*; let alone the more subtle distinctions between the "landed labourers" and "landless proletarians" noted by Alexandrov in some countries of Asia and North Africa today. Granted that all these groups are (to use Landsberger's phrase) "low-status rural cultivators;" but such a definition of the peasantry, though it may be as accurate as any, is so open-ended as not to take us very far.

So the *social* variables, within the geographical area and over the time-span covered by this book, are, to say the least, considerable. It is, therefore, not surprising that, in the move-

ments described, there should be a rich variety in the forms of protest and organization, and in the aims and ideologies that underlie them. We need but note such varied manifestations of protest as the medieval *jacquerie*, Pugachev's armed rebellion, the land occupations in Latin America, Burma, and Sumatra, the *taxation populaire* of eighteenth-century France and England (though not confined to peasants) and the variety of peasant leagues and parties and workers' unions that the authors describe. Basically, the problem of ideology may be somewhat simpler. If we except the landless labourer who (as noted by Alexandrov) has become reconciled to his new status as a proletarian, its essence is the desire for land, whether to be privately owned or to be worked in common; and, at times, as Huizer and Stavenhagen show in their study of Mexico and Peru, protest becomes a demand not for something new but for a restitution of land that has been unlawfully usurped by others. This basic ideology appears to underlie all the movements (other than those of the rural proletarians) that are related in this book, whether they be of well-to-do farmers, small landholders, sharecroppers, or landless peasants who aspire to get some pickings from the division of large estates or traditional common lands. (As off-shoots of this basic ideology we may note the toleration of the "social bandit" observed by Hobsbawm and certain types of popular religious belief, as in the Pugachev revolt.)

The position becomes far more complex when the peasant movement assumes a more overtly political dimension, either as a projection of the peasants' own demands or when it serves as an ally or catspaw of others. This can only happen, as several contributors show, when the movement becomes infused with an ideology derived from other social groups. The result may take a variety of forms, of which examples are given by Alexandrov for Syria, India, and Turkey, Jackson and Galaj for eastern Europe, and Huizer and Stavenhagen for Latin America. In some of these cases, where the peasants assimilate the ideology of others but turn it to their own use (the National Peasant Federation in Mexico at the time of Cárdenas is a good example), it seems

fair enough to treat them as "peasant" movements; but this was hardly the case with the numerous bourgeois-led "peasant" or "agrarian" organizations in eastern Europe in the 1920's and 1930's described by Jackson: the Czechoslovakian Agrarian Party and the Croat Peasant Party, which postured as champions of all the rural producers, are obvious examples. Though they had a peasant base and attracted the peasant vote, to call them "peasant" parties is just as much a misnomer as it would be to give the name "labour" to the Whigs and Tories of late nineteenth-century England when they were the sole contenders for the working man's vote.

Yet, with all this, it would be a gross exaggeration to claim that Dr Landsberger's model breaks down at all points. There are certainly other common factors that emerge from these studies, though they are by no means all peculiar to rural protesters alone. One is that positive results have been achieved only when peasants were united and were ready to take action of their own. Conversely, as shown by the contributions on eastern Europe and Latin America, a slackening of peasant activity allowed their movement to fall under the control of middle-class groups, and the peasant interest became sacrificed in the process. Another is that such movements, both in medieval and modern times, have most often been precipitated by "modernizing" influences such as commercialism or the impact of an industrial revolution, or by a fresh breeze from outside. (This is, of course, a variant of the "rising-expectations" theory of which so much is being written today.) A further common factor is that organization has been most likely to take shape where there has been some earlier experience of co-operation within an established community: thus, as with urban or industrial workers, organization and protest emerge not from the isolation of the uprooted but from community and experience commonly shared. Again, it has been noted that leadership is most efficacious when it is either in the hands of men sprung from the peasants themselves or in those of men from closely associated groups, such as village craftsmen, schoolmasters, or parish priests: the bourgeois outsider, though he may start

with the best of intentions, often turns out to be the kiss of death. Finally, a factor noted by Lefebvre, Woolf, and others (though discounted by Fanon): peasant radicalism is unlikely to emanate from the poorest of the poor, but far more likely to be born among the "middle" or more prosperous members of the rural community; yet, as a movement develops, numbers begin to assume a greater importance, and the poor and the landless come into their own.

Such results are important as far as they go; and it would be quite unfair to Dr Landsberger to suggest that he has failed because all the bits and pieces do not fit neatly into place. He has never claimed that they would, and has, insisted in fact that his model serves to emphasize differences as well as similarities; and the differences—and no attempt has been made to deny it—are evident enough. So he certainly cannot be charged with what old-fashioned historians like to see as being almost an occupational disease of the social scientist: with scratching around for common denominators and patterns where they do not exist. Of this he has not been guilty, as a careful reading of the introductory chapter will convincingly show. But, in his concern for specifically peasant problems, he may perhaps more justly be charged with having made two omissions. Too little account, I believe, has been taken of the dramatic impact made on peasant (as on all other popular) movements in the past couple of hundred years by the great social and political explosions of the French, Russian, and Chinese revolutions; and it might perhaps have been pointed out that several of the common denominators in rural protest have been no more peculiar to rural than to urban communities.

GEORGE RUDÉ

RODNEY HILTON, *Bond Men Made Free*, Temple Smith, 1973. 240 pp. £3.80.

Professor Rodney Hilton is one of our leading authorities on peasant movements and a new book from his pen is always welcome. The present volume is no exception.

The book divides easily into two parts—a macrocosm and a microcosm. First the author deals with the general problems of

medieval European peasant societies, and describes the nature of medieval peasant economy, early movements and their problems, and mass movements of the later Middle Ages. He then takes the English rising of 1381 as a sort of "working model" of all such risings, and discusses the events of the rising, its general background, the areas of revolt, the social composition of the rising, the allies of the rebels, and their organization and aims.

Professor Hilton sees "conflict" as the ruling principle of medieval peasant societies. His interpretation is unashamedly Marxist: we meet the feudal nobility, the bourgeoisie, and the industrial working class on his very first page, and capitalism and social stratification in his conclusion. In 1973, which is a long time after the Hungarian October Revolution of 1956, all this sounds very old-fashioned. A harsh critic might even protest against the prolongation into this century of outmoded Hegelian concepts, or wonder why we should prefer the millenarian beliefs of Victorian radicalism to the millenarian beliefs of the middle ages.

Happily, Marxist ecclesiology does not much affect the main chapters of the book which summarize clearly and ably the subjects with which they deal. The careful empiricist merely notes a strange deliberation in the actors which is never present in real life. Both lords and peasants seem to have greater knowledge of needs and desires than is generally so. Evidently there are plans, designs, and plots in the events of the past which were almost certainly unknown to the men of the past. Power, even economic power, is much less positive than Professor Hilton thinks it is. In his society there is no co-operation and enjoyment amongst the poor, no genuine belief that lordship had a valuable part to play in society. The lords are parasites and the peasants their victims.

Apart from these strictures, Professor Hilton's book is remarkably up to date, but he apparently still thinks that the old English *ceorl* was a freeman, and that "feudalism" and "manorialism" came in with the Norman Conquest. It is time such "-isms" were banished altogether. Modern experience of Dark Ages societies is of a gradual release from slavery

through serfdom and varying degrees of freedom and unfreedom to something like our own condition. Some of the peasant revolts come at stops in the way but power is in neither the hands nor the heads of either lords or peasants but in the fertility of the fields and the procreative power of the people. What the swinked hedger did in bed at night was far more important than the counsel of kings or the demands of lords, and politics merely the art of the possible.

H. E. HALLAM

JAN DE VRIES, *The Dutch Rural Economy in the Golden Age 1500-1700*. Yale Uni. Press, 1974. xx + 316 pp., illus. £6.75.

A version of this study was originally submitted as a doctoral dissertation at Yale. The first observation of a reviewer must therefore be that this is no ordinary academic exercise: least of all does it resemble those North American excursions into European history which proliferated in the golden age of research affluence in the '50's and '60's and were based on all too brief encounters with European archives. Dr de Vries's study impresses at once by its mastery of European sources: Dutch and Netherlandish sources especially. I am sure that the author would be the first to agree that it could not have seen the light of day without the groundwork already done by Professor Slicher van Bath and his school of rural history at Wageningen, which helped to achieve the quiet revolution in social-agricultural-demographic history of the last two decades. Equally, it might have been a less significant contribution to economic history at large without the argumentative life which has obviously been injected into it in part by the Yale economic historians with their bent for economically orientated economic history and model-building. It is thus an unusually successful product of combined European and American team-work.

Its major theme may be stated thus. Until late in the sixteenth century the Netherlands shared with the rest of Europe those chronic crises of food shortages, famines, and general poverty endemic in all peasant societies dependent on unspecialized agricultural production. In such a situation the effects of popu-

lation growth could never be anything but negative. This "peasant model" is convincingly elaborated by Dr de Vries and contrasted with what he calls his "specialization model." Here producers concentrate on specialized crops using more efficient labour which in turn gives rise to the sale of surplus produce to the towns and cities and the purchase of their manufacture. Population that is surplus to rural needs emigrates to the towns or is absorbed in ancillary but vital activities such as dyke or canal construction, transport, ironmongery, smithery work, etc. Hence economic growth, investment, urban growth, burgeoning trade and industry which are able to thwart the hitherto dominant Malthusian forces constricting, interrupting, or reversing steady growth. At the centre of the process lies the peasant household. Would the communal restraints of ancient field systems on agriculture change the legal and customary restrictions of marriage, inheritance, and lordship, the habits governing the labour of women and children, the complexities of land tenure, and the nature of terrain—would all these compel the peasant household to reject specialization? Or would circumstances combine to allow of its acceptance?

With these alternatives clearly set out, Dr de Vries turns to his home ground and the social geography of the Netherlands—the north especially. In Holland (the province) particularly he finds a "new country" reclaimed, untrammelled by feudalism, or by an all-powerful noble class or by any rigid system of co-operative peasant farming. The difference between the north and south Netherlands in all respects was very great; between Holland and most of the rest of Europe it was enormous. Even before 1500 peasant ownership in the northern Netherlands was widespread. Population density was not yet exceptional but urbanization (in the south especially) was unusually high.

Between 1500 and 1750 the north underwent extraordinary development in all respects—urban concentration, inter-urban transport, foreign trade, local industry. High rural birth-rates were a basic necessity to general economic and urban growth, for cities grew large by immigration (domestic rather than

long distance): and likewise cities killed off their inhabitants. The fluctuations in the economic fortunes of the United Provinces after 1650 are explicable to a great extent in terms of this high urban mortality.

Methodically Dr de Vries elaborates his critique of the conventional view of economic development which he finds proposed by a historian like Pirenne. In this view, it was *urban* economic life which spread "an infection [to the countryside] which roused the peasant from his age-long torpor" (p. 3). The essence of Dr de Vries's historiographical emendation is that the impulses to change do *not* emanate exclusively from the cities: they emanate also from the fundamental transformation of *rural* society and its activities—in fact, from the rural adoption of the so-called "specialization model." In Holland this new rural economy becomes the basis for a new *total* economy, preceding—and surviving (as the author's namesake Dr Johan de Vries demonstrated some years ago in his own account of the economic "decline" of the Netherlands in the eighteenth century¹)—the process of total expansion that reached its ceiling about the middle of the seventeenth century.

Turning to the detail of this change in rural economy and society, Dr de Vries describes the emergence of a prosperous, independent farmer class, farming larger, more specialized farms, keeping larger and better herds of stock, producing a wide variety of crops and products—milk, cheese, hay, clover, wheat, barley, oats, oil seeds, tobacco, hemp, madder, hops, flax, rape, etc. With better drainage and generous application of manure, animal and human (there are interesting details of the carriage of night soil by boat from towns to the countryside which remind one of Hertfordshire's comparable benefit by the Lea Navigation and the New River), crop yields underwent spectacular improvement. Horticulture, cabbages, roots, orchards, and bulbs were all incorporated into the rich tapestry of rural production. Transport and investment produced a land of high wages, high employment, high population—itself placed in an international setting; an exchange economy

based on a unique utilization of water transport, oceanic and domestic.

Inevitably, this is a study which evokes comparisons. English readers will find the comparisons of Frisian and East Anglian peasant inventories specially intriguing. Of even greater importance is the implicit contrast (p. 235) between the specialization of Dutch rural society and its supply of emigrants to the towns (which may have brought economic development to a halt in the eighteenth century), and the development of rural domestic industry elsewhere, which could lead (as in England) to thorough-going industrialization. In spite of occasional exaggerations (largely in a laudable pursuit of clarity), Dr de Vries substantially succeeds in justifying his model and his argument. The role of the new agriculture in Dutch economic growth is sharply and succinctly delineated. The author usually knows how far to go in his capacity as theoretical economist to make theory support history without smothering or distorting it. This is, without question, a contribution to economic history in general (not merely Netherlands history) of outstanding importance which every historian concerned with the understanding of economic change will have to reckon with. Its merits are great, its weaknesses relatively minor. Dr de Vries does not always manage to avoid the kind of jargon to which social economists in North America seem occupationally prone. There is a scattering of verbal infelicities which it would be difficult to find in any dictionary. His occasional preoccupation with the implications of his study for general development economics seems to me to distract from rather than enhance its quality as history. Finally, in his desire to emphasize the role of the rural economy, he tends to underplay the role of, e.g., seaborne transport in the rise of the Dutch economy, or rather, to be fair, let us say that the space he gives to transport might tempt a less than strictly attentive reader to underestimate its role. These, however, are small blemishes. They do not affect the high quality or central importance of a study in which every economic historian will find something of interest. This is an original, thought-provoking,

¹ Johan de Vries, *De Economische Achteruitgang der Republiek in de Achttiende Eeuw* (Leiden, 1968).

but mature contribution to agrarian and economic history.

CHARLES WILSON

JOYCE BANKES and ERIC KERRIDGE (eds.) *The Early Records of the Bankes Family at Winstanley*, Manchester Univ. Press for the Chetham Society, 1973. viii + 113 pp., 4 plates, 1 map. £4.80.

In 1596 James Bankes, a London goldsmith-banker of probable Lancashire extraction, purchased the Winstanley estates some three and a half miles south-west of Wigan, where his descendants still reside. He kept a memoranda book in which he set down much (and often contradictory) fatherly advice to his children on the practicalities of farming, together with a record of his purchases and some notes on his tenants and their forms of tenure. The book is valuable as evidence of the commonplaces of farming practice in the Lancashire Plain, and for comparison with the near-contemporary accounts of Robert Loder of Harwell and Henry Best of Elmswell. The present volume also prints Bankes's probate inventory of August 1617, and his grandson's accounts and rentals for the period 1667-78.

In his introduction, Dr Kerridge sees Bankes as an empiricist, working without professional advice, who made mistakes in his early years but who eventually learned to conform to the long-established practices of his neighbours and peers. Thus, he began by growing corn, "for therein is the most profit of husbandry", but he ended by advising his son to "Make no more tillage to get corn than to serve your house." (Nevertheless, the value of the "corn growing upon land" appraised in his inventory was £90 13s. 4d, almost the same as the value of his cattle.) The chief crops of this region were oats and barley, with some wheat, peas, and beans. Horse teams, or mixed ones of oxen led by horses, were employed, and the main improvement available to the local farmers was marling. Sheep were kept in small numbers only, and it was normal policy to invest in the rearing of cattle in permanent pastures and in convertible closes. In all this Bankes eventually followed the customs of his neighbours. Dr Kerridge's observations are helpful and convincing, ex-

cept that his statement (p. 6) that Bankes bought young stores from the North Country is not supported by the references he quotes.

Bankes was an industrial as well as an agricultural landlord, and colliers, nailers, and cutlers were amongst his tenants, but he was not directly involved in industry. He was much concerned with the organization of his estates, but unfortunately his "book of account" is lost. He followed the common policy of offering long leases at low rents and competitive entry fines, and his observations upon these matters make interesting reading. It is a pity that Dr Kerridge's introduction is marred by polemical attacks upon those who do not share his belief that the pursuit of free enterprise and self interest inevitably led to the benefit of all.

DAVID HEY

J. PATTEN, *Rural-urban migration in pre-industrial England*. University of Oxford, 1973. School of Geography Research Paper No. 6, 61 pp. No price stated.

The study of rural society has long been a well-established branch of historical inquiry in this country, and in recent years vigorous attempts have been made to promote its urban counterpart. It would be regrettable if this were to lead to a dichotomy of interests and points of view, since the history of the crucial relationships between town and country for the most part remains to be written.

One avenue of approach is through the study of rural-urban migration, necessary not only to permit growth but also to sustain the very existence of the pre-industrial town. But, Dr Patten observes, "detailed reconstruction of these movements has barely begun, and no explanatory framework has yet been constructed." His study offers a critical review of the main sources of evidence which may be deployed (including records of freemen, apprentices, marriage certificates, settlement papers, wills, and deposition books), and stresses the need to consolidate them. He also attempts to draw conclusions from the limited range of studies so far carried out, with reference to London and a number of English provincial towns. There are over a hundred references to case-studies, sources, and theo-

retical works. Whilst it does not pretend to be more than a provisional sketch, new researchers will be delighted to avail themselves of such a useful guide to what has been, and what might be done, in this field.

W. A. ARMSTRONG

E. H. HUNT, *Regional Wage Variations in Britain, 1850-1914*. Clarendon Press: Oxford U.P., 1973, xii + 388 pages. 3 maps, 15 figs. £8.25.

This book, a revised version of the author's doctoral dissertation, is concerned with analysing the influences bearing on regional variations in wages in the second half of the nineteenth century and early years of this century. For this purpose, Dr Hunt makes great use of material on agricultural wages; he notes that variations in agricultural wages form a good guide to those in other occupations the wages of farm labourers forming a kind of floor or reference point for the wages of other workers.

It is impossible in a brief review to do justice to a complex, highly-detailed, and wide-ranging discussion, but some of the author's main conclusions may be summarily stated. The importance he attaches to low levels of productivity as a factor in the low-wage areas has already been made known through his 1967 article in the *Economic History Review*. The existence of these areas, he argues, cannot be explained by differences in the cost of living, or by greater dependence on family earnings; indeed, the highest proportion of female labour employed in agriculture was to be found in areas where male labourers were relatively well paid, as in Northumberland. The marked tendency for the pattern of wage differentials to persist in this period prevailed despite migration from the low-wage areas. There was considerable mobility (thought probably not very much influenced by railways), but it was sufficient only to prevent unfavourable market forces from making the existing differentials even wider. The influx of Irish and other immigrants also operated as a minor factor in the direction of sustaining wage differentials: this it did through the concentration of immigrants in London, and in the case of the Irish, the north-west, so reducing the attrac-

tiveness of the cities concerned to the English labourers.

These few generalizations provide only the barest of summaries. If not a book for the general reader—and certainly its price is not its most attractive feature—a close study of the author's evidence and arguments will repay the specialist enquirer.

G. E. MINGAY

ARTHUR SELDON (ed.), *The Long Debate on Poverty*. Institute of Economic Affairs, 1973. xvi + 244 pp. Paper £2.50.

The Institute of Economic Affairs is an independent trust specializing in the study of markets and pricing systems, and is financed by the sale of its publications and by voluntary contributions from individuals, organizations, and companies. It has assembled here eight essays on industrialization and "the condition of England", written by a team of historians whose soundness, it must have seemed, could be relied upon.

Dr Hartwell discusses the Industrial Revolution as the first example of modern economic growth and argues that if it served to make poverty more explicit, in the long run both poverty and inequality were reduced. Drs Henderson and Chaloner restate their views on Engels, whose famous essay is interpreted as a political tract rather than a scholarly monograph. Dr Boyson, ruminating on the life of the Lancashire factory worker, supposes that he "probably preferred his big coal fires and hot water with air pollution to the scenic views with few coal fires, few hot meals and rare hot water under the domestic system." Dr McCord presents some new, if unsurprising evidence on the scope of Newcastle charities, which were not "inspired by machiavellian plans to disarm disaffection"; and Mr Hansen recounts some of the history of the Friendly Society movement, commends the healthy instinct behind it, and concludes that with the development of wage-related contributions and social benefits in the last decade, politicians appear to have joined in a conspiracy against the public, to see how quickly they can dispose of every sound principle of state welfare policy. Mr Jefferson, an economist, has been rereading the social novels of

the 1840's; though his analysis lacks subtlety, it would be difficult to dissent from his main conclusion, that such novels often misleadingly misrepresented normal social conditions and their use should be more carefully qualified than has often been the case, especially by ill-instructed literary critics.

Two papers set a much higher standard: Professor Mingay offers a summary of the transformation of agriculture over 250 years, which is a masterpiece of lucidity and compression. Professor Coats presents an able and learned essay on the Classical economists, industrialization, and poverty, which makes it plain that they were "neither spokesmen for dogmatic *laissez-faire* nor uncritical apologists for the status quo, but moderate, humane and liberal reformers," and warns against uninformed generalizations about their pernicious influence, such as textbooks often contain. Both authors judiciously refrain from contentious asides, and from drawing facile policy conclusions such as litter the rest of the book.

On the whole, this book will disappoint even those who, like this reviewer, would welcome a challenge to the pessimistic orthodoxies of a large proportion of the present generation of students, fostered as they are by the idiosyncracies of some recent influential left-wing contributions to the debate. For, taken in the round, this version of English social history is no more objective than that which it seeks to supplant. Given that the contributors include a number of historians of high academic calibre, we may attribute some of its major structural weaknesses to an apparent total lack of coherent planning, or editorship. Of course, in the light of its sponsorship, this could be a matter of policy and principle. At all events, the outcome is a very ragged book. Some essayists are concerned with the long-term effects of industrialization, and some the short. Though the book is misleadingly described in the preface as "about poverty rather than about history," only Hartwell attempts to define poverty, (pp. 12-13). There is no concluding chapter to draw together the implications of the varicous essays, and in the woefully inadequate preface contributed by Mr Seldon, it is merely asserted that the volume forms a corrective to the im-

balance which he supposes to be "still widespread in historical teaching that modern poverty has its roots in the advent of industrialization."

W. A. ARMSTRONG

ROBERT W. MALCOLMSON, *Popular Recreations in English Society 1700-1850*. C.U.P. 1973, xii + 188 pp. 10 plates. £3.80.

This revised version of a doctoral thesis, completed under the supervision of Mr E. P. Thompson, makes a pleasant and useful study. The author has collected a great deal of interesting material from contemporary sources, some of it well known, much quite fresh and new. Although his book is not especially concerned with the countryside, it brings out very well the wide range of sports and amusements which once enlivened the rural scene: it is good to find that the existence of "Merrie England" was by no means a romantic myth.

Already by the eighteenth century, however, many of the old diversions were in decline. The change was hastened in the early decades of the following century, when to the new moral fervour was added the discipline of urban industrialism. The enclosure of commons and waste lands, and the outward sprawl of the towns, reduced the areas freely available for sports and amusements. At the same time there developed humanitarian attacks on certain bloodsports, such as bull-baiting, resulting in the Cruelty to Animals Act of 1835. The legislation, however, had a class bias, condemning the blood sports favoured mainly by the labouring classes, while leaving untouched the fox- and stag-hunting of the wealthy. Further, many of the old annual holidays and festivals were frowned upon and died out. Even the hiring fair came under attack, though it continued in some areas throughout the century. In 1805 the *Gentleman's Magazine* reported that at the hiring fair in Axbridge, Somerset, "many of the fair filles-de-chambres, dairy-maids, and even fat cooks and greasy scullion wenches, are so civilly greeted by their amorous swains, that the fair is productive of much business for the country justices and their clerks, parish-officers and midwives, for many miles around."

Traditional recreations declined, the author

concludes, through the passing of the predominantly agrarian society, "strongly parochial in its orientations, marked by a deep sense of corporate identity; it could not be comfortably absorbed into a society which was urban-centred, governed by contractual relations, biased towards individualism, increasingly moulding its culture to the requirements of industrial production. In the new world of congested cities, factory discipline, and free enterprise, recreational life had to be reconstructed. . . The low point of this particular process of social depression was roughly coincident with the second quarter of the nineteenth century: much of the traditional culture had disintegrated, and the new possibilities were only beginning to emerge."

This view, of course, is not a new one, though it is here refurbished with an impressive body of local illustrations. The author perhaps neglects the transition of rural pastimes to an urban setting in the early stages of industrialization, and is inclined to assume too great a degree of dreary uniformity in nineteenth-century urban conditions. Patterns of town growth were varied, and the attractiveness of the towns to rural workers had many facets. But this opens up a large subject and goes much beyond the restricted boundaries of this valuable study.

G. E. MINGAY

T. LINDSEY BAKER, STEVEN R. RAE, JOSEPH E. MINOR & SEYMOUR V. CONNOR, *Water for the Southwest: Historical Survey and Guide to Historic Sites*. New York City, N.Y., American Society of Civil Engineers, 1973. xiv + 205 pp. 49 illus. \$5.00.

The major part of this volume is taken up by a list of sixty locations of historical and technological significance for water supply systems in the American south-west. The list gives details of the historical development of the site, the surviving remains now to be seen, and references to published sources. It is amply supported by photographs, drawings, and an extensive bibliography. A brief introduction recounts the efforts made to secure water supplies by the prehistoric Indians, the Spanish, and modern American settlers since the early nineteenth century.

G. E. MINGAY

DENNIS R. MILLS (ed.), *English Rural Communities: the Impact of a Specialised Economy*. Macmillan, 1973, 259 pp., illus. £4.50 hardback; £2.50 paperback.

Dr Mills has brought together in this volume a collection of eleven essays designed to help students concerned with the impact of a specialized local economy upon the geography of rural communities. The essays, all of which have been published previously in various geographical journals, range over the centuries though with a strong emphasis on the last 150 years. They are accompanied by an introduction from the editor, and there are numerous maps, diagrams, and tables, though some of these are reproduced on so diminutive a scale as to require a strong pair of eyes. Those contributions which will probably appeal most to the readers of this journal include that by H. Thorpe on the influence of demesne farming on the parish of Wormleighton, Warwickshire, D. R. Mills's two papers on rural settlement around Lincoln, and the geographical effects of the settlement law in Nottinghamshire, M. B. Gleave's discussion of dispersed and nucleated settlement as influenced by enclosure in the Yorkshire wolds, R. Lawton's paper on nineteenth-century rural depopulation, and June Sheppard's report of three sample studies of rural population change since 1851.

G. E. MINGAY

GERHARD AHRENS, *Caspar Voght und sein Mustergut Flottbek. Englische Landwirtschaft in Deutschland am Ende des 18. Jahrhunderts*. Hans Christians Verlag, Hamburg, 1969. 172 pp. DM 7.50.

This is an absorbing account of one of Germany's outstanding agricultural improvers who introduced English methods of husbandry in the late eighteenth and early nineteenth centuries, and had even stronger links with England than his more renowned contemporary, Albrecht Daniel Thaer. Despite the fact that Dr Ahrens has had to piece together his account of Caspar Voght's life from scattered fragments surviving from a much larger collection of manuscripts, he has nevertheless been able to paint a remarkable portrait, which he sets against the wider back-

ground of the movement for agricultural improvement in north Germany. This owed everything to the inspiration of foreign, and particularly English and Scottish agriculturists, and yields revealing glimpses of the circle of agricultural improvers as well as of the export trade in English seeds and implements.

Caspar Voght was the son of a prosperous Hamburg merchant dealing in silk and linen goods. Voght entered his father's business at the age of thirteen, and was sent on a European tour when he was twenty. At that time he was interested in the world of literature and the theatre; his most exciting experience in London in 1772 was seeing David Garrick on the stage. But when he returned in 1786 it was with different objectives. He had recently bought three farms at Flottbek, outside Hamburg, and had a radical programme of estate improvement in mind. He visited the estate of the poet, William Shenstone, in Halesowen, Worcestershire, where Shenstone had created a beautiful garden and park, combined with a farm run on efficient business lines. Voght was deeply impressed by this, and returned to Flottbek taking English agricultural implements and ideas with him. In 1793 he returned once more to England, this time staying for two years. He lived in London for part of the time where he attended lectures on scientific subjects; he visited many enlightened landowners and farmers in various parts of England, to whom he was introduced by Sir John Sinclair; he travelled through Ireland, following almost exactly the course of the journey described by Arthur Young in his *Tour in Ireland*, this book having been published in German translation in the same year in which it appeared in English, i.e. 1780. Finally, he attended courses of lectures at Edinburgh University, striking up a warm and admiring friendship with Andrew Coventry, first professor of agriculture there. On his return to Germany, he maintained an active correspondence with a wide circle of people in England and Scotland, was a member of the Linnaean Society from 1793 onwards, the Royal Society of Edinburgh from 1794, and the Medico-Botanical Society of London from 1830. At his death he left a library of 6,000 volumes, of which 570 were concerned with

agriculture, and half of these were in English or French.

The influence of English agricultural ideas on Voght's management of the estate was far-reaching, and, indeed, the convenient label "English," in fact, embraces a very substantial Scottish contribution. Voght had formed a high opinion of Scottish forestry skills while in Scotland, and he had met the Booth family in Falkirk, owners of one of the large tree nurseries there. He persuaded the son, James Booth, to go to Flottbek and take care of the tree plantations on his estate. A whole ship's cargo of trees and shrubs followed, and 25 hectares were planted with firs, Scotch pine, and larches. Later on, since there were difficulties in getting trees to survive the journey in good condition, James Booth set up his own nursery, at first under Voght's ownership, and then under his own. Son and grandson continued in the business (the grandson returning to Scotland for a time for further training) and in the end the Booth nursery in Hamburg became the largest of its kind in Europe. The consequence of this successful pioneer enterprise was that many other tree nurseries were set up in the same area, the damp but mild climate proving ideal for the purpose. Today a triangle of land, centred on Halsenbek and Rellingen, boasts about 1,500 such enterprises, occupying 2,500 hectares of land.

The afforested portions of Voght's estate, however, were only part of a much larger farming enterprise. On the agricultural land enormous effort was expended in levelling out rough fields, draining wet land, diverting river courses, and planting hedges. Practically all the carting was done by Scottish two-wheeled carts, the horse harness came from England, six different types of English plough were in use, including a Norfolk and a Surrey plough, and an iron plough invented by the Scotsman, James Small. The drill invented by the Rev. James Cook of Lancashire in 1783 was put to work there; a threshing mill was bought from Scotland, costing £200; and to house it a special house was built in Flottbek. From Scotland came Alexander Rogers to manage the farm, and Christian Wilde to set up a workshop making English-style implements.

The enormous care given in England to the preparation of manure was another lesson carried home to Hamburg. In 1798 Voght contracted with the municipal authorities to clear the streets of Altona in order to get the manure for his land, and after 1800 he took over partial responsibility for street cleaning in Hamburg, carrying the rubbish to Flottbek by barge. He introduced English rotations on his fields, and as fertility improved, he was able to intensify cropping. Starting in 1800 with two years of grain in every six, he was able by 1815 to grow grain in alternate years, planting clover, rape, or potatoes in between. Then when wheat profits slumped, he turned more seriously to potato production, determined to break the near-monopoly which Dutch potatoes had in the Hamburg vegetable markets. He imported seed potatoes from Holland and England, launched a price war by undercutting the Dutch, and in the end successfully captured the Hamburg market. Clover was another serious business for Voght, and a bunch of clover appeared in his coat of arms.

Little is known in detail of Voght's profits from his farm. Although he left an enormous quantity of manuscripts at his death, he had no heirs, and they became dispersed among friends; the estate accounts which did survive intact were destroyed in the Second World War. Dr Ahrens is unable, therefore, to give much precise information on this score, but it is clear that in the early days of the Flottbek venture much money was poured into it from Voght's Hamburg business, which, after his father's death, concerned itself with the corn trade. The latter collapsed in the French wars, seemingly around 1799, and thereafter the estate had to stand on its own feet. All that is known of its subsequent development suggests that it was a profitable enterprise. The population of Flottbek increased to supply the labour on the estate, and Voght built three new rows of cottages to accommodate his workers. He generously provided for the old age of his workers and their widows, his benevolence in this respect reflecting a long-standing concern for poor relief which had occupied as much of his energies as his farm. He had devised a system of poor relief for Hamburg

in collaboration with the economic writer, Johann Büsch, and after it had been successfully introduced into his native city it was copied in other towns of Europe. Voght had many invitations to write and lecture about it, and it received considerable publicity in England.

One final aspect of Voght's wide interests was agricultural education. He showed a sympathetic understanding of peasants' reluctance to adopt innovations. He had the resources to withstand the failure of a novel crop, whereas his neighbours were finally and irrevocably deterred by a single mishap. So he pursued a quiet but persistent policy of lending implements like the potato plough, hoping that his example would eventually convert them. But he saw in the education of their sons his best hopes for the future improvement of peasant husbandry, and finally set up a small school at Flottbek. It catered for only a few youths, who were sons of well-to-do landowners, and who could afford to pay the fees; it did not last very long, but in its short life, Heinrich von Thünen was its illustrious pupil.

Perhaps the most instructive lesson of this book for the English reader lies in its picture of English agriculture, seen through the eyes of a perceptive, well informed, even brilliant foreign agriculturist. Voght came to England and singled out men, some of whose names and work have been undeservedly forgotten since; he reminds us that Scottish forestry had a reputation as high as English agriculture in the late eighteenth century; and his extensive purchases of English and Scottish equipment raise the question, what material remains industrial archaeologists might find in Low Germany, if they set themselves to search for it.

JOAN THIRSK

ROBERT STEWART, *The Politics of Protection: Lord Derby and the Protectionist Party, 1841-1852*. C.U.P., Cambridge, 1971. viii + 240 pp. £3.80.

Dr Stewart's book is a straightforward account of the formation and decline of the anti-Peelite group during the great Corn Law crisis and its aftermath. British historians have tended to concentrate on the victors in this struggle and to write about the economic basis of their victory, to the neglect of the

political side. To this extent Dr Stewart's book, based as it is on a wide range of printed and manuscript sources, is useful. Unfortunately the book contains a number of features which cast doubt upon Dr Stewart's sureness of touch in matters of economic history. There is a discussion (pp. 116-17) of the British balance of payments from 1815 to the mid-1840's, which depends on figures from an article in the *Quarterly Review* of September 1847, and ignores Professor A. H. Imlah's reworked figures. Contemporary estimates are important as indicating what the informed public believed to be the position at the time, but they were far from the truth in this case (see A. H. Imlah, *Economic Elements in the Pax Britannica*, 1958, pp. 70-1). Readers are informed in a breath-taking generalization that "there was a deep-seated repugnance to improvement amongst large landowners" (p. 39). Dr Susan Fairlie appears as Mr Fairlie (p. 37), and her conclusion that the Corn Laws were generally effective in maintaining a considerable difference between the price of wheat per quarter in the north German ports and in British ports is ignored (*Economic History Review*, 2nd ser., XXII, 1969, p. 106). A tod of wool is referred to twice on page 142 as a 'rod'.

W. H. CHALONER

GERAINT JENKINS, *The Craft Industries*. Longman, 1972. xxi + 128 pp., illus. Plates. £3.50.

This tenth volume in Longman's *Industrial Archaeology Series* departs from the usual theme of explaining the significance of the monuments of industrial history to examine methods and processes of the craft industries. Mr Jenkins has chosen to study eighteen crafts, ten of which he has already described in his earlier book, *Traditional Country Craftsmen*, 1965. The new crafts he discusses in this new book are: paper, glass, boats, cutlery, edge tools, needles, nails, and chains. For the rest he has been able to incorporate new material that has become available since 1965, particularly in his chapter on pottery, and at the same time to revise the structure of his earlier material. With the exceptions of chapters 1 (baskets), 6 (glass), and 9 (clogs and boots), the text is supported by references to the sources,

and there is a select bibliography for further reading together with a note on the location of some existing craft workshops.

The Craft Industries is in no way a work of analysis despite the generalized assertions made in the book's introduction. The author concedes that not all the "craft industries" are included. He gives no basis for the term, nor does he say what other crafts are "craft industries." He comments that many industries of national importance had their beginnings in small local workshops; but among the crafts in the book there are some, for example, straw-plaiting, that had great local importance but never gained national importance before their decline. There is no attempt on his part to investigate the stage at which, he says, craftsmen's horizons were widened to produce goods for export beyond their locality. All that he says is that there was some stage at which this happened. Thus the work has to be examined as one purely of craft description, constructed to some extent from the author's own field studies, and from a selection of contemporary and historical sources. While he has avoided the subjective treatment common to a large proportion of the craft literature, there are occasions when an inaccurate impression is conveyed. For example, in the description of rush-mat-making in Anglesey the comments are those made by Anna Jones in 1927. Jenkins repeats her note about the acquisition of the skill as "either hereditary or acquired in early childhood" as the reason for the industry's not extending beyond the village, but he omits her qualification that "this is not the universal belief." As in *Traditional Country Craftsmen*, Jenkins credits the sixteenth-century plaiters from Lorraine with the introduction of straw plait to Britain, thus following the view held by T. G. Austin (1871) and H. Inwards (1921), although J. G. Dony, whose authority on this subject is considerable, and whose work is included in the select bibliography, thought it was a tradition lacking in confirmation and one for which he found no evidence.

In the study of clog-making, where there is the highest proportion of original material, Jenkins has quite correctly identified the structure of the manufacturing side of the trade, although a correction is required to the list of

clog factories as the businesses in Rossendale and St Helens are only "single-man" ones, and the third of the three main factories is to be found in Cudworth (near Barnsley).

Of those crafts not previously covered in *Traditional Country Craftsmen*, paper, glass, and boat-building are treated quite briefly while more space is given to the five metal-working crafts that conclude the book.

The book is illustrated by photographs and line drawings of most of the crafts. The industrial archaeologist especially will be interested in those that accompany the last three chapters. The Welsh clog-maker, who also appears in *Traditional County Craftsmen*, is reported to have lost his sight and to have given up the craft but his workshop will, it is hoped, be reconstructed at the Welsh Folk Museum.

It could be said that this book is not for critical scrutiny but for the "interested layman," and indeed the errors in the references, and the few spelling mistakes, will not detract from an appreciation of the tools and processes of crafts that have become unfamiliar to the present generation. The student of industrial archaeology or of the crafts will find in the references a select bibliography a useful list of twentieth-century works. All the same, the book would have been much more worthwhile had the author revised his previous material to encompass developments over the intervening years in both the crafts and their study. *The Craft Industries* is a work of restatement rather than research. A historical and analytical study of the crafts and their relationship to industrial development has yet to be written.

ALAN PITTWOOD

R. O. ROBERTS, *Farming in Caernarvonshire around 1800*. Caernarvon, Caernarvonshire

Record Office, 1973. 91 pp., 12 plates. £1. Mr Roberts' book is a welcome addition to the growing volume of publications concerned with the agrarian history of Wales in the early nineteenth century. The major part of the book is taken up by a reproduction of a manuscript survey of the Vaynol estate in Caernarvonshire compiled by an estate agent or surveyor at the turn of the eighteenth century. Although Mr Roberts does not indi-

cate the overall acreage of the estate, it embraced at least sixteen parishes throughout northern Caernarvonshire and the Llŷn peninsula by the late eighteenth century when it was under the ownership of the Thomas Assheton Smiths, father and son. As pointed out in the introduction, the extent of the Vaynol estate, encompassing both lowland and mountain environments, is such as to render the survey complementary to Edmund Hyde Hall's admirable *A Description of Caernarvonshire, 1809-11* (ed. E. Gwynne Jones, Caernarvon, 1952). The survey itself, which sets out the names of occupiers and lessees of individual holdings, also provides information on farm size and acreage under cultivation. However, by far the most valuable contribution of the survey to the pool of our present knowledge of the agriculture of the early nineteenth century lies in the light which it casts upon the general condition of farming on a large estate in North Wales at that time. Husbandry standards, the state of rural housing, and the range and method of construction of farm buildings all came under the scrutiny of the surveyor, while details of building materials and miscellaneous items of farm equipment were also included in his report.

In common with all surveys and "General Views" undertaken by individuals, the validity of the opinions of the Vaynol surveyor regarding the standards of farming practised on the estate were conditioned to a considerable extent by the breadth of his experience, and by his knowledge and appreciation of the physical constraints upon farming in the area under investigation. In this respect, an absolute statement like "The land (is) badly managed" may only be accepted as fully authoritative if the commentator was sufficiently conversant with local conditions to be in a position to assess what comprised good and bad management within that farming environment. It is unfortunate, therefore, that Mr Roberts offers no clue as to whether the compiler of the survey was a locally bred resident steward of the Vaynol estate or a professional agent from outside the local area. Whoever he may have been, the surveyor managed to resist the temptation, common among his contemporaries, of indulging in flights of vague subjectivity. In-

stead he based his assessment of husbandry standards upon sound criteria such as, *inter alia*, the extent of drainage and manuring, and the degree to which farmers followed a succession of arable cropping with sown clovers and grasses.

In many ways, this survey of the Vaynol estate mirrors some of the problems which are now generally believed to have inhibited good husbandry practice throughout much of nineteenth-century Wales. Thus the viability of different farms suffered as a result of the constant sub-division of holdings between family members upon the death of the lessee, while the survey suggests that fear of increased rents tended to act as a disincentive towards tenants' capital investment in land improvement. Although Mr Roberts briefly mentions these and other matters in his introduction, one feels that the value of this excellent little book would have been enhanced by a more wide-ranging discussion of farming on the Vaynol Estate in relation to farming in other parts of the principality. Nevertheless, local historians throughout North Wales will no doubt be delighted at the opportunity of purchasing a book of this quality, containing, incidentally, no less than twelve black-and-white plates, for only £1. Indeed, the publication of more material of this sort would be of immense benefit to the study of the agrarian and social history of Wales.

RICHARD J. COLYER

MANFRED BUMB, *Landwirtschaftliche Verbesserungen im Schottischen Grafschaften, 1700-1850*. Reihe der Forschungen Vr. 6, Schauble Verlag, D.506 Bensberg, Germany, 1973. viii + 245 pp. Price not stated.

The study of agricultural progress is basic to the history of particular localities, the people who lived in them, and how they procured their living. There is of course really no need to say this to readers of the AGRICULTURAL HISTORY REVIEW, but it is preliminary to some remarks upon this study of a comparatively restricted part of Scotland wherein improvements in farming technique and animal husbandry took place during the eighteenth and early nineteenth centuries. Such studies are local history *in excelsis*, and very far from the castigation levelled at them in the *Saturday Review* of 11 May 1889, which was that "the

dullest of all dull books is a conscientiously compiled parish history." Dr Bumb's book is not open to any such criticism. Conscientiously compiled, as would be expected of a German scholar, it is far from being dull, dealing as it does with an area of Scotland where striking advances were made in the 150 years under consideration.

One thing about this work is a trifle surprising. A "foreign" air might have been expected, and the book is written in German, but the appreciation of local conditions, the circumstances that made for change, and the people who stimulated and encouraged these modifications, is international rather than anything else.

The work of the Scottish improvers is not so well known as that of the English noblemen and gentry who figure in every school textbook, but in their own country they exercised great influence. The farming of Aberdeen and the Mearns was extremely primitive before their influence was brought to bear. The plough was an immense structure hauled by anything up to ten or twelve oxen, and sometimes preceded by a ristle to open the surface sufficiently to allow the massive plough to split if not to turn a furrow. These things have been made abundantly clear by Scottish authors whom Dr Bumb has not failed to consult, as indeed he has consulted all the rather large variety of contemporary and recent sources.

After a careful description of Scottish farming before improvement, Dr Bumb passes on to an intensive study of conditions in Aberdeen and Kincardine, describing the implements and their use, animal husbandry, and the economic conditions in which the work was done. The names of the "improvers" who were propagandists of novelty are pretty well known. I myself wrote a sketch of the work of Sir Archibald Grant of Monymusk so long ago as 1931; but that was trivial compared with the examination of his influence and example described by both native historians and now again, in perhaps more detail, by Dr Bumb, who adds to Grant several other outstanding examples, including that stupendous athlete, John Barclay of Ury. The last chapter of the book carries the story to 1850.

This book seems to me to be an addition to knowledge despite the existence of native studies on much the same lines, and it has the advantage of bringing an unprejudiced and unpatriotic mind to the subject so that it is presented without prejudice. It is certainly one more book that must be read by students of the history of the progress of farming in the northern part of Great Britain.

G. E. FUSSELL

ALAN ROGERS (ed.), *Bulletin of Local History, East Midlands Region*, VIII. Department of Adult Education, University of Nottingham, 1973. 151 pp. 65p.

This very commendable *Bulletin*, containing three major articles, notes on local history, a comment on the development of local history in the West Midlands in recent times, notes on sources, publications on the local history of the East Midlands for 1972, articles on East Midlands history, reviews of books and publications, short notices, and details of local history courses, more than confirms the health and vigour of local history in Derbyshire, Leicestershire, Rutland, Lincolnshire, and Nottinghamshire.

The Derbyshire Record Office, the subject of the first article, was set up in 1962, but still lacks a published guide. Its archivist, Miss J. Sinar, serves therefore a useful purpose in making known its contents to a wider public, particularly with respect to its rich holdings of industrial records, including those on coal and lead mining. Over the last two decades probate or household inventories have attracted interest from a growing number of local historians. John Bestall, who until his untimely death in March 1973 was Deputy-Director of the Department of Extra-Mural Studies at the University of Sheffield, has related the progress of a research group in Chesterfield working from 800 probate inventories dated between 1521 and 1700. The third article by Mr D. L. Roberts, given over to 'Recording Vernacular Building in a Wide Field', raises important issues. "Recording vernacular building," he says, "has become a science." This particular study concerns Kesteven where the variation of building types both chronologically and in materials is very wide:

"from brick and stone farmhouses influenced by eighteenth and nineteenth century pattern books to simple mud and stud structures of the sixteenth century" (p. 19). A mass of information collected from a four-year survey has been subjected to computer analysis.

No more than a third of the *Bulletin* is given over to articles; its prime function for two-thirds of its content is to provide a local history reference and information service. The section entitled 'Notes on Local History' refers to recent developments in oral history and then moves on to contributed news from Record Offices and from other organizations, including the Midland Railway Project Group. The 'Notes on Sources' section concentrates on some nineteenth-century statistical sources, including registers of electors, the increasingly valued reports of statistical societies, religious censuses, the reports of inspectors appointed by the Public Health Board, 1848-55, and Bastardy Orders in Quarter Sessions papers.

Dr Rogers acknowledges the assistance which he has received from others, including Mr J. H. Davies who, as Librarian to the Department of Adult Education in the University of Nottingham, has compiled the bibliography entitled 'Publications on the Local History of the East Midlands, 1972.' It distinguishes purely county material from works which have a more regional and wider interest or touch on sources and techniques. Equally useful is the bibliography of 'Articles on East Midlands History' compiled by Mr A. Cameron. Reviews, short notices, and notes on the publishing scene occupy some 40 per cent of the volume, which concludes with a valuable index to volumes I-VIII compiled by Mrs S. Davies.

Dr Rogers is to be congratulated for editing this eighth, and to date the largest, edition of the East Midlands Region *Bulletin of Local History*. There is "no shortage of material for future issues" (p. 1). While for the editor the size of the volume raises problems, and "the effort involved in its preparation is becoming very great indeed," how many regions or counties are there which would not warmly welcome a similarly informative annual publication of their own?

JOHN WHYMAN

S. G. MCRAE and C. P. BURNHAM, *The Rural Landscape of Kent*. Wye College, Wye, Kent, 1973. 214 pp. 15 tables, 6 plates, 31 figs., 21 maps. £1.50.

Wye College assumed responsibility for producing the 1973 handbook which accompanied the annual meeting of the British Association held at the University of Kent at Canterbury in 1973. For each annual meeting of the British Association it has long been customary to prepare a regional handbook, and over the years these regional volumes have grown larger and more elaborate, despite inflation and other problems. The 1973 volume, however, broke with this long and costly tradition, and *The Rural Landscape of Kent* appears as a low-cost handbook written over four months by two main authors and a small team of eight subsidiary contributors, compared with previous handbooks compiled over two years by twenty or more authors. It has 214 pages while the 1972 Leicester volume reached the record total of some 600 pages. It is in every way an excellent production. No academic institution is more qualified to produce the kind of handbook expected for such a scientific meeting held in Kent than Wye College. It will serve for a long time as a useful reference work on the landscape and history of Kent, full of interesting detail and thoughtful arguments.

The authors have combined the function of leading "the wayfarer in Kent to a greater understanding of what he sees" (Introduction) with the theme, stated on page 158, that "the natural features of the landscape and present human activities are closely entwined." There is much in this volume of interest and relevance both to the present and the past. Because local and agricultural history tend naturally to be restricted to studies of particular communities or particular farms, estates or farming regions, both local and agricultural historians will benefit from having at their fingertips recent information on natural features as described in this book, each chapter of which concludes with a bibliography of useful references which also are pinpointed in the text. Separate chapters set out in detail the latest facts and research bearing upon climate, geology, physiography, soils and land use capability. Soils are given as

the pivotal point around which the book revolves (p. 49).

The book has also a considerable historical content in its widest sense ranging from pre-historical times through to the 1970's, and the chapters of greatest general interest to the historian include particularly those on agriculture, extractive industries, transport and settlement pattern, and rural buildings. In the chapter on agriculture and horticulture Kent's claim to the title "Garden of England" is shown to be beyond dispute. The trends, developments, and improvements in twentieth-century Kentish farming are fully documented. The range of crops grown, and the contrast between different parts of the county, are two striking features of agriculture and horticulture in Kent. This has been so for some centuries. Diversity in Kentish farming has deep roots, and Dr McRae rightly points out that

the changes brought about in Kent by the arrival of refugee Flemings in the 16th-17th centuries have not normally been given due recognition. Besides being the main-stay of the Kent woollen industry which flourished until the industrial revolution, they were the first to introduce market gardening and hop growing to Kent, and probably also did much to encourage the growing of fruit in the county (p. 106).

Despite extensive and intensive farming, Kent is still today one of the most wooded counties in England. The county enjoys natural fame for many reasons. Thus "from an Ecological and Natural History point of view Kent is one of the richest counties in the British Isles" (p. 85). It is also one of the richest counties from an ornithological viewpoint, and is perhaps the most important county in the British Isles for moths. Ever-increasing pressures on the environment have been checked in the twentieth century by town and country planning and nature conservation, so that Nature Reserves, National Trust Sites and Forest Walks are listed for sixty-three places in Kent (fig. 10, pp. 96-7).

Kent is an old-settled county and the link between landscape and human activity so closely entwined today "was doubly so in the

past when the power of Man to change his environment was much less" (p. 158). Settlement in Kent passed through several phases up to 1800 since when the population within the ancient boundaries of the county has increased more than tenfold, and the increase continues. Neolithic settlement occurred in and near areas of shallow well-drained chalky soils as in Thanet, near Dover, and along the valleys of the Cray, Darent, and Stour. An interesting comparison with underdeveloped regions is shown by the fact that favoured Bronze Age sites near the coast, or near streams and rivers, find repetition in nineteenth-century Malaya or Amazonia today.

Transport by road, railway, navigable river, and canal, and through ports and airports, is treated historically. Links with the Continent have constituted a common theme with respect to Roman roads, eighteenth-century turnpikes, nineteenth-century railways, and the long-advocated Channel Tunnel. The influence of the Continent shows up in other respects, while in terms of buildings "The Kent coast has always been of great strategic importance, and immense sums have been spent on fortifying it from medieval times onwards" (p. 182). The history of Kentish buildings is closely related to the history of the extractive industries, particularly with respect to building stone, bricks and tiles, and chalk products. It has often been the case that buildings appear as "a natural outgrowth from the ground on which they stand." Kent is rich in timber-framed buildings, and "many a timber-framed house in the Weald must have been built from oaks that grew nearby" (p. 175). Other products extracted from the ground have included sand and gravel, road metal, coal, iron ore, and fuller's earth. The types of building treated historically include churches, castles, military works, domestic and agricultural buildings, oasts, windmills, and watermills. Old oast houses, modernized with new equipment, are still used by many hop-growers, but not so with windmills and watermills. At least 400 windmills have existed in Kent (p. 195), while Kentish watermills at the time of the Domesday Survey in 1086 numbered 352 (p. 197). The latter were employed in corn-milling, and

in cloth, iron, and paper-making. Included also in the chapter on buildings is an interesting section compiled by Mr Burnham on the development of parks and landscaped gardens. The year 1777 was important in Kentish landscaping and gardening. Launcelot ("Capability") Brown was at work at Chilham, while in the same year hot-houses were built at Knole to grow pineapples (pp. 190-1).

The twentieth century has seen many changes, achievements, and problems. Prominence must be given to improving and widening the education and research in agriculture and horticulture carried on at Wye and Hadlow Colleges, and at the East Malling Research Station. Wye College is notable for its farm and horticultural unit, and associated with the College is an Agricultural Museum at Brook, housed in a medieval timber barn and an oast house, which is well worth visiting. Road improvements have been notable in Kent since the 1920's when motor-traffic problems began to centre on week-end traffic to the coast, yet some congested roads will probably remain in 1986. Natural and man-made catastrophes have included the spectacular landslide at the Warren in December 1915, which closed the railway line between Folkestone and Dover for nearly four years (p. 154); the damage caused by a ship to Kingsferry Bridge across the Swale to the Isle of Sheppey, which was closed for ten months in 1922 (p. 155); and the 1953 floods which required restorations works in Kent costing about £10 million (p. 131).

Criticisms of historical fact are literally few. Timber shortage may not have been a major factor in the decline of the Wealden iron industry, which was already very apparent in the 1720's when Daniel Defoe in his *Tour* noted an abundance of timber in the Weald. To suggest that "from the 16th century maritime related settlement in Kent was virtually confined to the Medway Towns" (p. 160) ignores what we know from other studies and contemporary sources, including nineteenth-century Navigation and Shipping Returns, of Kentish coastal and river ports as communities involved in an extensive hoy traffic, fishing, boat-building, and foying, not to mention smuggling. The heavy eighteenth-century hoy traffic in agricultural products and hops to

London as an important food market deserves greater stress. Although Herne Bay and Margate ultimately flourished with the coming of railways (p. 161), this was certainly not an initial feature of the 1840's and 1850's.

Apart from these minor criticisms, and regret that the index does not extend beyond place names, Dr McRae and Mr Burnham have produced a scholarly study of the developing Kentish landscape, which is well-supported by comprehensive chapter bibliographies, tables, maps, diagrams, sections, and plans.

JOHN WHYMAN

T. J. RAYBOULD, *The Economic Emergence of the Black Country: A Study of the Dudley Estate*. Newton Abbot, David and Charles, 1973. 272 pp. £5.25.

Dr Raybould has provided us with a notable monograph on the regional history of the west Midlands. It is of course concerned with a heavily industrialized area, and though the writer has something to say about agricultural practice, his material does not allow him to say a great deal. However, on the management and revenue of landed estates between the eighteenth century and the twentieth there is much information, painstakingly gathered and carefully sifted, and this will be of great interest to all those who have to deal with estate records. For if few properties were so heavily industrialized as the Dudley estate, many historians turning to estate records primarily for agricultural evidence will find a significant admixture of data on mineral or other industrial revenues which has to be taken into consideration.

While coal and iron production in this area goes back as early as the thirteenth century, the great expansion came in the late eighteenth century when John Wilkinson introduced the manufacture of coke-smelted iron. Under the second Viscount Dudley from 1774 a most determined attempt was made to take advantage of the new technological and transport situation, by both the direct working of minerals, principally coal, and by leasing them. It was seen that a tenure situation which included great commons and wastes, and many copyholds, was not the best basis for exploita-

tion, and the Viscount was the prime mover in a whole series of Enclosure Acts which eliminated commons and substituted freeholds for copyholds, but on terms which were highly advantageous to the Viscount as a great landowner and possessor of manorial rights, involving not merely the consolidation but the considerable expansion of the mineral-rich lands in his absolute possession. Opportunity was taken to obtain rights to work minerals with extraordinarily favourable terms concerning compensation for surface damage and wayleaves. Equally, the indispensable transport facilities were encouraged, mainly by building connections to the Staffordshire and Worcestershire and the Birmingham canals, the principal ones being the Stourbridge and the Dudley canals. The effectiveness of these canals in their service to industry prolonged the era of water transport in the area, and may have been one reason for the late arrival of main-line railway connections. On the other hand, the estate railway system was remarkably extensive, and was partly operated for public use.

Perhaps the most interesting element in the story is the way in which the profitability of what was essentially a remarkably well-endowed property fluctuated with the varying interest and energy of owners or trustees, and of the land and mineral agents they employed. Especially was this so in the late 1820's when conservative and supine agents were in power. In fact a period when the estates were held in trust between 1833 and 1845 was generally beneficial, but mainly because of one experienced and enterprising landowner among the trustees, Edward John Littleton, Lord Hather-ton, and the fortunate appointment as auditor of James Loch, the brilliant administrator encountered in important recent studies of the Sutherland and Bridgewater estates. Loch and his assistants transformed the accounts, and, after 1836, Richard Smith the mineral exploitation.

The estate renewed its direct interest in ironworks, notably from the 1850's with the development of Round Oak. In the late nineteenth century this offered a counterbalance to the local tendency to a decline in the quality and the vigour of the industry, paralleling the

decline in the supply of local raw materials. The fall in the demand for wrought-iron led to a short-lived sale of the works to a public company which erected a steelworks on the site in the early 1890's, only to fail at once. The Dudley family then resumed the direction, installed a highly successful management, and retained control until nationalization.

Perhaps the main criticism of the book is of its title—possibly one of those cases where a publisher feels that a very exact one would seem too narrow? Within the covers there is no attempt to suggest that the book goes beyond the estate study of its sub-title, or to claim a complete coverage of the economic history of the Black Country. The internal analysis of the documentary material is good, but there is not a great deal of attempt to relate the findings (other than a couple of perfunctory references to Rostow) to any but the immediately adjacent themes in the economic history of the period. However, a very useful survey has resulted from the examination of estate sources which, though extensive, have been far from complete and have presented problems to the historian. Leases, in particular, have been used to great effect, reinforcing the opinion that this reviewer first formed twenty years ago that few classes of record hold more untouched riches for the economic historian.

J. R. HARRIS

G. E. FUSSELL. *Crop Nutrition: Science and Practice before Liebig*. Coronado Press, Lawrence, Kansas, 1971. 232 pp. \$6.50.

One always picks up a new book by Mr Fussell with a slight twinge of fear for he can be as dangerous to our accepted ideas as carbon¹⁴ and at any moment compel us to do a lot of fatiguing rethinking. This work on crop nutrition—a concise history of the subject—is not, however, particularly damaging in this respect, and takes a very balanced view of the many problems. For example, many people regard Stephen Hales as the eighteenth-century's most-forward-looking pioneer. Important as he is, says Mr Fussell, he must not be credited with too modern an outlook; he did not realize, for instance, that the soil water contained essential mineral nutrients in solution. Of course Hales's *Vegetable Statics* (1727)

really was the statistical approach so badly needed. It was a method which opened the way to the final solution of the story of how plants feed. And what a story it is! Looked at in cold blood anything more ridiculous than the fact that plants get their carbon from the air is difficult to imagine. No writer of science fiction has come near anything so strange. No wonder the agricultural chemist had a hard road to follow. "Do you mean to tell me that vast oak is made out of gas? You must be mad!" would the man's patron or employer exclaim, leading the wretched individual to tremble for the fate of his daily bread.

How science and practice were reconciled is the story this book tells so well, a masterly summary of the two parallel lines of an involved subject. Had it not been solved the modern world would not exist. Needless to say the book is written with the clarity, wit, and scholarship we associate with this author's pen, so that any rethinking we have to do can be done with a minimum of distress.

To chart the science is comparatively easy compared to recounting the practice; scientists of every age are only too anxious to record their ideas at length. To do the same with practice is more difficult, as Mr Fussell points out; and he further indicates that it was fortunate that the majority of farmers could not, or did not, read these early works.

Mr Fussell's book is in nine chapters, and runs from prehistoric man to Ingen-housz and to Humphrey Davy's *Elements of Agricultural Chemistry* (6th edn, 1839), the major and minor landmarks being picked out and discussed on the way. There is an extensive and valuable bibliography with 360 entries.

The cynic may reflect that even erroneous theories can lead to improvement. The humus theory of Albrecht Daniel Thaer—that plants got their carbon from soil humus—led to a great conservation and manufacture of farm-yard manure, and to considerably improved crops. It even has its followers to this day—the late Sir Albert Howard and the present fringe school of organic farmers who, if they cannot really believe Thaer to be right at least wish he were—such are the complexities of the subject.

Crop Nutrition is a most valuable book and should be widely read; it is to be hoped that it

will be published on this side of the Atlantic.

GEORGE ORDISH

M. J. WISE and E. M. RAWSTRON (eds.), *R.O. Buchanan and Economic Geography*. Bell's Advanced Economic Geographies, 1973. ix + 226 pp., 11 illus. £4.

This republication of twelve of Professor Buchanan's articles published between 1930 and 1959, ably presented by the editors, is a worthy tribute not only to the author's significant contribution to the then newly developing economic geography but to his activity in academic affairs down to the present. The work is scholarly, interesting, and unpretentious in style; in particular, *Approach to Economic Geography*, is a well argued thesis on the nature of the field, and contains good examples of the no-longer-fashionable regional synthesis. A major theme of Buchanan, the importance of the "physical milieu," is a timely reminder of the dangers of neglecting the factors of climate, topography, soil, and plant, in the current preoccupation with economic and social data. Buchanan's best work, on the pastoral industries of his native New Zealand, is omitted, and it is to be hoped this will reappear separately as the editors anticipate.

F. BEAVINGTON

M. M. POSTAN, *Essays on Medieval Agriculture and General Problems of Medieval Economy*. Cambridge U.P., 1973. vii + 302 pp. £4.80. *Medieval Trade and Finance*. Cambridge U.P., 1973. vii + 382 pp. £5.

Professor M. M. Postan's reputation and influence in the field of medieval economic history illustrates very well that big books are in no way a necessary means by which a scholar makes his contribution to his subject. These two volumes of collected essays are the principal monument to a scholarly life which ranges from 1928 to 1970 according to this representative collection, which has continued since that date, and which we hope is by no means over.

As he explains in his introduction to the volume on trade and finance, it was after his initial work on the formation of capital (perhaps he should have said money capital) that he realized that explanations about the nature of the medieval economy could not go

far without a previous examination of its agrarian base. This then began with the well-known article on 'The Chronology of Labour Services' in 1937, and has continued ever since. In fact, three-quarters of *Medieval Economy and Society* (1972), his summary in book form of his previous work, is devoted to the agrarian economy. The medieval volume of E. Lipson's *Economic History of England* (1937 edn), which sums up what one might call the pre-Postan era of medieval economic history, devotes a good deal less than one-third of its pages to agrarian problems. One of the main reasons for this disparity is undoubtedly the fact that Postan's influence and example have stimulated so much work on agrarian history that the changed proportion reflects a change in knowledge as well as a change in emphasis.

Paradoxically, however, the balance of the material printed in these two volumes is more favourable to trade and finance than to agriculture, though this is partly due to the reprinting of a very substantial article from Volume II of the *Cambridge Economic History of Europe* entitled 'The trade of medieval Europe: the North' which, because of its attention to the trade in agricultural products, is very important for the agrarian historian. But even bearing this in mind, Postan's contribution to financial and commercial history remains significant. It is important not only because he destroyed concepts of the primitiveness of medieval English commercial practice by describing the flexibility of credit arrangements and the variety of forms of business partnership. He also showed how important it was to demonstrate that progress in the field of commercial techniques was a function of changing economic needs, a fact that could easily be forgotten by those concentrating on the legal and diplomatic aspects of commercial instruments. He also corrected the tendency on the part of English historians to be dazzled by the technical brilliance and tentacular financial dealings of the Italian merchant bankers, properly reducing them to size in the general context of the English economy.

Postan has significantly altered our understanding of medieval economic development by his insistence on the fundamental importance of agriculture, as well as radically chang-

ing the accepted order of priorities in agrarian history. He has done this in two ways, first by introducing to what previously had been a very descriptive historical method an element of theory, and secondly, by detailed work on specific problems which had previously been the object of very vague generalization. The report on the medieval economy which he presented to the Ninth International Congress of Historical Sciences in 1950 gave a framework for the study of agrarian problems which was of particular importance in that it provided for some an alternative to the only other coherent theoretical concept of development then current, that provided by Marxism, and particularly by the Russian Marxists. It was in this report that Postan rejected a unilinear concept of development and presented a picture of economic expansion up to the thirteenth century, of contraction from the third decade of the fourteenth, and of renewed expansion from the last quarter of the fifteenth century. The explanation was to be found in the relationship between land and people, a cycle of population growth, expanding cultivation, and over-exploitation leading to soil exhaustion, and to a downward turn in the population figures.

The unilinear conception of development had already been challenged on other grounds in his 'Chronology of Labour Services', where the relationship between labour services and money rent was no longer seen as one of the gradual development of a higher and higher proportion of money rent but as a fluctuating proportion dependent on the changing labour demands of the demesne which diminished in the twelfth, increased in the thirteenth, and diminished again from the end of the fourteenth century, a fluctuation dependent on the movement of agrarian prices. The demographic determination was not yet emphasized here, but the Postanian critique of over-simple ideas about the "rise of a money economy" (the subject of another essay published in 1944) makes its appearance.

Whatever one might think about Postan's conceptual framework, the work on specific problems which buttresses his general interpretation has been of the greatest value, amongst other things because it has vastly en-

larged our understanding of the basic unit of medieval society, the peasant household. Whereas most other historians had been vague about the relation between the size of the landholding and the peasants' living standards, Postan effectively reinforced the analysis already made by the Russian historian, E. A. Kosminsky, by showing in his 1959 article (with J. Z. Titow) how vulnerable to crop fluctuations were the poorer peasants, whose mortality figures, calculable from heriot payments to the Bishop of Winchester, rose and fell with the price of grain. The Achilles heel of medieval agriculture, shortage of livestock, was clearly as important in this respect as shortage of good arable land. Postan's 1962 article on village livestock, based mainly on the original assessments of movables for the royal subsidies of the thirteenth century, showed how meagre were the livestock holdings of the majority of peasants.

His contribution to the discussion of the nature of the peasant household cannot of course be fully evaluated without reading his chapter in the new edition of the *Cambridge Economic History of Europe* I, not reprinted in these essays. An important reprint, however, is of his introduction to the Northamptonshire Record Society's edition of the *Carta Nativorum* (1960). In addition to discussing such important matters as the history of the lease, he touches on a subject of great interest for the student of the peasant economy. This concerns the factors which determine the size of particular holdings, apart from the more general considerations connected with the size of the whole peasant population in relation to available resources. Some historians suspected that the creation of big family holdings would in many cases need to be explained in terms of the successful participation of their possessors in production for the market on the basis of the exploitation not only of the family's labour but also of wage labour provided by landless or near landless workers. This was Kosminsky's view, influenced no doubt by the detailed analysis of Russian peasant agriculture which was made by V. I. Lenin in his controversy with the Narodniks. Postan, whilst agreeing that the peasant land-market was active, even though veiled rather than revealed by manor-

ial documentation, suggested that peasants took on or got rid of land rather because of the fluctuating subsistence needs of the family than because of the pull of the market. This view may perhaps be traced back to the writings of the Russian agronomist A. V. Chayanov, whose ideas were by no means Marxist, and therefore would, apart from their intrinsic merit, appeal to Postan. Chayanov is referred to by Postan in the article on Winchester heriots, and one feels that in some sense he lies behind the criticism of Kosminsky in the paper under discussion. One should add, of course, that Postan, in criticizing, always recognized the merits of Kosminsky's contribution, being in fact responsible for introducing his work to English historians.

Perhaps enough has been said to indicate the wealth of material which is in these two volumes, though what has been mentioned by no means covers all. Clearly one can criticize at many points both the detail and the overall interpretation, or both. Serious doubts, for instance, about the evidential basis for the view that by the end of the thirteenth century the limits of the good available land had been reached have been expressed by Miss B. Harvey. Yet new research on the effects of the great famine of 1315-17 would appear to support Professor Postan's suspicions that at least as early as this the turning point in the favourable economic conjuncture of the central middle ages had been reached. These are fruitful disagreements which should encourage further investigations. Perhaps there is also another dimension which is missing in Postan's work, no doubt because of the need felt to correct earlier interpretations. His justifiable insistence on the importance of the underlying economic trends, with their demographic determinant, leads to something of an underestimation of both the dynamic and the conservative elements in social relationships which, often working through legal and institutional forms, could affect the movement of history. Thus, while on the one hand recognizing the economic disadvantages of villein tenure, he is not inclined to attribute much importance to the efforts of villeins to alter the situation. He fully understands the peasants' battle with nature to get a living and even

anthropomorphizes nature as man's punisher for his temerity. But he does not regard the peasants' battle with the landlord as being of any significance. Changes in peasant conditions would have happened irrespective of rebellion. Similarly the wars of the fourteenth and fifteenth centuries were of minor importance. Changes in society "would have occurred anyway, war or no war." But war was one of the most important formative influences in the elaboration of the apparatus of state, especially on the fiscal side. The political game, in which war policy played a considerable part, also had the distribution of patronage, and so of movable and immovable wealth, as a major objective. Law, then as now, was a crucial instrument of social control. The economic historian has to be a social historian as well, as in practice Professor Postan has often shown himself to be. But let us turn his own words against him. Medieval economic history would *not* have been the same today, Postan or no Postan, and we should be grateful for his contribution.

R. H. HILTON

T. H. LLOYD, *The Movement of Wool Prices in Medieval England*. Economic History Review Supplements, 6. Economic History Society. C.U.P., 1973. vi + 75 pp. £1.90. The choice of subject for this special supplement published by the Economic History Society betokens the pervasive importance of wool in the economic life of Medieval England, though the author, Mr T. H. Lloyd, somehow manages to skirt around some of the most pertinent underlying issues. Thus, in seeking to explain the movement of wool prices he emphasizes political factors and monetary considerations. Only once, with reference to the decline in wool prices during the famine years of 1315-17, does he give any indication of recognizing that the condition of the grain harvest (by influencing the level of agricultural income) could have a significant impact on the market for wool. This analytical weakness is further evidence by assertive statements such as "in the production of wool, as in all other branches of farming, the peasants had much lower costs than the lords."

The structure of the study is also unbalanced.

Much of the material is either peripheral to the main topic or is milked dry of substance by Mr Lloyd. Both of these defects are blatantly evident in the treatment accorded to some half-dozen price-lists of a hypothetical nature pertaining to the wool of different areas. As Mr Lloyd recognizes, such "price schedules are not a perfect substitute for real transactions." Nevertheless, some seventeen pages of text and appendices (i.e. almost one-quarter of the entire study) are devoted to reproducing and reviewing these schedules, several of which, moreover, are undated. A digression on contractual wool sales and two basically simple diagrams illustrating relative price movements (figs. 1 and 2) occupy a further nine pages. In sum, the reader gains the distinct impression that the material has been blown up to produce a monograph when an article of moderate length would have sufficed.

The statistics utilized by Mr Lloyd have been drawn largely from traditional sources. The main innovation is the compilation of regional price series, some eighteen area groupings being distinguished. The series are mostly composite ones representing simple

arithmetic averages of selling prices in different manors. In turn, the regional prices have been averaged to give annual (national) mean prices. Unfortunately, the material available to Mr Lloyd does not lend itself well to this kind of treatment: the data are too thin, and the product too heterogeneous.

Mr Lloyd's wool prices cover the period 1209 to 1500. No prices at all are reported for twenty-one of the first fifty years, while in the final 100 years the data become progressively fewer and observations more heavily representative of lower-quality wools. Thus, while Mr Lloyd's annual mean series shows a 30 per cent decline between 1420-9 and 1470-9, his Northumberland and Durham series indicates a 28 per cent rise during the same period. Certainly, as far as the fifteenth century is concerned, scholars would be advised to consult the primary data, wherever possible, rather than place any great reliance upon Mr Lloyd's statistical averages. Finally, it may be noted that certain of the figures appearing at the top of pages 46 and 47 have been transposed.

P. J. BOWDEN

Shorter Notices

D. O. PAM, *The Fight for Common Rights in Enfield and Edmonton 1400-1600*. Edmonton Hundred Historical Society Occasional Paper (n.s.) no. 27, 1974. 40p. (Obtainable from Hon. Sec., Edmonton Library, Fore St, London N9 0NX.)

This valuable addition to the publications of the Edmonton Hundred Historical Society deals with the survival, despite the pressures exerted by the London market, of the numerous common fields and extensive commons in Enfield and Edmonton. The manor of Enfield became part of the Duchy of Lancaster in 1420, and the Duchy, as the author remarks, was a notoriously lax landlord. Similarly, in Edmonton divided lordship followed in 1537 by the passing of the manor to the crown led to the establishment of very

low rents which discouraged the tenants from seeking enclosure. Attempts at piecemeal enclosure met with determined opposition, especially as it was possible for men with only a few acres of enclosed land to overstock the commons with excessive numbers of beasts. Here weakness in the landlords' management gave the tenants the upper hand and enabled them to resist the most intensive exploitation of the soil.

J. C. WILKERSON (ed.), *John Norden's Survey of Barley, Hertfordshire 1593-1603*. Cambridge: Cambridge Antiquarian Records Society, 1974. 120pp., map. Price to non-members £4.50.

The manors of Barley lay in the north-eastern corner of Hertfordshire next to the border

with Cambridgeshire. The survey by John Norden, well known for his *Surveyor's Dialogue* and other works, was completed in the early years of the seventeenth century. The Cambridge Antiquarian Records Society is to be congratulated in making this interesting document readily available to a wider circle of scholars, and the value of the volume is greatly enhanced by J. C. Wilkerson's wide-ranging and detailed introduction. Among the many points which he touches upon are the enclosure of the parish and the computation of its tithes, the decline in the number of farmers, and the seed rates for various crops in 1682-4. In Norden's time the farmers were all highly inter-related by marriage, and the survey records each of their 1,798 strips in the six open fields with the occupier's name, the size, and the manor to which it belonged. Not the least fascinating aspect of the survey is the field names, which include such vintage specimens as Dead Woman's Cross, Klondike, and Noons Folly.

JOHN FISHER, *The Political Plough*. Hugh Evelyn, 1974. v + 20pp. Illus. Paperback 90p.

This political pamphlet of 1821, now reproduced in facsimile, deals in rhyme with the demand for increased agricultural protection. Reference is made to George Webb Hall, whose Central Agricultural Association brought pressure on Parliament to this end. An introduction by Travis Crosby gives details of Webb Hall's career, and places the pamphlet in the context of the period.

JOHN ROWE, *The Hard-Rock Men: Cornish Immigrants and the North American Mining Frontier*. Liverpool: Liverpool U.P., 1974. xii + 322pp., 20 plates; 2 maps. £5.50.

John Rowe's new study extends his interest in Cornishmen across the Atlantic to the mining camps where their native skills were employed in exploiting newly discovered lodes of gold, silver, and copper. This fascinating story is thoroughly documented and neatly integrated into the broader history of the American mining frontiers, and it succeeds in throwing a great deal of new light on the problems and hazards of seeking wealth in a new country.

There is some incidental but valuable discussion of the early farming which accompanied the mining settlements, and the volume is attractively illustrated by photographs old and new, including some taken by the author himself.

N. J. G. POUNDS, *An Economic History of Medieval Europe*. Longman, 1974. xii + 562pp., 57 maps and figures. £4.95.

This substantial volume, intended for undergraduates and sixth-form students, covers the centuries from the later Roman Empire down to the close of the Middle Ages. Individual chapters deal with major topics such as population, agriculture, towns, manufacturing, trade, and finance, and the whole is amply illustrated by numerous maps, charts, and tables, making a highly comprehensive and valuable text.

ALWYN JONES, *Rural Housing: the Agricultural Tied Cottage*. Occasional Papers on Social Administration no. 56. Bell, 1975. 78pp. Paperback £1.70.

This useful study concentrates on the question of the hardship arising from dispossession of tenants of tied houses in agriculture, a problem compounded by the shortage of alternative housing in rural areas, and the arguments of the N.F.U. that the tied cottage serves both to house essential workers and to attract workers to the industry. Much of the pamphlet is concerned with the current legal position of the tied house and the case for its continued existence. The historical background to the problem is covered in a brief survey containing some breathtaking generalizations which will astonish, if not enlighten, the readers of this journal.

JOHN HARVEY, *Early Nurserymen*. Phillimore, 1974. xiv + 276pp. 16 plates. £4.75.

John Harvey's studies of the development of specialist nurseries will be well known to readers of this journal. (An article on the stocks held by early nurseries appeared in Part 1 of volume XXII, 1974.) In this new volume he provides a survey of the growth of the trade in seeds, plants, bulbs, and trees, beginning with the planting of gardens and

orchards in the grounds of early medieval manors and castles, and concluding with the work of such a familiar figure as William Cobbett, and that of the Falla family, who in the late eighteenth and early nineteenth centuries transformed the nursery gardening of the north of England. Separate chapters are devoted to the growth of the London and provincial nursery trades before and during the eighteenth century, and the appendices (which take up over half of the book) provide details of the cultivation of rosemary, the plants cultivated, and the inventories, wills, bills, and letters of leading nurserymen. Mr Harvey's story throws light on an interesting aspect of the Englishman's traditional love of gardens, and particularly of the aristocratic taste for beautifying the grounds of country mansions; his well-researched, detailed, and readable discussion will undoubtedly rival the success enjoyed by his earlier work, *Early Gardening Catalogues*.

BOOKS RECEIVED

The inclusion of a book in this list does not preclude the possibility of its review in a subsequent issue of the *Review*.

Bol og By: Markbogsanalyser og Markdriftstudier. Landbohistorisk Selskab, 1974. 133pp.

Cleveland and Teesside Local History Society Bulletin, no. 24. Spring 1974. 27 pp. 25p.

Cleveland & Teesside Local History Society Bulletin, no. 26. Autumn, 1974. 34pp. 25p.

D. R. DENMAN, *The King's Vista: a Land Reform which has changed the face of Persia*. Berkhamstead, Herts., Geographical Publications Ltd, 1973. xv+368 pp. 23 illus. £6.50.

Etudes Rurales 51. Ecole pratique des hautes études, Sorbonne, Mouton, 1973. 174 pp.

Etudes Rurales: Agriculture et Sociétés en Asie du Sud-est. Paris, Mouton, 1974. 576pp.

NANCE LUI FYSON, *Diseases and World Health*. B. T. Batsford, 1974. 94 pp. Illus. £1.50.

CHARLES HIGHAM, *The Earliest Farmers and the First Cities*. C.U.P., 1974. 48 pp. Illus. 65p.

FRANK E. HUGGETT, *A Day in the Life of a Victorian Factory Worker*. Allen & Unwin, 1973. 80 pp. 22 illus. £1.95 hardback; 95p. paper.

P. LASLETT (ed.), *Household and Family in Past Time*. Paperback ed. C.U.P., 1975. xii + 623pp. £3.50.

EUGEN MEWES, *Terra Nostra: Culegere de materiale privind istoria agrară a României*. Centrul de Informare și Documentare Pentru Agricultură și Silvicultură, 1973. 486 pp. Illus.

POUL RASMUSSEN (ed.), *Viborg Landstings Skøde-og Paantebøger II 1645-1652*. Copenhagen. Landbohistorisk Selskab, 1973.

Sechzehntes Jahresheft, der Albrecht-Thaer-Gesellschaft. 149 pp. 1973.

ARTHUR SELDON (ed.), *The Long Debate on Poverty*. Second impression with introduction by Norman Gash, Institute of Economic Affairs, 1974. xxxii + 243pp. Paperback £2.50.

M. S. SWAMINATHAN, *Our Agricultural Future* (Sadar Patel Memorial Lectures), New Delhi, All India Radio, 1973. 54 pp.

PETER TEMIN, *Causal Factors in American Economic Growth in the Nineteenth Century*. Economic History Society: Studies in Economic and Social History, Macmillan, 1975. 80pp. Paperback 85p.

Spring Conference 1976

Members are asked to note that the Society's Annual Conference will be held at Homerton College, Cambridge, from 4 p.m. on Monday, 12 April until after lunch on Wednesday, 14 April 1976.

<i>Water for the Southwest: Historical Survey and Guide to Historic Sites</i> , by T. Lindsey Baker, Steven R. Rae, Joseph E. Minor and Seymour V. Connor	G. E. Mingay	page 80
<i>English Rural Communities: the Impact of a Specialised Economy</i> , ed. by Dennis R. Mills	G. E. Mingay	80
<i>Caspar Voght und sein Mustergut Flottbek. Englische Landwirtschaft in Deutschland am Ende des 18. Jahrhunderts</i> , by Gerhard Ahrens	Joan Thirsk	80
<i>The Politics of Protection: Lord Derby and the Protectionist Party, 1841-1825</i> , by Robert Stewart	W. H. Chaloner	82
<i>The Craft Industries</i> , by J. Geraint Jenkins	Alan Pittwood	83
<i>Farming in Caernarvonshire around 1800</i> , by R. O. Roberts	Richard J. Colyer	84
<i>Landwirtschaftliche Verbesserungen im Schottischen Grafschaften, 1700-1850</i> , by Manfred Bumb	G. E. Fussell	85
<i>Bulletin of Local History, East Midlands Region</i> , VIII, ed. by Alan Rogers	John Whyman	86
<i>The Rural Landscape of Kent</i> , by S. G. McRae and C. P. Burnham	John Whyman	87
<i>The Economic Emergence of the Black Country: A Study of the Dudley Estate</i> , by T. J. Raybould	J. R. Harris	89
<i>Crop Nutrition: Science and Practice before Liebig</i> , by G. E. Fussell	George Ordish	90
<i>R. O. Buchanan and Economic Geography</i> , ed. by M. J. Wise and E. M. Rawstron	F. Beavington	91
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<i>The Political Plough</i> , by John Fisher		95
<i>The Hard-Rock Men: Cornish Immigrants and the North American Mining Frontier</i> , by John Rowe		95
<i>An Economic History of Medieval Europe</i> , by N. J. G. Pounds		95
<i>Rural Housing: the Agricultural Tied Cottage</i> , by Alwyn Jones		95
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The Society aims at encouraging the study of the history of every aspect of the countryside by holding conferences and courses and by publishing *The Agricultural History Review*. Its revised constitution was inserted as a separate leaflet in Vol. xiv, part II of the *Review*.

Membership is open to all who are interested in the subject and the subscription is £3.50 due on 1 February in each year. Details may be obtained from the Treasurer.

The Agricultural History Review

EDITOR: G. E. MINGAY

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The AGRICULTURAL HISTORY REVIEW



VOLUME 24 1976

PART II

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Credit in English Rural Society before the Nineteenth Century,
with special reference to the period 1650-1720

B. A. HOLDERNESS

Land Improvement and Reclamation: The Experiences of the First World War
in England and Wales

JOHN SHEAIL

The Prosperity of Farming on the Lindsey Uplands, 1813-37

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The Cluster Potato: John Howard's Achievement in Scientific Farming

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Review Article: Fields, Farms, and Families: Agrarian History in Kent

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List of Books and Pamphlets on Agrarian History 1975

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Credit in English Rural Society before the Nineteenth Century, with special reference to the period 1650-1720¹

By B. A. HOLDERNESS

I

IN the imagination of many historians, credit has been seen merely as a function of commercial development, as an aspect of some such organizing principle of economic life as the Rise of the Merchant or the Capitalist Revolution. It is a tribute to the longevity of Bruno Hildebrand's archetypal distinction between the three stages of "National Economy, Money Economy, and Credit Economy" that many economic historians, and even more anthropologists, still tend to view the concept of credit, outside the context of a developed commercial-industrial economy, as nothing but a strictly temporary and fortuitous adjustment of liquidity.² As Tawney put it, the doctrine of interest received its character "in an age in which most loans were not part of a credit system but an exceptional expedient, and in which it could be said that he who borrows is always under stress of necessity."³ Indeed, Tawney's justly celebrated introduction to Thomas Wilson's *Discourse upon Usury* contains a succinct description of money-lending in England which could even now be taken as virtually the sum of our knowledge on the subject before the eighteenth century.⁴ There is ample evidence from all over the world of the malignant growth of indebtedness in peasant societies. In the pathology of rural life, peasants and indebtedness often go together in the same diagnostic package-deal. The Italian statesman, Sidney Sonnino, described usury as the "woodworm in Sicilian society" in 1876, and although the situation had become worse during the nineteenth century, conditions in the Italian south had been recognizably similar for centuries.⁵ The catastrophe of the Thirty Years War greatly increased the debt burden of peasants in Germany; and similar examples could be cited from places as far apart, say, as Punjab and Alabama.⁶ Credit in such instances was certainly systematic, although its object was the degradation of the

¹ This is a considerably amended version of a paper first read at the annual conference of the British Agricultural History Society, April 1973.

² B. Hildebrand, 'Naturalwirthschaft, Geldwirthschaft und Creditwirthschaft', *Jahrbuch für Nationalökonomie und Statistik*, 2, 1864.

³ R. H. Tawney, *Religion and the Rise of Capitalism*, 1926, pp. 43-4; cf. pp. 38 ff., 180-3, and *passim*.

⁴ T. Wilson, *A Discourse upon Usury* (ed. R. H. Tawney), 1925, esp. pp. 17-30.

⁵ S. Sonnino, *I Contadini in Sicilia*, Florence, 1877, reprinted 1925, pp. 135 ff. See also D. M. Smith, *A History of Sicily: Modern Sicily after 1713*, 1968, *passim*; P. Jones 'Italy', *Cambridge Economic History of Europe*, 1 (ed. M. M. Postan), pp. 427-8.

⁶ W. Abel, *Geschichte der Deutschen Landwirtschaft vom frühem Mittelalter bis zum 19 Jhrh.*, Stuttgart, 2nd edn, 1967, p. 268; K. Winkler, *Landwirtschaft und Agrarverfassung im Fürstentum Osnabrück nach dem Dreissigjährigen Kriege*, Stuttgart, 1959, pp. 77 ff.; G. Franz, *Geschichte des Deutschen Bauernstandes*, Stuttgart, 2nd edn, 1970, p. 177.

impoverished peasantry. Nevertheless, in emphasizing the disease the healthy tissue is often ignored.

Even in economies which were not adequately monetized, credit and the notion of interest evolved, as Alfons Dopsch long ago discovered of early medieval Europe, and numerous economic anthropologists have found in contemporary primitive economies.¹ Even in the Moslem world, where the prohibition of usury has always been more stringently interpreted than among Christians, money-lending nevertheless frequently played, and still plays, a considerable role in rural society.²

The primary function of credit in undeveloped peasant economies is, as Tawney suggested, to ward off temporary shortages in the cycle of agrarian economic activity. But a function scarcely less important is to provide the means to pay for excessive commitments to conspicuous expenditure in the form of feasts and social gatherings. In more sophisticated systems credit has become so much a part of life that its seasonal character has become overlaid by more permanent features.³ English evidence, from the documents discussed in this paper, tends not to suggest that village borrowing significantly increased in the period before the harvest and threshing, or the autumn sale of wool and fatstock. The data cannot prove that this did *not* happen, since common sense suggests that it would, but they do not inevitably point in that direction. Problems of agrarian liquidity were obviously contingent upon cyclical fluctuations of prices and yields, and there seems to be no point in attempting to deny the influence of the harvest in this, as in most other variables of village life. In a pioneering essay on the theme, Jean Meuvret adumbrated the interrelationship of money, prices, and credit in French rural society in the early modern period. Some of his ideas still need investigation, and his conclusion that malignant indebtedness was closely connected with the price-trends of agricultural commodities may or may not relate to the conditions in France in general.⁴ The English experience seems in many respects to have been somewhat different.

Although the reasons for credit transactions, in almost all the material studied, are obscure, borrowing and lending—and other aspects of the credit nexus—had before 1700 become routine in English rural life. Indebtedness only posed a serious problem when it was determined by outside influences, especially secular deflation, as in Meuvret's analysis. How far this regular flow of credit was directly related to capital accumulation is, as we shall see in due course, perhaps the most difficult of questions to ask of the data available for dissection. It is clear that even the sophisti-

¹ A. Dopsch, *Naturalwirtschaft und Geldwirtschaft* . . . , Vienna, 1930, *passim* and pp. 140, 170. R. Firth and B. S. Yamey (eds.), *Capital, Saving and Credit in Peasant Societies*, 1964; M. J. Herskovits, *Economic Anthropology*, New York, 1960, pp. 225 ff.

² Cf. M. W. Wilmington, 'Aspects of Moneylending in N. Sudan', *Middle East Journal*, 9, 1955.

³ The most complete study of a credit system in a rural community, but with emphasis upon mortgage indebtedness, hitherto is Arthur Cohen's monograph, *Die Verschuldung des bauerlichen Grundbesitzes in Bayern vor der Entstehung der Hypothek bis zum Beginn der Aufklärungsperiode, 1598-1745*. Leipzig, 1906.

⁴ J. Meuvret, 'Circuits d'échange et travail rural dans la France du XVII^e siècle', *Studi in onore di Amando Saporì*, Milan, 1957, reprinted in J. Meuvret, *Études d'Histoire Économique*, Paris, 1971, esp. pp. 148-50.

cated instruments of credit available in seventeenth-century England were often merely applied to increase consumption by borrowers. Indeed, there is no direct evidence that contemporary country people could distinguish between capital and consumption in their daily business. Some implications of the credit system for the growth of capital will, however, be considered later.

II

One of the first features to strike a historian attempting to reconstruct a credit system is its complexity. There seems at present no hope of ascertaining the total volume of credit supplied to English rural society at any period during the seventeenth and eighteenth centuries, or of disentangling the involved pecuniary connections which existed between different social classes, and between men inside the agrarian community and outsiders from the towns and non-rural trades who appear as part of the system at various points in the analysis. It is probably not inaccurate to state at the outset that rural credit was for the most part locally generated among the different social groups who formed the agrarian society of the period. Outsiders entered the field either as interlopers within an apparently closed system or to provide particular services—in furnishing funds for mortgages, especially for the larger loans not locally forthcoming; or within the context of commercialized agriculture and rural manufacturing by operating the credit given on wool, livestock, corn, iron, or textiles by farmers or country merchants to the middleman based in the larger towns. For the rest, however, credit transactions of all kinds involved people within the horizon of the villagers' experience during the early modern period.

Before proceeding further with the discussion, it is necessary to consider the nature of credit and the instruments available for use. We must confine ourselves to as simple a definition as possible. Credit is subsumed under two heads: first, money-lending, which includes everything from the mortgage to the note of hand and the pawn; and secondly, deferred payment for a good or service rendered, trading debts, and any other form of sales credit which may have existed, rent arrears, and so forth. Which was the more important in the period is impossible to determine, since in many of the sources available they are lumped together as "debts owing to A" or "debts owed by A." For the period it is impossible to erect any more elaborate structure round the concept of credit. We can say with reasonable confidence that the media of credit were not negotiable except by means of the formal process known as assignment. Bills of exchange and other flexible instruments, including bank-notes, only occur with any regularity before the nineteenth century, when dealings with urban merchants, especially in wool or livestock occurred, or when the greater gentry and rural merchants held accounts with metropolitan banks or commercial houses. Instruments of exchange only slowly invaded settled patterns of economic activity in many country areas from the last third of the eighteenth century onwards. Contractual credit was overwhelmingly in the form of specific loans before 1800. Trading debts pose no methodological

problems. They were often subdivided into "good" and "desperate" debts, and there is seldom any indication when they were contracted, but as a rule they were short-term and individually small in value. Loans were classically of three kinds, not counting the pawn: the promisory note, or "bill without specialty," generally a debt without security, usually in a small sum intended as a short-term loan; the bond; and the mortgage. Bonds are often mentioned but few deeds as such have survived. They were formal loans charged at fixed interest, often without security, and almost invariably without real property as collateral, which thus distinguished them from mortgages. They were enforceable at law, and seem to have been regarded as a reasonably secure investment by lenders. In effect they differed little from mortgages, although for obvious reasons the sums lent on individual bonds were usually less than the sums mortgaged against real estate. It appears to have been quite common for men wishing to enlarge their credit to negotiate a series of bills or notes, then to convert them for a lump sum into a bond, and sometimes to go further by converting bonds into substantial mortgages. Bonds, like mortgages, could be assigned in the later seventeenth and during the eighteenth centuries, and, as debentures, were occasionally negotiated by groups of borrowers or groups of lenders operating jointly. In rural affairs the bond was not particularly employed to augment capital, but as part of the general resources available for credit purposes. As such the apparent relationship between bonds in general and stock held in public utilities is largely fortuitous. The third instrument need not detain us long at this juncture, except to say that in the course of the period here discussed, mortgages became more refined as instruments and the risks involved in taking out a mortgage on property rather less pronounced. Mortgage terms lengthened, and both mortgagee and mortgagor became more firmly protected in law. Assignment and hypothecation, by which risks were spread for borrowers and lenders alike, developed in the same period, especially after the Restoration. Moreover, copyhold mortgages, usually in the form of a conditional surrender, also became more common in the later seventeenth century. Since copyhold continued to form a not insignificant proportion of the tenorial system of England during the period, this development considerably enlarged the scope for raising money on real estate. Manipulated skilfully, mortgages could be used to provide working capital for enterprising farmers and shopkeepers as well as commercial and industrial entrepreneurs. The dynamic possibilities of exploiting one's credit "standing" to the full were certainly realized at least in principle in rural areas, as individual case studies clearly reveal, but it remains very much a moot point how far this opportunity spread throughout the community. The traditional view of the mortgagor at the top of a steep path to financial ruin all too often becomes a depressing fact according to the sources analysed in the paper.¹

The situation in respect of credit facilities at the turn of the eighteenth century

¹ For the preceding paragraphs the best source is J. M. Holden, *The History of Negotiable Instruments in English Law*, 1955. See also B. L. Anderson 'Money and the Structure of Credit in the Eighteenth Century', *Business History*, xii, 2, 1970. In detail, the documents themselves alone can provide the nuances of business practice in its variety.

is evident enough. The instruments available were varied and suitable for most needs in the rural economy. Most had a long tradition to sanctify their utility, since the basic structure of the credit system in England is discernible, with few substantive differences, well back into the medieval period, outside the special fields of large-scale commerce and estate management.¹ The evidence of long series of documents like the probate inventories, which go back to the second quarter of the sixteenth century and forward to the middle of the eighteenth century, indicates that, although at different times the volume of credit recorded varied considerably, the fact of credit as a common feature of village life is certain, and the means of supplying it reasonably constant.

Much more work needs to be done on the inventories as sources of information about the flow of credit. They provide the only sure means of inquiring into the life of the common people of the villages, the comparatively poor as well as the wealthy, and research to date suggests that they will prove a very fruitful source. They can be supplemented by multitudinous other materials, wills, which often refer to money out on loan, farm and shop accounts, court rolls, which in the post-medieval period contain information about conditional surrenders, papers in bankruptcy or Chancery proceedings, and the business papers of lawyers and other professional men, as well as title deeds and certificates involving loan capital. What emerges from such sources is qualitatively consistent with the general picture already sketched out above. They reveal the extent, variety, and often the local orientation of lending and borrowing, the importance of sales credit and other species of deferred payment, but not, of course, the volume of credit supplied. The trends discussed in this article, therefore, are based chiefly upon the data of 4,650 inventories from the period 1650-1720, collected in the east Midlands and Norfolk. The technique adopted has been to choose clusters of villages—usually about fifty in each group—and to examine the inventory material for these places as completely as possible by the collation of aggregate valuations with recorded debts. There were few significant methodological problems, but the “rapid counting” employed of necessity perhaps obliterated elements of local variety and local colour.²

The total value of the personal effects recorded in these inventories amounted to £295,000, of which almost exactly 13 per cent formed bills, bonds, mortgages, sales credit, and so forth. The lesser gentry, clergy, and few professional people involved, who together made up 5 per cent of the sample, held more than one-

¹ See, for instance, M. M. Postan, ‘Medieval Agrarian Society in its Prime: England’, M. M. Postan (ed.), *Cambridge Economic History of Europe*, Cambridge, 1966, I, p. 627.

² The inventories used were collected over a number of years from the deposits in the record offices at Lincoln, Norwich, Nottingham, and Leicester, whose archivists I wish to thank for permission to use the documents. The districts studied were NW. Leicestershire between the Soar valley and Ashby de la Zouch, the middle part of the Vale of Trent, approximately between Newark and Gainsborough but with greater emphasis upon the Lincolnshire bank, a mixed region of heath and clay land south of Brigg, Lincs., a mixed region of wold and marsh around Alford and Spilsby, Lincs., a small area of fenland around Donington and Swineshead, and two districts in central Norfolk, around Aylsham and North Walsham, and around Diss. The districts represent a reasonable sample of social and agricultural types found in the eastern part of the country, but must eventually be compared with districts from the west and south to give a more complete picture.

quarter of their personal effects as credits; tradesmen, merchants, shopkeepers, artisans, etc., who were 28 per cent of the sample, had 18 per cent of their personality as credits. Widows and other single people, 6 per cent in number, are recorded with more than 45 per cent of assets in the form of credit. Agriculturists, otherwise undifferentiated, but with no additional source of livelihood evident from the inventories, provided 60 per cent of the inventories analysed and possessed almost 10 per cent of their personal effects in credits. These figures indicate that significant social differences are apparent in the functioning of the internal mechanism of credit, which will be discussed in due course. What is more revealing is the implication that some proportion of their means above subsistence in each of the different groups analysed was used for purposes other than to maximize consumption. Obviously, not all individuals held debts against other people, but a sizeable minority used their savings to grant credit as a regular routine of their lives. Altogether, 40 per cent of inventories contained some reference to debts owed to the deceased, and in 16 per cent the proportion of debts to the total personalty exceeded one-third. Put in different terms, more than 700 individuals of different social standing possessed a considerable personal stake in the local credit system of seven distinct regions of eastern England.

It is perhaps too early to draw the inference that the volume of credit in English agrarian society in the seventeenth and early eighteenth centuries represented something between 10 per cent and 20 per cent of the movable assets of the rural community. Such a figure is not improbable, but there are difficulties in the way of its simple acceptance. Most inventories usually gave details only of assets not liabilities, which rather implies that village society was divided between lenders and borrowers, the latter dependent upon the former to ease their problems of illiquidity. It is clear, however, that many estates had both debts owing and debts owed, and that there were even men with substantial credits who were in fact insolvent at death. The wills make this obvious, and the administration accounts of intestate estates, which generally strike a balance, permit us to take some quantitative soundings. Of those so far examined less than 10 per cent were of insolvent estates, but many more, in parts of Lincolnshire as much as one-third, had both debts and credits in account which the administrator was entrusted to resolve.

The importance of gentry and clergy, even in the apparently restricted field of village credit, is well attested from the evidence of inventories. Most of the gentry in the sample were not members of the squirearchy, but graziers or other men of wealth in the countryside with social pretensions, and with a relatively large proportion of their wealth as movable assets, especially livestock, cash, and credits. Elsewhere the role of gentlemen was even greater. Rent arrears are a particularly important species of credit in the context of a revolving system operating chiefly to smooth over the worst consequences of money shortages in the fluctuating cycle of economic life. In the late seventeenth century deferred payment of rent was commonplace, and periodically in years of crisis arrears were allowed to accumulate in order specifically to prevent tenants from bankruptcy. Landlords are occasionally

discovered lending money directly in order to supply working capital to tenants deemed worthy of support. Moreover, in the eighteenth century, investment by landowners in their farms was sometimes expressed in terms of a formal bond for which the tenant as borrower paid interest but was excused from redeeming the principal. Earlier, the uncommon English version of *métayage*—halves and thirds—is best seen as a credit transaction to enlarge the farmer's capital or to improve his liquidity. None of these expedients laid a permanent incubus of peonage upon English rural society, nor vitiated the landlord-tenant relationship in the manner of southern Europe, partly because they were so few, but chiefly because they always remained short-term, casual adjustments.

Direct lending by the gentry and clergy is equally well established in the evidence. Lincolnshire gentlemen in the toils, for example, borrowed money from such exalted persons as the Duchesses of Marlborough and Rutland and the Duke of Ancaster in the early eighteenth century. A few such rich gentry, like Sir Anthony Meres and the notorious Hogarthian gambler, Lord William Manners of Grantham, virtually made a business of money-lending in Lincolnshire during the century after 1660. It was, moreover, a distinctly lucrative business. Manners's profits were sufficient for him to invest heavily in landed property in the 1750's and 1760's, but the dangers implicit in weaker men borrowing from the financially and socially powerful were not particularly pronounced. The majority of loans seem to have been redeemed without foreclosure. Although the gentry were obviously important in the business of men like Meres, dealings were not exclusively confined to socially exalted borrowers. An account book, apparently kept by a steward of the Duke of Ancaster, and apparently employing his lordship's money, must serve for illustration.¹ Among the list of mortgages, bonds, and notes negotiated between 1697 and 1712 were items ranging in value from a note in £6 for Solomon Hutton to a mortgage in £700 for Joshua Cross of Boston, mercer. The whole principal involved amounted to £6,387 2s. of which about two-thirds was still outstanding in 1712. The borrowers were diverse. There were gentry, Capt. Dymoke, Charles Newcomen, John Cowley, and Nicholas Pell; mercers, Cross, Edward Waite, and David Hutton; the majority, however, were graziers, husbandmen, or craftsmen, and they were the people who tended to borrow the small sums without landed security. Although some of the greater landowners were able to lend money systematically in the period, the gentleman as debtor is a more frequent manifestation of economic reality in the years after the Restoration. Notoriously extravagant or unlucky gentry, indeed, were such bad risks that they were forced to borrow upon notes of hand or bonds from farmers and shopkeepers in their neighbourhood. A case in point is Gilbert Caldecott in Lincolnshire. His credit was a reversionary interest in his uncle's estates, but he was disinherited, and most of his many small creditors suffered a substantial loss of their investment, which gives some indication of the reason why the gentry were regarded as bad risks among farmers

¹ Lincolnshire Archives Office (L.A.O.), 2 ANC 6/198. In general, see also B. A. Holderness, 'Rural Society in S.E. Lindsey, Lincolnshire, 1660-1840' (Ph.D. dissertation, Nottingham University Library, 1968), ch. III.

and other country people.¹ Farmers' and tradesmen's inventories contain very few examples of loans to gentlemen, although many gentry obviously used their position to acquire sales credit. However, it was not uncommon in the period to find men styled as gentlemen themselves in possession of trading debts arising out of commercial activities, dealing in wine and timber, coal, livestock, clover seed, or similar commodities. In this respect, kinship was particularly important in determining the flow of credit on commodities, as in the case of private lending in such families, since trade of the kind mentioned was often privately organized within family, neighbourhood, or status groups.

Kinship, too, played a leading role in the financial affairs of the clergy. To judge from the names of those in debt to such clergy as possessed sufficient funds to implicate themselves in the local money market, family, especially members of the family in business, exercised some prior claim upon these funds. Late in the eighteenth century the rural clergy formed an important group in the development of the capital market for public utility stocks. Before 1750 however, poverty was much more widespread as a feature of clerical life than in the late eighteenth and early nineteenth centuries when the effects of enclosure had enlarged the income of parochial clergy, but the surpluses which did exist had long been used to expand local loan capital, even against competition for clerical savings from annuities and the funds. The evidence of the inventories is not entirely trustworthy because of the small number of clerical estates recorded in the sample, but it may well be that clergymen were broadly divided into two groups, those who had little or no surplus of savings, either as cash or credits—about three-fifths of the total of eighty-four analysed—and a smaller group with quite a substantial proportion of their personal effects in cash and credits.

Of the other economic groups, tradesmen, and farmers and graziers, general statements are difficult to make with conviction. There is no distinctive pattern except inasmuch as trading debts loom large in shopkeepers' and merchants' inventories as one would expect. Unpaid debts facing the executor of several rich country merchants were often very great. A dozen at least of these "merciers" held book-debts between £250 and £600, and trading debts averaging about £100 were common in the small, but important, group of wholesale merchants, drapers, wool-staplers, and the like. Since few of these village plutocrats left inventories exceeding £1,000, these figures give some indication of the importance of sales credit in the period. Some of the rich farmers and graziers were in a similar category. There were about fifty with "credit" valuations in excess of £250, and, in addition, well over 100 farmers and tradesmen possessed bills, bonds, and debts worth over £70—or more than the average valuation *per capita* of the inventories collected. These wealthy money-lenders, however, seem nowhere to have formed a distinctive kulak group in local society. The diffusion of credit facilities apparently prevented the worst excesses of monopoly. Although within the economically active groups there were probably no more than a quarter of the number in business who were

¹ L.A.O., M.M. IV/18.

able to employ a surplus above their subsistence to give credit or make loans at any particular time—at least with any degree of regularity—opportunities for those in possession of the means were quite extensive. In most communities there were obviously people known as particularly capable or willing lenders, Thomas Griggs, the Essex clothier, Joseph Banks or Elizabeth Parkin in and around Sheffield, Jonathan Dent in north Lincolnshire, to name merely well-recorded instances, but they were not, in the pejorative sense, usurers like those so commonly found in peasant societies abroad.¹

In many respects the most intriguing group of money-lenders is that of the widows and single people, who form a tiny proportion of the numbers leaving inventories, but who must nevertheless have played a not inconsiderable role. The use of inheritance or savings, not required directly for business purposes, in the money market is well enough accepted in theory, but as with the clergy, insufficient emphasis has been laid upon the provision of village credit as distinct from annuities or government stock in the investment decisions of the idle groups in village society. Wealthy and discriminating persons like Elizabeth Parkin could build up a mixed portfolio of investments, ranging from promissory notes to consols and turnpike shares; but most spinsters lacked either the opportunity or the expertise for this, and in the village environment tended to rely upon local outlets for their investments. The widow, moreover, had always been a centrally important personage in the economics of village life, and despite fundamental changes in inheritance customs since the Middle Ages, her function in redistributing idle capital towards the economically active in the community was by the seventeenth century predicated upon her provision of credit. This appears all the more clearly when we consider only those widows who actually had a surplus to lend, since they on average had lent out rather more than two-thirds of their movable assets at the time of death.

It is a reasonable hypothesis, on the evidence of what has been discussed above, to postulate not only that the diffusion of money-lending in English village society was significant in preventing the growth of usurious monopolies, but that the distribution of credit among the different social categories, which could, on the face of it, be seen as merely fortuitous, obeyed a clearly defined and explicable logic within a well-developed and sophisticated credit system. The regional variations between the different contributions of particular social groups are small enough to be of no statistical moment. Even though the precise percentage figures may well change to some extent with a different regional and chronological orientation of the sample, the essential structure of the credit system is likely to persist in the form here presented.

¹ See K. J. Burley, 'An Essex Clothier in the Eighteenth Century', *Econ. Hist. Rev.*, 2nd ser., xi, 1958; J. W. F. Hill (ed.), *Letters and Papers of the Banks Family of Revesby 1714-60*, Lincoln Record Series, 45, 1953; B. A. Holderness 'Elizabeth Parkin and her Investments 1733-66. Aspects of the Sheffield Money Market in the Mid-Eighteenth Century', *Transactions Hunter Archaeological Society*, n.s. x, 1972; H. W. Brace, 'Jonathan Dent of Winterton', *Lincolnshire Architectural and Archaeological Society Reports*, n.s. II, 1954.

III

The purpose of this article has been to present the first fruits of a fairly long-standing research interest in the credit structure of English rural society before the nineteenth century. If the volume of credit revealed above is confirmed by subsequent research to have existed within a similar order of magnitude for an earlier age, Tawney's rather large dismissal of rural credit as an accidental aspect of the peasant's existence will require detailed modification. More important perhaps, recent interpretations of the embryonic stages of the capital market will similarly need to be reassessed. The accumulation of capital necessary to float the industrial revolution in England has been a problem ever since the full implications of the deficiency of loan capital for business, coupled with putative estimates of necessary investment for industrialization, were first seen as a crux of economic growth. This led Hamilton to formulate his theory of profit inflation as generating the means for reinvestment. More recent work has tended to stress the fact that investment in plant and machinery was a minor theme beside the entrepreneur's circulating capital, and that self-financing provided the means of capital growth for private business in the eighteenth century. Nevertheless, the creation of social overhead capital, even in the age of turnpikes and canals, required at least a primitive form of market finance. Bruce Anderson has recently argued that this institutional capital market late in the eighteenth century was erected firmly upon foundations laid in provincial England in the early part of the century.¹ His view is that improvements in the security and transferability of mortgages, coupled with growing impartiality and expertise on the part of agents, chiefly country attorneys, effectively created a money market which was increasingly concerned with capital investment. However, the evidence of a notably enlarged money market in the early eighteenth century is somewhat ambiguous. Money-lending, as we have seen, was a fully developed feature of relatively remote rural areas by the mid-seventeenth century if not much earlier, and although the distinction between consumption and capital remains difficult to draw, the will to lend at interest was clearly articulated. Moreover, from the standpoint of the mid-eighteenth century, many of the wealthy upper middle-class investors in turnpikes or canals often continued to drive a flourishing business in local money-lending in small sums. There was neither a switch from village-lending to capital investment by individuals or social groups nor the widespread tapping of new resources, since even in the seventeenth century the ratio of idle cash—all too frequently combined with valuation of the testators' apparel to permit accurate comparison—to credits in the inventories was already very low. The eighteenth century had no need to create a money market in order to provide low-risk capital. It already existed, and the fact in itself may help to explain the paradox of a relatively

¹ E. J. Hamilton, 'Profit Inflation in the Industrial Revolution', *Quarterly Journal of Economics*, 1941-2. See also the introduction and collected essays in F. A. Crouzet (ed.), *Capital Formation and the Industrial Revolution in Britain*, 1971; B. L. Anderson, 'The Attorney in the Early Capital Market in Lancashire', J. R. Harris (ed.), *Liverpool and Merseyside Studies in Economic and Social History*, 1968; B. L. Anderson, 'Provincial Aspects of the Financial Revolution of the Eighteenth Century', *Business History*, XI, 1, 1969; Anderson, 'Money and the Structure of Credit . . .', *loc. cit.*

wealthy society and the slow development of the institutional capital market before the railway age. The traditional outlets for spare money at the period were an unconscionably long time in drying up. Because capital accumulation is obviously so important in the process of industrialization, the concentration upon uniform elements in the character of investment and the substantial emphasis upon rates of interest are understandable but have tended, in certain directions, to distort the picture.

Secondly, the role of lawyer as broker in the creation of an institutional capital market is likewise equivocal. The lawyers' papers which I have consulted indicated that they certainly acted as intermediaries and invested other people's money in mortgages, but they do not really give the impression of impartiality. The numbers of properties in which lawyers were concerned as mortgagees, and which later ended up as their fee-simple, hardly suggests that the dangers of foreclosure were much less marked in the eighteenth century than before.

Thirdly, the argument that investment in mortgages, annuities, stocks, and shares grew as opportunities for land purchase diminished rests upon the Habakkuk thesis of a decreasing volume of land sales in the eighteenth century. My own research which has appeared elsewhere suggests that this may be somewhat misleading.¹ As far as the regions of eastern England discussed in this article are concerned, the eighteenth-century land market remained almost as varied as in the previous period. In Lincolnshire and Norfolk at least, land purchases continued to reflect the movement of wealth reasonably faithfully. Changes in the land market had a very marginal effect on any changes in the structure of capital investment which were in train after 1700.

Indeed, from a study of the various sources which provide information of credit from the early seventeenth century to the late eighteenth it appears that by far the most important element of capital in the negotiation of loans was the purchase of real estate. Much of the loan business, as with sales credit, was to maintain consumption. Mortgages, of course, were negotiated to provide dowries, portions, or the supply of other immediate needs for cash. Many of the smaller loans, similarly, were employed to preserve the debtor's short-term liquidity. Shopkeepers in country districts, like their fellows in nineteenth-century industrial towns, were particularly important in this respect. Nevertheless, land purchases, even by relatively poor men, were frequently financed by loan capital; and in some villages at least, smallholders bought cows, and probably obtained other working capital too, upon loan, even in the late seventeenth century. Unfortunately we cannot generalize from the scattered and infrequent references to some such practice found in wills and inventories, but it is probably sufficient merely to know that it could happen. Enclosure, the financing of which is only now receiving adequate attention, was sometimes, but not as a rule, financed upon mortgage.² There is some correlation,

¹ B. A. Holderness, 'The English Land Market in the Eighteenth Century. The Case of Lincolnshire', *Econ. Hist. Rev.* (2nd series) xxvii, November 1974.

² See M. E. Turner, 'The Parliamentary Enclosures of Buckinghamshire' (Ph.D. thesis, Sheffield University Library, 1973.) I am grateful to Dr Turner for discussing the problem with me.

for instance, between local activity in the manorial registration of copyhold conditional surrenders and the date of parliamentary enclosure, at least in Buckinghamshire, but the evidence is not precise enough to do more than illustrate a possible means of meeting the costs of enclosure. In summary, we may note that credit facilities were used to enlarge capital in the pre-industrial village community but that the distinction which modern economists make effortlessly was at best obscure in the seventeenth and eighteenth centuries.

A point of some importance which has been elaborated elsewhere, but which has a bearing upon this problem, is the response of members of agrarian communities holding "credits" to secular movements of commodity prices.¹ A detailed study of a particular locality for which inventories were collected over more than a century after 1650 revealed that peaks of both lending and sales credit occurred in periods of relatively high prices for local cash commodities, the 1690's and 1710's especially, and that in periods of relatively low prices credit activity diminished. Significantly perhaps, the collapse of wool prices in the 1720's, which merged, a decade later, in the so-called agricultural depression of the early eighteenth century, saw a marked contraction in money-lending as a percentage of the aggregate valuation of the inventories. On the other hand, the median value of inventories continued to increase, albeit marginally, in this period. The implication is that the more substantial members of the rural community reduced their commitments sufficiently to maintain their own consumption levels in a period of stagnation of trade. Since one of the commonest complaints among agriculturists in the periodic runs of low prices from the 1660's onwards was concerned with their illiquidity—and rent arrears almost invariably increased quite sharply at the same time—the true bearing of these complaints may conceivably have been credit contraction within the village community.

Conclusions about the structure and functioning of the credit system as it appeared to operate in post-medieval England to some extent remain tentative. The system was probably not unique among pre-nineteenth-century agricultural societies, and an important area of research not yet opened up lies in the field of comparative history. In England, the combination of a considerable surplus above immediate consumption for a broad spectrum of agrarian society, at least in a long period analysis, the habit of using the surplus as credit, and the wide diffusion of lending among country people, was of particular importance in the process of economic development. Savings may not have equalled investment but the peasant proclivity for hoarding gold under the bed was not very pronounced. The apparently heavy commitment to consumption in the exploitation of these credit facilities may not have been an ideal component in the development of a capital market, but since credit facilities in rural communities formed a more or less integrated system by 1700 the most important consideration was the *will* to lend, not the destination of particular loans.

¹ Holderness, 'Rural Society . . .', *loc. cit.*, chs. III, VII. An amended version of this analysis will eventually be published in *Midland History*.

Socially, too, the system had its advantages. Not only were few individuals able to monopolize credit facilities, but a sort of cadre of professional money-lenders did not develop, even among the attorneys, outside the great towns. This was less socially dangerous than in societies where village wealth was rather less evenly divided. Furthermore, the English suffered no disorientating social experience caused by money-lenders and village merchants being aliens, like the Jews of central Europe, the Hindu and Chinese traders in the East Indies, or the Gujaratis and Chettiars in Indian village communities. The "foreignness" of the local financier is as much a cause of social unrest as his alleged rapacity. The English village, in this respect at least, was much more cohesive.

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Land Improvement and Reclamation: The Experiences of the First World War in England and Wales

By JOHN SHEAIL

THERE have been numerous studies of how farmers responded to changes in the profitability of their crops by changing the use and management of the land. A wide range of response was possible, reflecting the differences in the outlook and resources of the individual landowners and occupiers. One farmer might quickly turn his land over to a more profitable crop whereas his neighbour might be more hesitant and unable to meet the cost of a change in husbandry.

The variety of response has been studied in detail for such periods as the decades between 1874 and 1914 which were marked by relatively low wheat prices, and particularly sharp falls in 1874-5, 1883-4, and 1890-4.¹ The area under wheat in England and Wales declined by 52 per cent of that in 1874, and the area of permanent pasture rose by 34 per cent. As an extension of these studies, it is logical to analyse the way in which agriculturalists responded to the sudden prospect of higher prices for grain during the years 1914-19 when there was an urgent demand for more home-grown food, precipitated by the wartime threat to food imports.

During 1915-16, the government encouraged the occupiers of the 435,000 holdings in England and Wales to produce more grain and potatoes, but the response was varied and sluggish. The situation was so critical by 1917-18 that the Board of Agriculture was compelled to intervene in three ways. First, it took unprecedented powers to enforce rapid improvements in arable husbandry and the reclamation of the 4 million acres of grassland which had become established since 1874.² Secondly, the Corn Production Act was passed in August 1917 which guaranteed the minimum price of wheat and oats over a period of six years. This was designed to ensure the continued profitability of changes in land-use and management.³ Thirdly, the Board tried to provide the means to carry out these changes, namely through the supply of the requisites of arable husbandry. In this way, the Board hoped to secure significant improvements in yields from existing arable in 1917 and large-scale reclamation of grasslands by 1918.

Although the targets were not fully met, probably never before had the use and management of land changed so dramatically. The area of wheat rose from 1,912,000 acres in 1916 to 2,557,000 acres in 1918, and that of potatoes from 428,000 acres to 634,000 acres.⁴ This paper will examine the way in which horses, machines,

¹ P. J. Perry, *British Farming in the Great Depression 1870-1914*, 1974.

² Lord Ernle, 'The Food Campaign of 1916-18', *J.R.A.S.E.*, 82, 1921, pp. 1-48; T. H. Middleton, *Food Production in War*, 1923; P.R.O.; MAF 42/8, 900/1

³ P.R.O., CAB 23/1, 66.

⁴ Ministry of Agriculture, *A Century of Agricultural Statistics*, 1968.

implements, and other essential supplies and services were obtained and deployed in order to secure the rapid improvement and reclamation of farmland. It will examine ways in which the longer-term problems of land drainage and pest control were resolved in order to assure a greater output of food crops. These aspects are unusually well documented. County agricultural and executive committees were established to provide guidance and assistance to farmers, and some of their minute books, reports, and correspondence have survived. The documentation provides an insight into the response of landowners and occupiers in individual counties and districts, and, together with memoranda and correspondence from the Board of Agriculture and its Food Production Department, it is possible to discern national trends in land use and management during the period of the war.

I

THE FOOD PRODUCTION CAMPAIGN

The threat of a breakdown of food supplies and thereby military defeat precipitated the changes in the use and management of farmland between 1914 and 1919. The United Kingdom grew only sufficient grain to sustain the population for an equivalent of 125 days in the year: for the rest of the time, the population depended on imported food. Yet shipping was also required for transporting armaments and industrial raw materials, and about 5,924,000 gross tons were sunk by submarine warfare. Farmers were accordingly urged to produce more grain and potatoes, and the area under cereals rose by 194,000 acres in 1915. This was largely because farmers abandoned their normal crop rotations, but soon the land became weedy and infertile. Accordingly, the area under cereals fell by 148,000 acres in 1916.

A departmental committee reported in June 1915 that the decline could only be halted by an improvement in land husbandry, the planting of wheat on land normally occupied by oats and potatoes, and the reclamation of at least 1 million acres of grassland for the production of the two displaced crops. The departmental committee recommended that the Board of Agriculture should facilitate these changes by inviting each county council to set up an agricultural committee which would provide guidance to farmers and identify shortages in labour, horses, and other requisites for arable husbandry.¹ The committees were established in most counties in the autumn of 1915, and the growing crisis in food supplies caused the Board to create smaller executive committees in January 1917, called the county agricultural executive committees. These became agents of a new executive body within the Board, called the Food Production Department, and the larger county committees became virtually defunct.

The main task of the county executive committees and their district committees was to invoke the powers taken by the Board of Agriculture under Regulation 2M of the Defence of the Realm Act in 1917. Under these powers the Board could

¹ Board of Agriculture, *Departmental committee on the Home Production of Food (England and Wales)*, Cmd. 8049, 8095, 1915.

issue orders for the improvement of cultivation: it could demand an improvement of husbandry on any farm and field, and prohibit the growing of less essential crops. Among other powers, it could end a tenancy, take possession of land, and commandeer machinery, implements, produce, and stock, if this would secure higher food production. By delegating these powers to the county committees, the Board and its Food Production Department could invoke the powers on any holding, and thereby increase the size of the grain and potato harvests from 1917 onwards.

The second objective was to extend the area of arable land in 1918 and subsequent years. Prothero, who was President of the Board of Agriculture, wanted farmers to reclaim all the grasslands which had become established since 1874, namely 4 million acres. In May 1917, the Food Production Department set a target of 3 million acres to be reclaimed by the summer of 1918, and every county was given a quota of this amount of grassland to be ploughed. The county and district committees used both persuasion and compulsory powers to achieve this end. The Food Production Department and the committees also had the obligation of helping farmers to meet the growing shortages of labour, horses, machinery, fertilisers, and other essential supplies. About 250,000 farmworkers had enlisted in the army, and others had left for higher wages and better conditions in other industries. The committees were given powers in June 1917 whereby they could prevent the call up of most skilled workers, and they assisted in the deployment of auxiliary labour on farms where the arable area was being extended. Within a year 400,000 soldiers, women, and prisoners-of-war had been provided.

HORSES

Large numbers of horses were required by the army, and the Director of Remounts bought 3,000 a month, mostly from industry and urban transport. The vendors thereupon bought many farm horses at lower prices, and the Food Production Department was worried lest there should be insufficient farm animals to reclaim the grasslands. In order to control losses, the Sale of Horses Order was introduced in June 1917 (under Regulation 2T of the Defence of the Realm Act) which forbade the sale of farm horses without a licence from the appropriate county committee. The latter could grant a licence only if the animal was surplus to farm needs and was sold to another farmer or authorized person. The Norfolk committee granted 8,500 licences up to 23 November 1918, when the order was rescinded, and refused only thirty-five applications. There was a shortage of horses on many of the smaller farms of less than 200 acres, and the need to obtain a licence discouraged many from trying to sell further animals to pay the rent or buy seed.¹ The Worcestershire committee refused a licence to a farmer at Clevelode, for example, until he had broken up further grasslands.²

Having regulated the loss of animals, the Food Production Department laid plans for providing 30,000 horses with their requisite ploughmen, harness, and

¹ Norfolk R.O., County Council committee books, vols. 3-7.

² Worcs. R.O., MSS. 599: 1-310.

implements, for hire by the county committees to farmers who were extending their arable land. West Sussex requested 1,600 horses and 800 ploughmen.¹ The teams were hired in two ways. By the first, farmers could hire them for a period of up to 1 month on the condition that they broke up at least 8 acres of grassland. The cost of hiring varied according to the type of work, condition of the soil, and time of year. The ploughmen received a normal wage, and the farmer had to feed the animals. By the second system, the horses worked in gangs, and were looked after by a Horse Officer and staff appointed by the committees. This was more popular in areas of small farms. The Food Production Department wanted to charge 5s. 6d. a day per animal, but the Lancashire committee thought the cost should be based on the area of land ploughed by the gangs. It argued that small farmers and those with little experience of cultivation would be afraid of hiring teams because of the uncertainty of the ultimate cost.² The Department eventually concurred in the use of either form of payment for gang-work.

The number of animals hired by the committees rose from 1,200 in September 1917 to 5,000 in late December, and 11,000 by June 1918. The Kent committee drew up 1,500 contracts for the loan of horses of up to 1 month, and 1,040 contracts for work on a daily or piece-rate basis.³ The success of the scheme varied: Shropshire was one of the few counties where it worked well, whereas the Gloucestershire committee incurred a deficit of £6,000 which had to be offset by the Food Production Department.⁴

There was a chronic shortage of skilled ploughmen, healthy horses, and suitable harness, and the Gloucestershire committee reported at one stage that it had 100 outstanding contracts owing to the lack of ploughmen. Many of the soldiers supplied as ploughmen were unskilled. Only one of the forty-seven men sent to Herefordshire could lead horses, and the remainder had to be trained at Monmouth. The Lindsey committee arranged for eighty-five town carters to be trained as ploughmen, and 150 metropolitan policemen with ploughing experience were shared between several county committees.⁵ Prisoners-of-war played an essential role, and several committees set up special camps under the surveillance of the War Office, provided with horses, harness, and implements. By March 1918 Essex had twelve such camps, containing 350 men and 480 horses.⁶ The animals were either borrowed from the army prior to their being sent overseas, or bought by the Army Purchasing Officers. Since the officers could not pay more than £100 for each animal, many turned out to be old, or sick, or light vanners which were not "heavy enough in size and bone for work on heavy soils." An outbreak of parasitic mange caused further dislocation of the ploughing programme in the winter of 1917-18, and the Peterborough committee appealed to every blacksmith to disinfect his premises in order to contain the epidemic.⁷

¹ West Sussex R.O., 2/12/1-2, 2/13/1-3, 2/14/1. ² Lancs. R.O., WAM 1-2, WEM 1-4, WCM.

³ Kent R.O., County Council minute book, vol. 14.

⁴ Shrops. R.O., MSS. 207, 1168/1; Gloucestershire R.O., CWA/M/1-3.

⁵ Herefords. R.O., K/1-2; Lincoln R.O., minute books and folders, 1915-20.

⁶ Essex R.O., WAC 0-6, D/Z 45/1-14.

⁷ Hunts. R.O., minute books for Soke of Peterborough, 1917-20.

STEAM PLOUGHING AND THRESHING

It was widely believed that steam ploughing was the most efficient way of breaking up grasslands, but fifteen of the forty-six sets of tackle in Kent were unused, and half of the 500 sets in England were idle. Some required repairs but most were unused because the engine drivers had left for the army or the munitions factories. Within two months of their establishment the county executive committees had encouraged the repair of all but forty obsolete sets, and had succeeded in obtaining the recall of 300 men.

Steam tackle was especially useful in breaking up grasslands on heavy soils, and where the fields were generally "too banky or too steep for tractor work." The Huntingdonshire committee estimated that it had sufficient sets to plough up 5,000 acres in 1917 but asked for a further set for each additional 500 acres, preferably manufactured by Fowler & Company of Leeds.¹ Most farmers hired contractors for the work, but the West Sussex committee discovered instances where contractors refused to accept contracts for ploughing up very heavy land or small fields. Accordingly, several counties formed joint committees with the contractors, and in Hertfordshire a sub-committee met each week to review all applications for steam ploughing, and to plan the deployment of the tackle.² Committees were authorized by the Department to guarantee payment for any work undertaken at their request, which helped to remove any fears as to whether the contractors would be paid for the work. The Middlesex committee divided the county into three parts and tried to allot each set of tackle to one part so as to reduce the amount of time spent moving the machinery between holdings.³ It is estimated that 1,200,000 acres were ploughed in England and Wales during 1917-18, about three times the normal area tilled by steam power in peacetime.

The committees intervened in the deployment of threshing tackle because sets had been commandeered in some areas by the military authorities for threshing the straw for the military horses, and the smaller farmers were experiencing difficulties in obtaining contractors to thresh their ricks. The Food Production Department supplied eighty machines in the autumn of 1917, and persuaded the Ministry of Munitions to give priority to the manufacture of new tackle and spare parts. Threshing sub-committees were formed in many counties, made up of representatives of the county committees and tackle owners. In 1918, the Kent sub-committee allocated one of the 158 sets in the county to each 700-1,000 acres of grain crops, and in an effort to secure 1,000 extra workers the committee recruited 750 women. As a result, an average of 150 machines threshed 6,360 acres of grain crops, or 26,335 quarters of grain per week. The machines visited an average of 420 holdings and worked 4.41 days of 8 hours each week between September and December 1918.

¹ Hunts. R.O., minute books for Huntingdonshire, 1917-20.

² Herts. R.O., AEC 1-35.

³ Middlesex R.O., minute book 1917-18.

TRACTORS

The demand for labour-saving machines grew as the number of farm labourers declined through recruitment. By 1916 the orders for tractors exceeded supply, and the Pershore district committee in Worcestershire urged the Board of Agriculture to take over the production and supply of tractors. In January 1917 the Essex committee claimed that 100,000 acres of grassland could be broken up in 10 weeks if 500 extra machines and skilled drivers could be secured. From 1917 onwards, the Food Production Department intervened, and bought almost every tractor that was available. The county committees hired the machines to those farmers extending their arable land. There were soon 477 "government tractors" at work, and 135 machines were borrowed from farmers who did not require their machines all the time. Thus, there were sixty-eight tractors in Hertfordshire in the spring of 1917: forty were privately owned and operated, fifteen were "government tractors", and the remainder were loaned by farmers to the county committee. On 1 May 1917 the practice of borrowing machines ceased.

The "government tractors" scheme was at first operated by the Food Production Department since so few members of the county committees had sufficient expertise to supervise these new machines. But gradually the committees came to assume greater responsibility, especially as the number of machines increased and prejudice against them declined. Each county committee appointed a machinery sub-committee with a full-time officer and assistants to draw up contracts with farmers, negotiate the cost of work, and arrange the timetable for their use. Thus an officer for the East Riding¹ reported:

I went to Malton and met the Agent of the Training Ground at Langton Wold. We staked off 50 acres for ploughing; it is sound Wold land, and has laid a long time in grass and is partly covered with whins and thorns, which will require to be stubbed up before it can be ploughed; if possible the rough grass should also be burnt off.

The Department remained responsible for the maintenance and repair of the tractors, and the supervision of drivers and ploughmen. Local agricultural engineers were appointed as the Department's representatives, providing fuel, oil, grease, and spare parts. In spite of efforts to ensure close liaison and efficiency there were many complaints, and in August 1917 the Lancashire machinery sub-committee threatened to resign. It claimed "there were too many officials, too many motor-cars, too many conflicting orders, too little work done, and too much money spent on unnecessary organisation."

The greatest difficulties were encountered in securing an adequate number of machines, and the Oxfordshire committee observed "that at no time have there been anything approaching a sufficient number,"² while the Herefordshire committee warned that farmers would be unable to reclaim their quota of grasslands unless a further 100 tractors were sent to the county. Fortunately, the number of

¹ East Riding R.O., printed report of proceedings, 1917-19.

² Oxfords. R.O., CCC 452, 453, 455, CWAM 1, CWAL 1.

"government tractors" in England and Wales rose to about 3,240 by the end of spring, and 3,925 by October 1918. The first machines in Northamptonshire were sent to the Towcester district where the scope for increased food production was greatest.¹ They were most useful on heavy soils where ploughing was possible on comparatively few days in the year. Tractors did not grow tired like horses, and there were attempts to continue ploughing after dusk when, according to the Food Production Department, a three-furrow plough could break up 0.5 acres per hour "with a fair-sized moon." Drivers were given special permission to use unshielded lights but night-time ploughing soon ceased. "The shadows cast by the headlights were very deceptive, and the quality of the ploughing work was very poor," and the Herefordshire committee introduced two shifts of 8 hours per day instead.

The Department estimated that 800,000 acres were ploughed and cultivated in the 1917-18 season by the "government tractors." The tractors remained at work for as long as each could plough an average of 4 acres per week, and the Huntingdonshire committee confined its machines to the lighter soils of the fenlands during winter. Middlesex used the machines to clear scrub and reclaim the site of a proposed reservoir at Laleham during wet weather.

There were, however, many complaints of "unsatisfactory work", and the Shropshire committee complained that of the time available for work in the week ending 11 January 1918 the machines were ploughing for 24 per cent of the time, and were idle for 35 per cent due to bad weather, and 29 per cent of the time due to repair work. Many machines were used on unsuitable land, and in Herefordshire the machinery officer reported "all the good tillage has been done with horses and we are simply doing the bad pieces." The Department reminded farmers that tractors were still "in an experimental stage," and whilst they were ideal for breaking up pasture which had been laid down in the previous fifty years they should not be used to plough up older pasture land or "very high backed land." Gradually the committees became more selective, and the machinery officer in Shropshire refused to allow any field under 6 acres or of irregular shape to be broken up by tractors. At Swaffham Priors in Cambridgeshire tractors ploughed the fields but horse-teams were employed on the headlands.²

There was a great debate as to the merits of different types of tractors. Various trials were arranged, and by the end of the war Fordsons were the most popular tractor since they were easier to manoeuvre and maintain. At first, however, the committees were given little choice as to what machines were supplied, and Lindsey received thirty-nine Titans, fifteen Parrets, ten Emersons, nine Moguls, and four Fordsons. The Wiltshire committee complained that twenty-three of its thirty machines proved unsuitable for heavy land.³ Most counties wanted only two or three types in order to reduce the problems of maintenance and obtaining spare parts, and by late 1918 the Department had succeeded in reducing the number of types in use to six.

¹ Northants. R.O., Overstone MSS, Box X 4210.

² Cambs. R.O., 424/01.

³ Wilts. R.O., minute books, 1915-20.

The difficulties were exacerbated by the inexperience of drivers and mechanics, and the chronic lack of spare parts. In November 1917 six of the forty-two machines in Essex were idle for want of spares, and the fact that many parts had to be imported from the manufacturers in America caused further delay. Machines had to be "discarded owing to the impossibility of obtaining spare parts in sufficient quantities."

The long-term effects of the scheme were keenly debated. For many farmers this was their first experience of seeing tractors at work on their fields, and the East Sussex committee found farmers intensely scornful.¹ But the Northamptonshire committee noticed a change in attitude so that by 1918 many farmers bought machines wherever possible. Advocates of the scheme emphasized the exceptional circumstances in which the tractors were used. According to a member of the Department writing in 1919:

The Government tractors carried out some astonishing performances . . . They dug themselves deep into the Midland Clay, they broke implements innumerable on the concealed rocks and boulders of the West Country, and they skidded vainly about the hillsides of Wales and the North. Fatal accidents were not unknown, but land was ploughed—at a cost—and crops were grown: it was "magnificent, but not agriculture."

Even the tractors engaged on simple ploughing operations worked under exceptional conditions. They spent much time and fuel travelling from farm to farm. Nuts and bolts worked loose and dropped off, and the frame and wheels of the machines became strained. Most observers believed these difficulties would be avoided in peacetime when every machine would be privately owned and operated.²

FARM IMPLEMENTS

Never before had agriculturalists obtained such a detailed, albeit still incomplete, view of their equipment. The results of a census organized by the Essex committee are given in table 1. Publicity was given to labour-saving machinery; the county lecturer for Glamorgan pointed out that 45 per cent of the farms in the county were under 20 acres, and 60 per cent under 50 acres, and their occupiers were desperately short of capital. This, rather than any basic antagonism, caused them to buy second-hand implements at prices well above their intrinsic value and yet still lower than the cost of new.³ Many farmers depended on hiring equipment, such as charlock sprayers, but the contractors frequently lacked sufficient equipment or refused to work in the fields which were small, wet, or stoney. The Board of Agriculture, executive committees, and Agricultural Organization Society, therefore, encouraged farmers to form trading societies for the joint purchase of equipment, and

¹ East Sussex R.O., Shiffner MSS. 3256.

² G. T. Hutchinson, 'Government Tractor Cultivation', *Journal of the Board of Agriculture*, 25, 1918-19, pp. 1045-54.

³ Glamorgan R.O., AC ACZ 1, various folders and files.

THE AGRICULTURAL HISTORY REVIEW

TABLE I
CENSUS OF AGRICULTURAL MACHINERY ON THE
9,055 HOLDINGS IN ESSEX, JULY 1917

<i>Implements</i>	<i>In good repair</i>	<i>Capable of being repaired</i>
Binders	3,999	330
Corn and seed drills	3,918	83
Disc harrows	742	12
Engines, portable	569	42
Horse cultivators	3,360	105
Ploughs	13,373	464
Potato sprayers	58	4
Rollers	8,054	171
Threshing machines	420	22
Traction engines	280	12
Toothed harrows	13,128	318

some co-operative ventures were successful. But progress was necessarily slow, and in order to meet the food production crisis of 1917-18 the Department was forced to intervene and provide thousands of implements for hire to farmers. Five thousand binders and reapers, for example, were provided in 1918. The Northamptonshire committee hired out 156 ploughs, forty disc harrows, sixty-three horse harrows, thirty-four disc drills, forty-one cultivators, fifty-five rollers, and eighty-six binders.

ESSENTIAL SUPPLIES

There were widespread fears of the land becoming infertile, and the Glamorgan committee encouraged colliery owners to sell all their pony manure to nearby holdings. By 1917 orders for the stable manure from military camps had outstripped supplies, and only local farms could be supplied. Farmers were encouraged to use more artificial fertilizer, and demand for basic slag rose from 280,000 tons to 500,000 tons per annum. Unfortunately supplies were disrupted by shipping losses, the rival demands for the chemicals in the armaments industry, and the enlistment of key workers in the industry. The output of superphosphate of lime fell to less than 30 per cent of peacetime production. The Board of Agriculture, therefore, tried to popularize the use of sulphate of ammonia which was relatively plentiful. The Food Production Department and committees tried to secure adequate supplies for stockists and farmers, and demand rose from about 60,000 tons before the war to 150,000 tons in the 12 months ending May 1918.

An expected shortage of grain seed failed to materialize, but farmers experienced great difficulty in securing coal and oil. The shortage of coal was so serious in July 1918 that the committees were allowed to grant certificates for the priority delivery

of coal for steam cultivation and threshing. It was also essential that the steam pumps of the fenlands obtained adequate supplies, and the Cambridgeshire committee supported a special order of 50 tons of coal for Soham Mere Drainage Pump in order to keep the area free of flood-water. The Wiltshire committee warned of the consequences of a petrol shortage: it stressed that "owing to the decrease in the amount of labour available it is necessary to utilise machinery to a greater extent than heretofore." The Glamorgan committee organized a census of petrol-driven engines in 1916, and discovered that there were about 200 in agricultural use, ranging from 1 to 10 horse-power.

Many farmers and smallholders lacked the capital to increase food output and change the use of their land. In 1916 the Preston district committee of Lancashire recommended that the Board of Agriculture should create a number of co-operative banks to supply short-term credit. In May 1917 the Food Production Department introduced a scheme whereby the joint-stock banks offered special credit facilities in return for a government guarantee on each loan. The money was not actually advanced: instead, the banks paid the bills presented for items previously approved by the committees, and the farmers repaid the sums within 9 months at 5 per cent interest. On behalf of the Department the county committees investigated each application for a loan. At first credit was only granted for the purchase of seeds, fertilizer, and manure. Thus, the Hertfordshire committee approved a loan of £100 for the purchase of 12 quarters of seed oats and 200 sacks of soot. But in August 1917 a second scheme was introduced whereby credit could be given for any purpose which led to increased food production.

By June 1918 478 applications for credit had been made in England and Wales, and 303 had been approved for a total sum of £21,077. The number of applications varied between counties: Essex approved loans for £2,680 in 1917, whereas the Peterborough committee received no requests for assistance. Prothero complained that farmers made little use of this source of credit. Many were reluctant to reveal their financial position to the committees, and the latter gained a reputation for being very strict in approving loans.

LAND DRAINAGE

Many of the fields scheduled for ploughing up were so badly drained that there was little point in planting crops until they were under-drained. The Lindsey committee noted that even some of the pastures which had produced grain in the mid-nineteenth century were flooded: many of the drainage pipes had been installed so deep in the ground that they were useless, and they had to be replaced by more shallow drains. The Department tried to obtain the recall of all skilled drainers from the army and munitions factories, and to encourage the revival of several small brickyards for the supply of pipes and tiles.

Many water-courses and field ditches were so neglected that they flooded neighbouring farmland. Lidlington Brook in Bedfordshire had not been cleaned out for twenty years and cattle had trodden down the banks, so that over 70 acres of

the parish of Liddington were flooded several times a year.¹ The Caistor district committee in Lindsey claimed that 3,000 acres of warpland were flooded by the Ancholme river and Caistor canal, and it asked the county committee to withhold orders for breaking up grasslands until drainage improved. There was special concern for the drainage of the fenlands. The drains were frequently choked by silt and vegetation, and the problem was exacerbated by the apathy of a small minority. The Peterborough committee complained that some of the farms were:

owned by many different small owners and farmed by a number of small holders, many of whom, not only neglect their land, but also their ditches and drains and consequently a man who is anxious to farm well is placed at a great disadvantage owing to his neighbours holding up the water.²

Under the Cultivation of Lands Orders the county committees could order the owners and occupiers of water-courses to prevent the flooding of agricultural land. Thus the Kent committee issued orders for the improvement of the rivers Beult and Tiese: the occupiers had to "cut the bushes overhanging the stream and so far as possible remove all obstructions that retarded the flow of water." An inspector was appointed to ensure the work was completed by January 1919. As early as December 1915, the Liverpool district committee suggested that the Board of Agriculture should undertake drainage work where the owner or occupier lacked the resources or refused to co-operate. The Cultivation of Lands Orders of 1917 made this possible: the county committees could carry out the work if the owner failed to act within 7 days of receiving a drainage order. The cost would be later recouped from the owner.

The county committees entered into liaison with one another in the improvement of water-courses, and the Norfolk and East Suffolk committees, for example, co-operated in issuing orders and undertaking improvements on the river Waveney, which formed the county boundary. Large numbers of unskilled soldiers and prisoners-of-war were employed under the supervision of skilled civilian drainage experts. About 250 prisoners helped drain 5,000 acres of farmland in the valleys of the Birkett, Fender, and Arrow in the Wirral of Cheshire,³ and the Department estimated that 80,000 acres of farmland in England and Wales benefited from drainage work undertaken in the months up to June 1918.

The committees experienced great difficulties in this drainage work. It was a laborious procedure to issue a drainage order: the Essex committee discovered that 100 persons owned parts of Mar Dyke which was only 45 miles in length. Few members of the committees had experience of water management, and the Department gave little expert guidance at first. The Lancashire committee was allowed to appoint the county bridgemaster as a drainage expert. Work was impeded by bad weather and unexpected technical difficulties. The East Riding committee com-

¹ Beds. R.O., WAM 6-12, WAO 1-II, WAR 1-5.

² Hunts. R.O., minute books for Soke of Peterborough, 1917-20.

³ Cheshire R.O., printed report and minute books, 1915-20.

plained of slow progress in improving the Market Weighton canal owing to the inexperience of the labour force and the problems caused by high tides in the Humber. Work on Bellasize drain was completed in August 1918, but soon afterward the committee had to authorize further expenditure in order to prevent landslips and the erosion of the banks of the drain.

The work was so vital that a Land Drainage Act was passed in 1918 which ensured that the powers invoked under the wartime regulations would remain in force after the war. This helped to stimulate the long-term investment that was required for large-scale drainage schemes. The Act made it easier to set up drainage boards and extend the area of those in existence. The county councils and Board of Agriculture could take the initiative, and it was hoped the boards would take over the supervision of drainage, provide the necessary expertise, and obtain finance from drainage rates. Accordingly, the Cheshire committee decided to "resuscitate" the local drainage board of the Froudsam district in order to safeguard 2,000 acres of marsh and low-lying land which had been drained by 200 prisoners working under the direction of the committee.

VERMIN CONTROL

From 1915 onwards the committees stressed the futility of land improvement and reclamation without steps being taken to reduce the number of rabbits and other pests. The Board was at first reluctant to intervene but in 1917 a Rabbits Order was introduced which gave the committees powers to reduce the rabbit population where landowners or tenants failed to take action. The Berkshire committee, for example, issued an order for the destruction of rabbits on one estate despite the opposition of the landowner who claimed his "rabbit farm" produced large quantities of rabbit meat for consumption. The Department reminded the East Sussex committee of the value of the Order in safeguarding crops on the newly reclaimed wheatlands of St Leonards Forest. Where possible the committees took steps to destroy the rabbits' breeding grounds, and a covert was cleared and broken up at Breaston, Derbyshire, in order to reduce the rabbit population in the vicinity of newly ploughed fields.¹

Pigeon shoots were arranged, and the Rookeries Order of May 1917 authorized committees to issue orders for the shooting of rooks where the rookery owners had failed to co-operate in protecting crops. Kent received thirteen complaints of damage by rooks, but on investigation it issued only three orders for the destruction of the birds. The Lancashire committee noted that rooks "were only objectionable in cases where they were in excessive numbers," and issued only seventeen orders throughout the war.

The Norfolk committee urged the government to launch a national programme for the destruction of rats: a bumper harvest was in sight in 1918, and there were fears of serious losses in the granaries. The Ministry of Food introduced a Rats Order which allowed local authorities to intervene where landowners failed to co-

¹ Derbys. R.O., D/331.

operate. The Board of agriculture was empowered to supply rat poison to each council at cost price, and the Wiltshire council accordingly ordered a ton of poison for use in the spring of 1919.

Support was given to the formation and work of Rat and Sparrow Clubs whereby bounties were paid for the destruction of the vermin. With the encouragement of the county committee, the Hertfordshire county council paid £505 in 1917-18 on 103,512 rat tails, 40,586 fully fledged sparrows, 8,670 fledglings, and 19,216 eggs. Some committees advocated the destruction of all birds, but this attitude became less common during the war. Many observers believed this would lead to a dramatic rise in the insect pest population: the sparrow clubs would "simply prepare the way for insect plagues and devastations," and the Department reminded farmers of the valuable role played by insect-eating birds in protecting crops.

TABLE II
ESTIMATED PRODUCTION OF CEREALS AND POTATOES IN
ENGLAND AND WALES, AS INDICATED BY OFFICIAL STATISTICS
(,000 tons)

	<i>Wheat</i>	<i>Barley</i>	<i>Oats</i>	<i>Potatoes</i>
1885	2,093	1,702	1,316	2,395
1895	997	1,465	1,315	2,746
1905	1,572	1,201	1,425	2,783
1914	1,634	1,184	1,340	2,953
1915	1,880	866	1,452	2,858
1916	1,498	989	1,452	2,505
1917	1,567	1,051	1,471	3,341
1918	2,339	1,168	2,010	4,209
1919	1,763	1,052	1,566	2,733

II

THE RESULTS OF THE CAMPAIGN

The downward trend in cereal output in 1916 was reversed in 1917-18. The area of tillage rose from 8,407,000 acres in 1916 to 10,263,000 acres in 1918. Such counties as Lancashire and the East Riding exceeded their ploughing quotas by a substantial margin, and the proportion of farmland under pasture in Northamptonshire declined from 69 per cent to 61 per cent, representing an area of 40,000 acres broken up for cultivation. Table II indicates the rise in the estimated production of wheat, barley, oats, and potatoes during 1917-18, and compares output with earlier returns since 1885. The Food Production Department noted that no other European country had even maintained its pre-war output.

The Surrey committee regarded the winter of 1917-18 as "the high tide" of the farmers' fortunes, although on the basis of a case study made between 1913-14 and

1919-20 C. S. Orwin and S. J. Upfold described 1918-19 as the time of peak profits.¹ The demand for food was so high that farmers received the maximum prices permitted by the Food Controller. Although the high income was to some extent offset by increases in the cost of labour, equipment, farm stock, feed-stuffs, and fertilizers, the farm tenant gained considerably from the fact that landlords found it very difficult under the limitations of the Corn Production Act to increase farm rents.

A great deal of interest was centred on the yields of newly broken grasslands. The Department published a report in 1917 which claimed four successes for each failure recorded, and in 1918 several counties employed district valuers to estimate the output of the reclaimed land. Thus, a sample survey of the Bridge district of Kent indicated that 2,031 acres of new arable land had produced an average of 33 bushels per acre, "a highly satisfactory result." The best results were obtained from grasslands broken up in spring and early summer, left as a summer fallow, and planted in the autumn.

The county committees frequently attributed the failure of crops to the poor way in which the farmers had prepared the land. Some simply broadcast the seed over fields which had been badly prepared and harrowed. The executive officer in Lancashire remarked "had such land been properly worked by means of cultivators and harrows, more promising crops would have been obtained." Beside cases of negligence, the committees encountered examples of ignorance and inexperience, which compelled them to provide a rudimentary advisory service. One commentator remarked: "many of those who ploughed up grassland . . . had had no previous experience in dealing with arable land at all. Others though skilful in managing arable land had had little or no experience in breaking up old turf."²

From May 1918 onwards, there were many reports of extensive damage caused by wireworm and leather-jackets. Heavy losses were recorded in south Hertfordshire which the county committee attributed to the fact that men, horses, and implements had arrived too late for autumn ploughing, and most of the land had been planted in March. Although the seed germinated well, the crops were "absolutely ruined by leather-jackets, wireworms and other slugs," and about 190 acres had to be resown with barley.

Farmers could claim compensation for losses sustained in reclaiming land by making application to the Defence of the Realm (Losses) Commission. After August 1918 claims were settled by arbitration under Section 8 of the Agricultural Holdings Act of 1908. By the middle of 1921 claims had been lodged for about 122,000 acres in England and Wales which, after investigation, were reduced to 75,000 acres, or about 4 per cent of the land broken up for cultivation. The Oxfordshire committee issued 1,256 orders in 1917-18, but received only eighty-two claims for compensation.

¹ C. S. Orwin and S. J. Upfold, 'Farming Equipment and Finance', *J.R.A.S.E.*, 82, 1921, pp. 131-57.

² C. Brynner Jones, 'The Breaking up of Permanent Grass in 1918', *J.R.A.S.E.*, 79, 1918, pp. 24-44.

CONCLUSIONS

The radical changes in the objectives, organization, and output of agriculture between 1914 and 1919 were without precedent. During 1915 farmers had increased food production in response to the rise in prices, but by 1916 they were unable to maintain output without investing in large-scale land improvements and reclamation. Because most were reluctant to incur the financial risk of such schemes the government, spurred on by the threat of famine in late 1917, invoked powers whereby the Food Production Department, through county agricultural executive committees, could issue orders for the compulsory improvement and reclamation of land for higher food production. Whilst these powers in themselves would have halted the downward trend, there would have been a limited response without two further steps being taken, namely the introduction of guaranteed prices for wheat and oats over a period of six years, the length of a normal crop rotation, and the provision of guidance and material assistance to farmers by the county committees.

The committees identified shortages, and obtained from the Department the necessary horses, steam tackle, tractors, implements, and other requisites for cultivation. It was a period of innovation, with the introduction of a credit scheme, and the intervention in land drainage, and various forms of pest control. The committees encountered many practical difficulties, arising from the hostility, apathy, or inexperience of landowners and occupiers, illustrated by the controversy as to the methods of hiring horse-teams on piece-rates, or the deployment of tractors. The executive officer for Kent described the campaign as a great experiment, the cost of which was justified at the time only by the seriousness of the food situation.¹

The food production campaign ended during the autumn of 1918, following the Corn Production (Amendment) Act of August 1918 which awarded landowners and occupiers the right of appeal to an arbitrator whenever the committees issued orders for land reclamation, the termination of a tenancy, or the requisition of land and equipment. The Herefordshire committee warned that this would "in many cases paralyse the work of the committees," and indeed most became much less zealous in invoking and enforcing orders. A study of the minute books of the committees also indicates a growing resentment during the latter part of 1918 as farmers complained of the rising cost of overheads without any compensatory increase in the maximum price of farm produce. The Surrey committee asked: "is it possible that the serious risk of starvation we have recently faced has had so little effect that the farmer is to be sacrificed even before the danger is past?"² The third stage in the demise of the campaign was reached after the Armistice when the committees were ordered to dispose of their horses, machinery, and equipment through public auctions.

After considerable prevarication the Department and committees were dissolved

¹ G. H. Garrad, 'The Work of the Motor Tractor', *J.R.A.S.E.*, 79, 1918, pp. 1-24.

² Hunts. R.O., Surrey Committee circular in Hunts. minute book, June 1918.

in the spring of 1919, the Board of Agriculture was restructured, and new county committees were established for a peacetime role. A Royal Commission was appointed to enquire into the economic prospects of agriculture in peacetime.¹ Most observers expected a return to "normal," but the sub-committee of the Reconstruction Committee warned that "bad farming is a danger to the State," and that every effort should be made to secure "the greatest possible return of foodstuffs."² The new peacetime committees retained powers to enforce good husbandry and prevent arable land becoming derelict. The methods adopted in the First World War were closely studied from the early 1930's onwards. It may perhaps be significant that a piece of stationery of the Shropshire agricultural executive committee for the Second World War was found as a book-mark in the minutes of the First World War committee, marking the page which identified the 50,000 acres of grassland that were scheduled for cultivation by the harvest of 1918.

¹ E. H. Whetham, 'The Agriculture Act, 1920, and its Repeal', *Ag. Hist. Rev.*, xxii, 1974, pp. 36-49.

² Reconstruction Committee, *Report of the Agricultural Policy sub-committee*, Cmd. 8506 (1917), 9079 (1918).

Notes and Comments

REVIEW BACK ISSUES

THE AGRICULTURAL HISTORY REVIEW is now available in microform from University Microfilms Ltd, St John's Road, Tylers Green, High Wycombe, Bucks. HP10 8HR. Back issues still in print and available from the Society's Treasurer are: Volumes 1, 3 (i), 4 (ii), 6-9, 14 (ii), 15, 16, 17 (ii), 18-24.

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COMMUNITY GARDENS PROJECT

Mr James H. McGee, mayor of the city of

Dayton, Ohio, has asked us to inform readers of a community vegetable gardens project in the city which extends to 950 contiguous plots, the largest of its kind in the United States. The mayor would be interested to hear of similar projects in other countries.

ANNUAL CONFERENCE AND AGM 1976

The Annual Conference of the Society was held at Homerton College, Cambridge, on 12-14 April 1976. The Conference included papers by R. M. Smith, B. M. S. Campbell, D. P. Dymond, J. R. Wordie, Mrs S. Wade Martins, and R. Perren. Dr Dymond led an excursion to Arthur Young's estate at Bradfield Combust and the Museum of Rural Life at Stowmarket, Suffolk.

The Society's twenty-fourth AGM was held on 13 April 1976. Mr John Higgs, Mr C. A. Jewell, and Mr M. A. Havinden were re-elected President, Treasurer, and Secretary respectively. The three vacancies on the Executive Committee were filled by the re-election of

(continued on page 148)

The Prosperity of Farming on the Lindsey Uplands, 1813-37

By J. A. PERKINS

LORD ERNLE's dictum, that "Between 1813 and the accession of Queen Victoria falls one of the blackest periods of English farming,"¹ is today considered an "unsatisfactory" if not untenable generalization of the experience of English agriculture during the deflationary era.² In its place a mosaic has appeared of a "primarily arable depression," especially on the clays, with shortlived universal depressions from 1813 to 1817, from 1821 to 1823, and from 1833 to 1836, with wide regional and individual variations of depth.³ The change of interpretation has not come about because English farming has experienced depressions since Ernle's time that make the period from 1813 to 1837 appear a "golden age" in comparison, and neither is it the result of "reassessments" of the prosperous eras in the history of farming that preceded and succeeded the one in question. Rather it might be said that the reinterpretation, which has so far largely occurred from a national perspective, forms part of that general trend in the historiography of English agriculture which is tending to deny farmers their depressions.

The logical outcome of the current trend in English agricultural historiography for the post-Napoleonic-war period is a necessity for more analyses of the various agricultural regions of the country, upon which any satisfactory national interpretation must be based. The trend must also lead to an eventual questioning of some of the broader hypotheses upon which English economic history is based, including particularly the assumed greater

profitability and prosperity of manufacturing industry over farming and the sources of capital for industrial growth during the later eighteenth and first half of the nineteenth century. The present essay represents an attempt to follow this logic by offering a synthesis of the experience and profitability of farming on the uplands of Lindsey between 1813 and 1837, and by tentatively exploring some of the broader hypotheses suggested by an optimistic conclusion on the experience of farming.

I

It is somewhat paradoxical that, at the very time that the Malthusian notion of the inevitable tendency of population growth to outstrip the rate of growth of food supply was first formulated and widely accepted, English farming demonstrated a remarkable ability to lift the ceiling on production, and especially to yield increasing returns from labour and capital employed on the light and formerly marginal soils of eastern England. Nowhere was this transformation more evident than on the uplands of Lindsey, an agricultural region comprising the oolitic limestone Cliff north of Lincoln of some 110,000 acres in extent, and the chalk wolds comprising some 260,000 acres in eastern Lindsey.⁴ Before the later eighteenth century extensive grazing on poor pastures predominated over tillage in this region, which represented one of "the most considerable tracts of unimproved country in England." A large proportion of the uplands was devoted to sheepwalks, on which stock

¹ Lord Ernle, *English Farming Past and Present*, 6th edn, 1961, p. 319. A similar conclusion was reached in L. P. Adams, *Agricultural Depression and Farm Relief in England 1813-1852*, New York, 1932, pp. 140, 149.

² Ernle, *op. cit.*, O. R. McGregor's Introduction, p. xcii.

³ E. L. Jones, *The Development of English Agriculture, 1815-1837*, 1968, pp. 10-17; J. D. Chambers and G. E. Mingay, *The Agricultural Revolution 1750-1880*, 1966, pp. 126-30.

⁴ Acreage estimates derived from S. M. Makings, *The Economics of Poor Land Arable Farming*, 1964, p. 117; Lincolnshire Archives Office (L.A.O.), Massingberd MSS. 30/14; T. Allen, *The History of the County of Lincoln*, Leeds, 1830, I, p. 1.

was bred and reared for sale to lowland graziers, and for folding on the small arable "infields" adjoining the villages in the valleys of the wolds and along the scarp of the Cliff. And on the thinnest soils of the central and southern wolds a large acreage was devoted to rabbit warrens, "the dernier resort of poor land." In such a marginal agricultural region in the middle decades of the eighteenth century, it was necessary for farmers to occupy large acreages in order to afford a bare subsistence.¹

The farming system on the Lindsey uplands began to change perceptibly from the 1780's, in consequence of a dramatic fall in wool prices associated with the disruptions to overseas trade during the American War of Independence, and with the upsurge of mechanized cotton-spinning which provided cheap yarn for partial substitutes for wool textiles. Although prices recovered in the 1790's, and never afterwards fell to the levels of the 1780's, wool itself was never again to recover its former predominance in the rural economy of the uplands. The shock of the price fall in the 1780's made farmers wary for many years afterwards of placing almost complete reliance upon returns from the sale of the wool clip. "Graziers in the county of Lincoln," in the early 1800's, were "afraid to adopt measures calculated to render their fleeces more weighty, because they have not yet forgotten how much the value of wool was reduced, and what a large quantity was left on hand during every year of the American War."² Thereafter, the growth of additional and alternative sources of supply for long-wool in other parts of England, with the substitution of long-woolled for short-woolled breeds on pastures converted to tillage under fodder and cereal crop rotations, and with the development of spinning machinery permitting shorter-stapled fleeces to be spun into worsted yarn, acted to reduce the price of long-wool in relation to prices of other agricultural commodities.

Following the dramatic fall in wool prices in the 1780's, the markets for the products of the rabbit warrens, which had once been an alternative form of land usage to sheepwalks on the light soils of the uplands, began to disappear rapidly during the 1790's. Changing fashion brought a decline of demand for silver-grey rabbit fur for "muffs, tippets," and robe linings, and hatters appear to have increasingly preferred the fur of the common rabbit that was becoming increasingly abundant with the spread of fodder and cereal crop rotations on the light soils of eastern England. The meat provided by the slaughter of the stock of the rabbit warrens, which had once been a cheap source of protein for the working classes of towns in close proximity to the warrens, was displaced by the mutton yielded by Bakewell's New Leicester breed of sheep, whose "over-fat" meat was designed for the palate and purses of the working classes.³

With the decline of extensive forms of land usage on the Lindsey uplands, the secular growth of population in the region from about 1750 onwards made it practicable to consider more intensive systems of farming. However, the main impetus to agricultural progress in the region came in the late 1790's with the upsurge of cereal prices. The virtual plateau of high prices for cereals from the later 1790's to 1813 acted to transform Lindsey from a marginal supplier of cereals to external markets, when local supplies were abundant in relation to those of other areas, into a permanent and significant contributor to the national supply of basic foodstuffs.

The high prices of cereals prevailing during the majority of the war years offered the prospect of a return to farmers for bringing the light soils of the Lindsey uplands permanently under the plough, to be cultivated with cereal and fodder crop rotations designed to raise the fertility of the soil and the profitability of farming in the longer term. To bring the land

¹ A. Young, *A Six Months' Tour Through The North of England*, 2nd edn, 1771, II, p. 10; J. A. Clarke, 'Farming of Lincolnshire', *J.R.A.S.E.*, XII, 1851, p. 362; T. Stone, *General View of the Agriculture of the County of Lincoln*, 1794, p. 38.

² J. Luccock, *The Nature and Properties of Wool*, Leeds, 1805, p. 200.

³ Allen, *op. cit.* I, p. 59; J. Mackinnon, *Account of Messingham in the County of Lincoln*, Hertford, 1881, p. 12; A. Young, *General View of the Agriculture of the County of Lincoln*, 2nd edn, 1808, p. 435; A. Blacklock, *A Treatise on Sheep*, Glasgow, 1838, pp. 95-6; W. Marshall, *Rural Economy of the Midland Counties*, Dublin, 1793, I, p. 232.

to a peak of fertility required a considerable investment of capital, which was largely borne by a tenantry occupying their farms without the security of leases, and which—although inflation during the war years reduced the time-span between investment and return—was not completely returned before a number of years had elapsed. The landlords provided the framework for progress by financing the enclosure of the land and the relocation of the farmsteads from the villages in the valleys (where they had formerly been situated to provide easy access to the waters of springs and the arable of the “infields”), to the “tops” of the hills (where they were required in order to bring the land permanently under the plough).¹ Thereafter, the landlords mainly assisted their tenants by permitting a lag to exist between the level of farm rents and the productivity and profitability of the farms. But the initiators of the agricultural revolution on the Lindsey uplands were the tenant farmers, and the overwhelming bulk of investment in the land from the turn of the nineteenth century consisted of tenant outlays.

In converting the land from pasture to permanent tillage the tenants had to expend a total of £8 to £9 per acre, or the equivalent of fifteen to twenty times the unimproved annual value of the land in the late 1790's. On the wolds, in particular, the land had first to be “pared and burnt,” by gangs of men using breast-ploughs to lift the turf, in order to reduce pests in the soil, such as wireworms, and to provide a fertilizer for turnips. Next the land was “marled” or dressed with chalk at the rate of 80 cubic feet per acre, to impart solidity and “sweetness” to the soil, and to counteract “fingers and toes” in turnips—the tendency of turnips grown on light soils to run to a taproot. Finally, the process of reclaiming the land for tillage was completed by a dressing of 60 bushels of bones per acre on the initiating tur-

nip crop in the rotation. For a few years thereafter, in order to raise the fertility of the soil to a point at which it would permit two or three cereal crops to be taken every five years, fodder crops had to appear in the rotation more often than was desirable in the light of relative prices for cereals and livestock products during the war years. And a dressing of bones, of about 20 bushels per acre, and a liberal application of manure from the crew-yard, continued to be applied to the land every four or five years, or whenever turnips recurred in the rotation, while a dressing of chalk was required every twenty to twenty-five years.²

Once established during the war years, the momentum of agricultural progress on the Lindsey uplands was maintained throughout the supposedly difficult period for farming that persisted until the later 1830's, if not until the middle of the 1850's. And it was essentially after 1813 that the farming of the region came to account largely for the contemporary reputation of the county of Lincoln for advanced farming methods. By the early 1850's, in the words of a competent French observer: “If Norfolk has long held the first rank among the English counties for agricultural development, Lincolnshire, which a century ago was more waste and sterile, now disputes the palm.”³ There were, however, important differences of emphasis between the farming of wartime and that of the postwar years. Where previously the farmers had striven to raise output without according much consideration to costs, whose increase was retarded in the instances of rent and wages by custom and tradition, and whose general significance was eroded by inflation, after 1813 they were motivated to increase the productivity of labour and capital as well as the productivity of the land. After 1813 the prosperity of farming came to depend not only

¹ Stone, *op. cit.* p. 40; Young, *Six Months Tour*, II, p. 19; J. Grey, ‘On Farm-Buildings’, *J.R.A.S.E.*, IV, 1843,

p. 4.

² P. Pusey, ‘On the Agricultural Improvements of Lincolnshire’, *J.R.A.S.E.*, IV, 1843, p. 299; J. A. Clarke, ‘On the Advantages and Disadvantages of Breaking up Grass Land’, *J.R.A.S.E.*, VIII, 1847, p. 510; Young, *General View*, pp. 77–8, 157, 300; B.P.P., 1836, VIII, p. 72; G. Legard, ‘Farming of the East Riding of Yorkshire’, *J.R.A.S.E.*, IX, 1848, p. 121; P. Pusey, ‘On the Progress of Agricultural Knowledge during the last Four Years’, *J.R.A.S.E.*, III, 1842, pp. 180–2.

³ L. de Lavergne, *The Rural Economy of England, Scotland and Ireland*, 1855, p. 4.

upon the farmers' ability to increase the gross output of their farms, to maintain the level of farm income by means of a larger volume of produce, but also upon a lowering of costs per unit of output to maintain profit margins. Both of these objectives were achieved by the continued development of the farming system in the direction initiated during the war years.

Tenant capital continued to be expended upon bringing more and more of the poor pasture land under the plough to support fodder and cereal crop rotations. The ratio of livestock to acreage steadily increased with the conversion of the land to arable until, by the 1830's, the average of about one sheep per acre on the eighteenth-century sheepwalks had more than trebled on the permanent tillage. The marketable qualities of the sheep and cattle maintained on the farms were considerably and rapidly improved by selective cross-breeding, which consisted of the retention of the females of the indigenous breeds for crossing with rams and bulls of the New Leicester breed of sheep and the improved Durham strain of shorthorns respectively; each of which possessed "a marvellous power of communicating its tendency to early maturity and its refining influence to those breeds with which it is crossed". Oilcake was introduced into the farming system in order to offset the effects of fluctuations in yields of turnips and artificial grasses upon sheep numbers carried on the farms; and it was fed to cattle wintered in crewyards for the purpose of assisting the digestion of otherwise worthless straw to provide a valuable manure, and to provide an additional source of farm income in the form of sales of fatstock or stores. New varieties of seeds were adopted where they accorded better than existing varieties with local farming conditions and market preferences, as with hybrid turnips, the Chevallier strain of barley, and Hunter's "smooth-chaffed" variety of white wheat. In the processes of tillage, the large, ponderous, and slow indigenous breed of black horses, which were only suited for fieldwork on the "heavy, tenacious, clay soils," was steadily transformed by means of

crosses with thoroughbreds, and other cart breeds, into a strain of the "Old English or Shire-bred horses" that produced a "lighter and more active style of horse for the farmer's plough-team." The productivity of manual labour was increased by means of improved handtools, and extension of "task-work" to as many activities on the farm as possible, and by improvements in the organization of labour to permit an increased degree of specialization and continuity of work. And mechanical aids were introduced into the farming system, either to reduce costs and speed up the processes of preparing the land for crops, as with the adoption of the drill and subsequent improved versions of manure and seed drills which were in widespread use of the uplands from the 1790's onwards; or, to reduce costs and enable the farmers to react to seasonal and even weekly fluctuations in the prices of cereals without interfering significantly with the other necessary activities on the farms, as with the adoption of the threshing-machine.¹

As a result of the improvements in the farming system on the uplands, costs fell significantly after 1813 even in relation to the prices of final products. The ability of the permanent arable to support an increasing volume of stock, which considerably exceeded that carried on the former sheepwalks, enabled the farmers to take advantage of the divergence in price trends after 1813 which favoured livestock products over cereals. And, along with improvements in seed varieties and the adoption of "the drill husbandry," the rising ratio of livestock to land also compensated the farmers for low cereals prices in the form of higher yields. From an average of 20 to 24 bushels of wheat per acre in the late 1790's, for a sowing of up to 4 bushels of seed, average yields of wheat on the wolds increased to 28 to 32 bushels per acre in the 1830's. As a parliamentary investigation into "agricultural distress" in the mid-1830's was informed by the steward of the largest estate on the Lindsey uplands, that of the Earl of Yarborough: "the farmers in our part of the country . . . are spirited managers . . . ; consequently the pro-

¹ R. Wallace, *Farm Live Stock of Great Britain*, 4th edn, Edinburgh, 1907, p. 572; J. Burke, 'Breeding and Management of Horses on a Farm', *J.R.A.S.E.*, v, 1845, p. 519; J. A. Clarke, 'Practical Agriculture', *J.R.A.S.E.*, 2nd ser., xiv, 1878, p. 580; E. J. Hobsbawm and G. Rudé, *Captain Swing*, 1969, Appendix iv, p. 362.

duce has been very great, and it has enabled them to go through the late bad times without experiencing any very great difficulties." In fact, the steward appears to have underestimated the actual success of the farmers in combating low prices for cereals, for rather than having, according to Ernle, "little capital left" by the mid-1830's, many farmers were making considerable profits to add to their accumulating fortunes.¹

II

Unfortunately, it is impossible to determine exactly how many farmers on the Lindsey uplands prospered during the years between 1813 and the later 1830's, and especially during the mid-1830's, and how much profit they made from their farms. Farm accounts and other evidence of outlays and returns in agriculture are rare survivals into an age in which an historical interest in them may be said to exist. The few extant accounts are generally rudimentary and often unintelligible documents, and many of the specific problems associated with farm accounting, and particularly those associated with interrelated systems of mixed livestock and tillage farming, have yet to be completely and satisfactorily overcome. Moreover, the majority of tenants were understandably wary of committing to paper, publicizing, or offering co-operation in assessments of farm profitability, where the results might be used to justify an increase of rent or a withdrawal of agricultural protection. Nevertheless, within the limitations imposed by the evidence it is possible to reach conclusions in which some degree of confidence might be placed.

In operating their businesses the tenants of farms on the Lindsey uplands appear to have adopted the traditional objective of producing a gross annual output that was equal in value to at least three times the amount expended upon rent and tithes. As a minimum standard for the returns of farming, total profit and current outlays were together divided into three equal parts. Firstly, rent and tithes, or the primary charges upon tenant farming. Secondly, all other outlays, including those upon the wages

of labour, depreciation of deadstock, parochial, and county rate-calls, and the upkeep of the farm family. And thirdly, net profit, which was a "clear profit" over and above the farmer's interest on his capital and living expenses during the year. This was the manner in which Francis Iles, amongst others, operated his farm of 957 acres on the wolds in the mid-1830's. His annual rent and tithes amounted to £1,148, a figure that also represented his ideal outlay upon all other costs of farming and his "clear profit" objective.² If the latter fell below the objective, it was time to demand a rent rebate or reduction, or to cut down on other outlays, of which the price of labour was the most susceptible to adjustment.

An estimate of the "Supposed Value of a Wold Farm" was made by the agent of the Yarborough estate with the co-operation of the tenant in 1836.³ This is the only known document which attempts to assess the actual value of a wold farm to its tenant, although its contents are limited to a breakdown of gross estimated produce and the totals of annual expenditure and capital stock invested in the farm by the tenant. The farm in question comprised 1,020 acres of land, divided between 840 acres of permanent arable and 180 acres of permanent grass, and yielded an estimated £4,730 per annum from the sale of its produce. This amount was distributed between the various commodities produced on the farm according to table 1.

On this particular farm, as on the majority of upland farms by the 1830's, livestock and livestock products accounted for over 40 per cent of the total returns from the sale of produce. If the value of the manure yielded by the livestock were subtracted from the estimated returns from the sale of cereals and added to those of livestock, the contribution of livestock to farm sales would probably exceed 50 per cent. Sheep accounted for the overwhelming majority of the return from the sale of livestock products. In fact, the account underestimates the actual contribution of sheep to farm income, because the farmer "had 660 Hogs on Turnips bred on his farm" instead

¹ B.P.P. 1828, VIII, p. 473; B.P.P., 1847-8, VII, p. 16; Young, *General View*, p. 145; B.P.P., 1836, VIII, pp. 75, 77; Ernle, *op. cit.*, p. 325.

² B.P.P., 1836, VIII, pp. 173-7. ³ L.A.O., Yarborough MSS. (Yar.), 5.

TABLE I
ANNUAL VALUE OF PRODUCE SOLD OFF A WOLD FARM (1836)*

I. CEREALS		
Quantity		Value £
1,000 quarters of Barley @ 27s. per quarter		1,350
600 quarters of Wheat @ 40s. per quarter		1,200
200 quarters of Oats @ 23s. per quarter		230
		2,780
II. LIVESTOCK		
<i>A. Sheep</i>		
300 Hoggetts @ 45s. each		675
150 Hoggetts @ 40s. each		300
150 Drape Ewes @ 30s. each		225
		1,200
Wool		470
<i>B. Cattle</i>		
20 Three-year-old Heifers and Steers @ £14 each		280
		£4,730

* *Ibid.* The quantities of cereals recorded are those that the farmer "expected to deliver or sell from this year's produce reserving a sufficient quantity for Seed."

of the 600 listed. Most of the income derived from sheep came from the sale of mutton. Wool, once the basic commodity produced by upland farmers, represented only 10 per cent of the estimated annual value of produce sold from this particular farm in 1836, although in most years the proportion appears to have been in the region of one-third. Cattle, as on most Lindsey farms, were merely "machines for converting straw into dung" to manure the arable, rather than a significant direct source of income to the farmer.¹ In the distribution of returns between the various agricultural commodities, therefore, the estimate may be taken as being fairly typical of large farms on the wolds.

The prices and quantities recorded in the estimate probably understate actual returns and yields. Assuming that the whole of the 840 acres of permanent tillage on the farm was operated under the five-course rotation common on the Yarborough estate, a maximum of

168 acres would have been devoted to barley. The resulting estimated yield of 40 bushels of barley per acre would appear to have been a rather conservative approximation to the actual yield. In 1841, according to the steward of the Yarborough estate, one tenant "admitted . . . that last year he had sixty bushels of Barley clean dressed for Market per acre, and judging from the appearance of the stubble . . . not much less this year."²

The prices of cereals recorded in the estimate appear to be considerably below the average for the entire period from 1813 to 1837, and somewhat less than those actually received by farmers on the Lindsey uplands in 1836. According to a contemporary calculation made by the arbitrators appointed under an enclosure Act, the average price paid for "good Marketable Wheat" in Lincolnshire from April 1818 to April 1840 was 56s. 2d. per quarter. In 1836, according to another estimate, the average price of wheat in Lincoln-

¹ *Ibid.*; Pusey, *J.R.A.S.E.*, 1843, *op. cit.*, p. 301.

² *L.A.O.*, Yar., 5, 25 Sept. 1841.

shire was 48s. per quarter. And, on the basis of the official returns of recorded sales at markets, G. R. Porter estimated the national average price of wheat in 1836 at 48s. 6d. Moreover, it has to be borne in mind that the averages disguise the fact that the white wheats grown on the Lindsey uplands realized prices that were from 10 to 20 per cent higher than those paid for the red wheats produced in the lowlands of the country. At the corn market held on 4 January 1837 at Louth, a market town on the edge of the wolds, red wheats sold for 54s. to 58s. and white wheats for 59s. to 63s., according to the quality of the sample. In the early 1850's, when wheat prices were very low, the steward of the Yarborough estate noted "the great difference in the Value of Land that would grow good white wheat and land that would not, and to the latter class nearly the whole of our Clays belong." And as a consequence of their large capital resources, and of the importance of barley in the upland economy as a source of receipts from November to March when the prices offered for malting samples were at a peak, the large farmers of the uplands were able to dispose of the bulk of their wheat crop during the late spring and early summer months, when prices usually recovered to a seasonal peak from a dramatic fall after harvest. As late as the 1860's it was said that: "Small farmers thresh early, large ones hold on, and don't thresh sometimes till May." And the ability of a farmer to hold his wheat off the market was commonly viewed as a sign of his wealth: "The farmer who had no wheat to sell was looked on with suspicion as a man who had been pressed by his creditors, and forced to realise."¹

To farm his land the tenant possessed a capital of £8,600, or slightly over the £8 per acre that was considered necessary for progressive farming on light soils.² Of this amount £6,000 represented the fixed capital assets of the farm, comprising the cattle and sheep maintained for breeding purposes, and the horses and implements employed in tillage.

In addition, the farmer's circulating capital of £2,600 covered the year's outlay necessary to farm the land. Rent and tithe accounted for £1,300 of this sum, and the remaining half was expended upon the wages of labour, the parochial and country levies, the necessary fertilizers, and repairs, the depreciation of livestock and deadstock, "and all other contingent charges." After deduction of the tenants' circulating capital from the gross receipts from the sale of farm produce, which amounted to £4,730, the remaining estimated profit of £2,130 was the equivalent of 45 per cent of turnover, and an average of £2 per acre of land. Expressed as a return on the tenant's total capital of £8,600, the estimated profit was 25 per cent. After deduction of 5 per cent as a return on capital, which was a common practice amongst manufacturers and an approximation to the current rate of interest on investments in relatively secure assets such as Consols, the farmer received a return of 20 per cent on his capital for the exercise of his managerial and entrepreneurial skills in "risking" his capital in farming.

The "clear profit" arrived at after deducting household and other expenditure of a personal nature by the farmer—"which the Tenant states to be under 500£"—was of the order of £1,600, or a return of 19 per cent upon capital. In spite of the objections of "Theoretic writers" to the inclusion of "charges for furniture and other family expenses" in the costs of farming, this remained during the first half of the nineteenth century a practice that was peculiar to farming. In part, perhaps, it stemmed from the difficulty of estimating the value of household food supplies drawn directly from the farm, and from the fact that the farmer had to reside in the house provided for him on the farm, for which the rent was rarely distinguished from that of the land and the other farm buildings. Moreover, in a sense the personal expenditure was a "necessary" cost of farming, for a "farmer must both furnish his house, and support his family, as well as

¹ L.A.O., Nelthorpe MSS, XV/II/25; *Lincoln, Rutland and Stamford Mercury* (L.R.S.M.), 16 December 1836, 6 January 1837; R. C. O. Mathews, *A Study in Trade Cycle History*, Cambridge, 1954, p. 30; J. Wilson, *British Farming*, Edinburgh 1862, p. 278; L.A.O., Yar., 5, 15 Jan. 1852; B.P.P., 1867-8, xvii, p. 297; A. G. L. Rogers, *The Business Side of Agriculture*, 1904, p. 30.

² Lavergne, *op. cit.*, pp. 110-11; Wilson, *op. cit.*, p. 543.

stock his land; and in whatever way the money is to be applied, he must have the requisite sum."¹ Nevertheless, and for whatever reason, the widespread practice of including personal expenditure in the costs of farming does suggest a different definition of "loss" to that pertaining in manufacturing industry.

III

The reliability of the estimate for the particular farm would appear to be incontestable. When he was requested "to point out any mistake or overcharge," the tenant stated that: "as I am not afraid of my Landlord taking advantage of my admission I am free to say that I will not take One Thousand Pounds for the clear profit I shall make from my farm."² The wider applicability of this experience cannot be exactly established. But there is a considerable body of evidence to suggest that the absolute amount of profit was equalled or exceeded on a not inconsiderable number of farms, and that the rate of profit applied to a large proportion of the acreage of the Lindsey uplands.

The point in time at which the estimate was taken was not one in which abnormal profits were made by farmers. The pressure upon farm profits during the years from 1833 to 1837 was probably greater than at any other time between 1813 and 1837. The prices of wool and cereals were exceptionally low. And as a consequence of the fear engendered by the "Last Labourers Revolt" of 1830-1, which lingered on in Lindsey in the form of sporadic acts of arson during the winter months until the later 1830's, the money wages of agricultural labourers were maintained at an artificially high level. In 1836, according to Lord Worsley, the heir to the Yarborough estate, the labourer "was getting more than he was entitled to in proportion to the price of wheat."³

Farms on the Yarborough estate were considered to be "lower rented" than the majority of the uplands. Concerning one farm on the estate the steward observed in 1841: "I cannot

think how Atkinson [the tenant], can have the conscience to accept it at 25/- an acre which is what he pays." In the steward's opinion the farm would have been "cheap at 34/- or 35/- an acre, being tithe-free."⁴ However, by the mid-1830's the gap between the rents of farms on the Yarborough estate and the general average on the uplands had narrowed considerably; and, as Lord Yarborough's steward put it, farms on the Lindsey uplands were "generally very low rented."⁵ Moreover, the 40,000 or more acres of wold land contained in the Yarborough estate accounted for a substantial proportion of the entire acreage of the region, a region in which that estate exercised a considerable influence upon the level of rents that other landowners could demand.

Advanced farming methods on the Lindsey uplands after 1815 were not confined to a minority of farmers, whose prosperity contrasted markedly with the poverty of the majority. The particular reasons for much of the praise accorded to farming in the region by agricultural writers in the 1840's and 1850's were the high *general* standard and the uniformity of farming upon soils that were of inherently low fertility, and the pace at which agricultural progress and the dissemination of advanced farming methods had occurred. "What struck me particularly," Philip Pusey recorded of the Cliff in the early 1840's, "you not only see generally very high farming, but you see in 40 miles hardly any bad farming—scarcely two or three slovenly fields." The inherently low fertility of the soils of Lindsey uplands made the uniformly high standard of farming appear all the more remarkable, to the extent that, according to Pusey, it was not possible to "place . . . the general farming of East Lothian on a level with that of Lincolnshire, because it is the best land only of East Lothian on which such noble examples of farming are given, while in Lincolnshire, the barren heath and wold have been taught nearly equal luxuriance." When the Earl of Yarborough advised Lindsey farmers to go to Scotland to observe methods of growing

¹ *British Husbandry: exhibiting the Farming Practice in Various Parts of the United Kingdom, 1834-40*, I, p. 45.

² *L.A.O.*, *Yar.*, 5. ³ *L.R.S.M.*, 8 April 1842.

⁴ *L.A.O.*, *Yar.*, 5, 25 Sept. 1841; *B.P.P.*, 1836, VIII, pp. 66, 76.

⁵ Pusey, *J.R.A.S.E.*, 1843, *op. cit.*, pp. 288, 299; *L.R.S.M.*, 12 April 1839, 21 Aug. 1840.

turnips, a former "Turnip-grower in Scotland" retorted: "I have known Scotch farming well, but I do not know 50 miles of which the farming is equal to the North of Lincolnshire." In 1839, in answer to a questionnaire drawn up by the Anti-Corn Law League, a group of Lindsey farmers conceded "that husbandry, as a skilled profession, is better understood generally in Scotland than in England." But they excepted their native county from the comparison. In particular, as the farmers stated: "With respect to the breeding and management of sheep, and the application of bones and tile underdraining, we deny [the Scots'] superiority; bones and drain tiles were extensively used in Lincolnshire long before they were used in Scotland."¹

James Caird, who made a brief visit to the Lindsey uplands during April 1850, was a notable exception amongst the chorus of praise emanating from agricultural writers on the farming of the wolds and the Cliff. In particular, Caird criticized the failure of the farmers to grow swedes in place of turnips. But this was a consequence of the nature of the soil, which was generally too light for swedes, of the adverse effect of a rich dressing required to grow swedes upon the following barley crop, and of the shortage and high cost of labour which prevented swedes, which were too tough for the teeth of ewes and lambs folded on the land, from being lifted and sliced. The only other specific fault that Caird was able to find with farming in the region was that the land was not "attended to with anything like the same neatness and care which distinguished the best farmers of West Norfolk." This shortcoming is quite understandable, however, when account is taken of the appreciably higher level of wages prevailing on the Lindsey uplands in comparison with West Norfolk. Moreover, Caird appears to have shared a common misconception amongst agricultural writers, both at that time and subsequently, that the appearance of a farm was synonymous with its productiveness and profitability, or with the real purposes of

farming. Like Lord Monson who owned an estate on the Cliff, Caird was under the "impression that the Tenant who grows the best Barley manages his Land best." But as one of his lordship's tenants observed: "this does not follow, indeed the reverse is often the case, for land very highly managed on the Cliff frequently grows too much to stand up and gets laid, and the Quality of the Corn is inferior, while land not so well managed, produces a standing crop which is of better Quality, and consequently of more value."²

Caird's scant praise for Lindsey upland farming, where it was not the result of ignorance of the particular conditions under which the farms had to be operated, arose from his preconceived notion of the necessity of leases for progressive and advanced farming. As leases were the exception on the uplands of Lindsey, he was incapable of conceding that advanced farming methods could be common. And the brevity of his stay in the county precluded him from being effectually contradicted by observation, and caused him to miss the salient feature of farming in the region, the high general standard of farming. Even to Caird, however, a striking characteristic of the farming of the region was the rapid progress that had been made within a limited period of time, or since 1815, and that one in which conditions had been far from favourable for agriculture. But only to Caird was "The agricultural reputation of Lincolnshire . . . due more to the stride it has made in a given time, than to any real pre-eminence above the best farmed counties."³

As "one of the most striking features" of farming on Lindsey uplands was "the equality of farming . . . throughout the whole district," it is possible to infer that the estimate of the profitability of a single farm in 1836 does not represent the results of an isolated instance of exceptionally good farm management. And, given the structure of landholding in the region, it is further possible to infer that the absolute amount of profit shown in the estimate was matched or exceeded by a not in-

¹ J. Caird, *English Agriculture in 1850-51*, 2nd edn, 1968, pp. 186-91, 194-6; L.A.O., Monson MSS. (Mon.), 25/13/10/2/7.

² Caird, *op. cit.*, p. 193.

³ L. Rawsthorne, *The New Husbandry*, 2nd edn, 1849, p. 29; Clarke, *J.R.A.S.E.* 1851, *op. cit.*, pp. 331, 336.

considerable number of farmers. At a public meeting held in the late 1840's at the market town of Caistor on the wolds, "there were present about 40 tenant farmers, to whom that town would be a convenient market, whose average occupation was 1100 or 1200 acres each." The whole of the 4,000 acres of the single parish of Great Limber was divided into four farms approximately equal in size.¹ All in all, there were probably as many as fifty or sixty separate farms on the Lindsey uplands that exceeded 1,000 acres in extent, and the largest contained 2,300 acres.

The absolute amount of the profit given in the above estimate for a wold farm applied at the most to a small minority of farms on the Lindsey uplands, although large farms of over 800 acres probably accounted for from 15 to 20 per cent of the farm acreage. Moreover, as the optimum acreage of farms in the region appears to have been from about 300 acres upwards, and as the standard of farming throughout the region was fairly uniform, the rate of profit per acre probably approximated very closely to the figure of £2 recorded in the estimate for 1836. The point at which optimum returns were realized, however, is extremely difficult to establish with any degree of precision, in consequence of a lack of farm accounts and other evidence for all categories of farms according to acreage. Nevertheless, circumstantial and other evidence tends to support the view that from 300 acres and upwards returns per acre were maximized. It was "generally found" of English agriculture in the 1830's "that from three to five hundred acres of tillage . . . are sufficient to occupy the most experienced husbandman." Within that range it was possible to keep the complement of horses and men required to till the land continually in employ, other than during inclement weather, and to minimize supervisory and managerial costs. For farms of over 300 acres, and at least up to 1,000 acres, the extra manual and team labour, and implements, required to work the land, appear to have been a constant multiple of the amount required on

a farm of 300 acres. The desirable ratio of labourers' cottages to cultivated acreage, for instance, was considered the same for a farm of 300 acres on the wolds as for one of 1,000 acres, and only on farms of over 2,000 acres were substantial savings considered to be possible in this regard. And on the larger farms it is probable that any other economies of scale, in marketing produce and purchasing inputs for instance, were more than offset by the "waste of labour" and horse-power involved in operating land that "must necessarily lie at an inconvenient distance from the homestead." In this respect, it is notable that on many of the larger farms on the Lindsey uplands, two or more farmsteads were located in different parts of the farms.²

If 300 and more acres of land were to mark the optimum acreage of farms on the Lindsey uplands, then a very large proportion of the farmers residing in the region enjoyed a rate of profit of at least £2 per acre in 1836. And the fact that a large proportion of the farms were of that size, in a region where many were carved out of former waste and extensive pastures on the eve of the Agricultural Revolution in the later eighteenth century, tends to support the view that such was the optimum. On the wolds, in particular, "with the exception of the dots of small freeholders" who were said to "seldom succeed for more than a generation," one observer put the average size of farms in the 1840's at "above 400 acres." Another writer, in 1850, was of the opinion that there was "scarcely a farm under the size of 300 acres."³ And, according to the definition of "farm" employed, in terms of size, neither of these observations appear to have been gross exaggerations. As table II below indicates, in the early 1830's on a part of the Yarborough estate encompassing 38,000 acres of land, of which the majority was located on the wolds, the average size of farms of over 49 acres was as much as 412 acres.

Admittedly, according to table II, 78 per cent of the tenants occupied less than the supposed optimum acreage for wold farms, or

¹ *British Husbandry*, *op. cit.*, I, p. 40; B.P.P., 1867-8, xvii, p. 280.

² S. Sidney, *Railways and Agriculture in North Lincolnshire*, 1848, pp. 63, 65; Clarke, *J.R.A.S.E.*, 1851, *op. cit.*, p. 330.

³ L.A.O., Yar., 5.

TABLE II

SIZE OF HOLDINGS ON PART OF THE ESTATE OF THE EARL OF YARBOROUGH IN 1831-2

<i>Acreage of holdings</i>	<i>No. of holdings</i>	<i>Total acreage of holdings</i>	<i>Average size of holdings</i>	<i>Proportion of total acreage (%)</i>
Less than 5 acres	66	89	1.3	0.2
5 to 9 acres	31	214	7	0.5
10 to 49 acres	46	1,067	23	2.9
50 to 100 acres	15	1,017	68	2.9
100 to 300 acres	23	3,944	171	10.4
300 to 500 acres	18	7,516	418	19.8
500 to 800 acres	21	13,052	621	34.3
Over 800 acres	12	11,049	921	29.0
Average	—	—	164	—
Total	232	37,948	—	100.00

over 300 acres of land. However, most of the 42 per cent of the tenantry occupying less than 10 acres of land were village craftsmen, agricultural labourers, and estate workers, whose holdings largely consisted of pasture.¹ Many of those occupying from 10 to 300 acres of land were publicans or millers, the owners or tenants of additional land not forming part of the estate, or the sons of tenants occupying larger farms on the estate who were serving a form of apprenticeship to farming.² Moreover, in a region in which a holding of 60 acres was offered for lease "To Gardeners," and in which a holding of 137 acres was referred to as a "little farm," occupiers of less than 50 acres of land scarcely merit the designation of "tenant farmers," and they were rarely recorded it. Over 80 per cent of the land on this part of the estate was occupied by farms of over 300 acres in extent, and nearly a third was divided between twelve large farmers. In this respect, the Yarborough estate was not atypical of the region of which it accounted for a large proportion of the total acreage. Large farms on the wold were not confined to

the large estates. The largest of all the wold farms, that of 2,300 acres at Withcall, was Lord Willoughby d'Eresby's only property on the Lindsey uplands. And a small estate of 1,936 acres on the wolds was divided into three farms of 1,054, 744, and 101 acres respectively, with the remaining 37 acres forming a plantation around the owner's residence.³

On the Cliff farms were generally smaller than on the wolds. In the late 1790's, according to Arthur Young, the annual rental of Cliff farms ranged from £50 to £300, or the equivalent of from 75 to 400 acres of land, with "some few much larger."⁴ However, there was the same tendency as on the wolds for a disproportionate share of the acreage to be allocated to the larger categories of farms. In 1842, for example, the Cliff estate of Lord Monson contained 5,724 acres of land, of which 5,500 acres was allocated between twenty-five holdings of 10 or more acres (see table III below). Only four farms on the Monson estate exceeded 500 acres in extent, but the four accounted for over 40 per cent of the farm acreage. The ten farms on the estate containing

¹ For example, in one parish a blacksmith occupied a paddock of 3 acres along with his shop.

² In one parish, for example, 10 acres were occupied with a windmill; and, in another, 88 acres were held with a public-house.

³ *L.R.S.M.*, 13 June 1828, 12 Oct. 1832, 1 Feb. 1839.

⁴ Young, *General View*, p. 42.

TABLE III
SIZE OF HOLDINGS ON LORD MONSON'S CLIFF ESTATE IN 1842*

<i>Acreage of farm holding</i>	<i>No. of holdings</i>	<i>Acreage</i>	<i>Proportion of total acreage (%)</i>
10 to 50 acres	8	139	2.5
50 to 100 acres	1	93	1.8
100 to 300 acres	6	844	15.4
300 to 500 acres	6	2,106	38.3
Over 500 acres	4	2,318	42.1
Average total	25	5,500	100.1

*L.A.O., Mon 8/64, In view of the foregoing remarks regarding table II, the occupiers of the 224 acres on the Monson estate divided into holdings of less than 10 acres each have been omitted from this table.

over 300 acres held 80 per cent of the total acreage allocated to holdings exceeding 10 acres in extent.

As a number of the farmers in Lindsey occupied or owned two or more farms each, the figures for tenants and holdings given in the above tables underestimate the actual proportion of large farmers. In 1837 Francis Iles, for example, owned a farm of 320 acres which he operated together with two rented wold farms, one of 330 acres, and the other of 957 acres included in table II above, and 60 acres of rented pasture land in the Lindsey marsh. John Dudding of Saxby on the wolds owned 500 acres of land in addition to the 1,000 acres that he occupied as a tenant in 1839. Richard Dawson, who occupied the largest wold farm of 2,300 acres at Withcall, also farmed an additional 700 acres in the 1830's. At Messingham on the Cliff in 1840, William Walker occupied "Skellow Farm" of 183 acres, "Messingham Farm" of 230 acres, and a further 147 acres "with a Cottage;" or, altogether, a large farm of 560 acres. In 1830, 800 acres of land was offered to potential tenants in the alternative forms of four separate farms or one single farm. According to "A Land-Owner," who expressed his opposition to "the evil of plurality of farms" through the columns of the local press, there were "hundreds" of farmers throughout Lincolnshire who occupied two

or more farms each. And many of the farms held in this manner were individually quite large. "If five or six hundred acres do not satisfy a farmer," the landowner asked, then "what quantity will?"¹

There would appear to be little reason for doubt that the rate of profit indicated by the estimate applied to a large proportion of the acreage and a large number of the farms on the Lindsey uplands. Moreover, the absolute profit yielded by the particular farm was equalled or exceeded by a not inconsiderable number of other farms, especially in years more favourable to agriculture than 1836. In turn, such profits resulted in the accumulation of substantial fortunes by a number of upland farmers. Richard Dawson, who occupied the farm of 2,300 acres at Withcall in the 1830's and 1840's, is said to have "left a large fortune at his death," but the amount is unspecified. George Nelson, who relinquished his farm of 865 acres on the Yarborough estate in the early 1840's, and retired to live at Hull, "did not care who knew he had made £80,000 on Lord Yarborough's estate." Jonathan Dent, a "respectable" farmer at Winterton on the Cliff, who was also a Quaker and admittedly an acknowledged "miser," amassed, according to his obituary, a fortune of £500,000 by the time of his death in 1834. Yet Dent had lost his own inheritance in a bank failure.²

¹ B.P.P., 1836, VIII, pp. 173-7; *L.R.S.M.*, 19 March 1830, 24 Dec. 1830, 12 April 1839, 20 March 1840.

² G. Collins, *Farming and Foxhunting*, n.d., p. 13; *L.R.S.M.*, 5 Sept. 1834, 30 Nov. 1838; Sidney, *op. cit.*, p. 72.

All the farmers on the Lindsey uplands were not as successful as Dent, Nelson, and Dawson, even in proportion to their acreage. Some, like the aptly-named Robert Bust, a Saxby farmer who was declared bankrupt in 1840, lost the capital they had possessed upon entering their farms. If the farmers' own public testimony is to be believed, "unparalleled Agricultural Distress" was prevalent throughout the period between 1813 and 1837. The extant evidence, however, would appear to suggest that the great majority of the farmers on the Lindsey uplands experienced neither bankruptcy nor "distress". On the wolds, in particular, as one observer remarked: "There are in this great district few small farmers, and I believe I may add, improvidence apart, no poor farmers." In fact, it is tempting to agree with Cooke Taylor when he wrote in the early 1840's that: "One is so accustomed to hear farmers talk of 'the badness of the times' at all times, that their complaints [ought to] have long since failed to excite attention."¹ Instead, attention ought to be focused upon those farmers who demonstrated the enormous capabilities of agriculture to yield profits under the most outwardly unfavourable of conditions.

IV

The above conclusion and the evidence presented tend to indicate that some of the "revealed truths" of British economic history ought to be re-examined, and particularly the prevalent view that manufacturing in the nineteenth century was far more profitable than farming. The evidence suggests that, at least on the uplands of Lindsey, the rate of return on capital investment could and did exceed that yielded by many contemporary manufacturing enterprises. Professor Perkin has stated that "[Robert] Owen's contemporaries were making with ease twenty per cent

or more on their capital."² Between 1803 and 1808, during an era of rapid inflation, the rate of profit produced by the activities of the large cotton firm of McConnell & Kennedy ranged from 9 to 37 per cent. According to Professor Rimmer, Marshall's of Leeds received "a return of 22 per cent" on turnover between 1829 and 1836, and this was a period of "success" for the company.³ In view of the fact that a farmer on the Lindsey wolds could realize a profit of 45 per cent on turnover and of 25 per cent on capital in the midst of an "agricultural depression," the profits of contemporary manufacturing concerns do not appear to have been outstanding even if they were "quasi-monopolistic."⁴

The profits realized, and the fortunes accumulated by farmers on the Lindsey uplands, if they are more generally applicable and can be extrapolated backwards in time to the eighteenth century for other regions of England, suggest that the currently accepted view of the chief source of capital accumulation in England during the era of the Industrial Revolution might be open to modification. The overwhelming bulk of the capital employed in modernizing the non-agricultural sectors of the economy is assumed to have been derived from mercantile and landed sources, insofar as investment in transportation and the provision of circulating capital for manufacturing industry are concerned, and from the profits of manufacturing which were reinvested in fixed capital assets.⁵ On the uplands of Lindsey, at least, it would appear that farming placed a sizeable surplus of capital in the hands of the tenant farmers.

That the returns of farming on the uplands of Lindsey were permitted to flow to the tenants on such a scale, instead of being largely diverted to the owners of the soil in accordance with the contemporary Ricardian theory of

¹ L.R.S.M., 28 Feb. 1840; L.A.O., Goulding MSS, 4/A/10/11; Sidney, *op. cit.*, p. 72; W. Cooke Taylor, *Notes on a Tour in the Manufacturing Districts*, 3rd edn, 1841, 1968, p. 87.

² H. Perkin, *The Origins of Modern English Society 1780-1880*, 1969, p. 140. See also A. J. Robertson, 'Robert Owen, Cotton Spinner, 1800-25', in S. Pollard and J. Salt (eds.) *Robert Owen: Prophet of the Poor*, 1971, esp. pp. 146-8.

³ S. Shapiro, *Capital and the Cotton Industry in the Industrial Revolution*, New York, 1967, Appendix 12; W. G. Rimmer, *Marshall's of Leeds: Flax-Spinners: 1788-1886*, Cambridge, 1960, p. 189.

⁴ Perkin, *op. cit.*

⁵ Cf. F. Crouzet, 'Capital Formation in Great Britain during the Industrial Revolution', in Crouzet (ed.), *Capital Formation in the Industrial Revolution*, 1972, pp. 219-20.

rent, is a fact that has complex origins. At least in part, however, it was the product of the structure of landownership in the region, which was dominated by a few relatively large estates, and of the character and circumstances of the larger landowners. Of Lincolnshire as a whole Caird observed in 1850: "rent . . . varies more according to the character of the landlord than its intrinsic qualities," and on the Cliff, in particular, rent was "scarcely thought a criterion of value." As a result of his experience in Lincolnshire and other parts of the country, Caird expressed scepticism of the practical value of the Ricardian theory of rent. "The rent of land," he wrote, "is defined by Mr. McCulloch to be 'the result of the unequal returns of the capital successively employed in agriculture.' But in practice we have found rent to be a capricious thing, often more regulated by the character of the landlord or his agent, and the custom of the neighbourhood, than by the value of the soil or the commodities it produces."¹

In respect of the relationship of the "character" and the circumstances of landowners and the level of rents, there does appear to have been a broad correlation between low rents and large estates that were often owned by peers. As one land agent observed in the early nineteenth century: "great owners and the nobility of this country, are the cheapest landowners of any persons in the kingdom." Originally, this correlation may have been largely the result of the pronounced concentration of great estates in regions of light or marginal soils, such as the uplands of Lindsey, where the rents reflected the annual value of the soil in an unimproved state. However, the persistence of low rents in relation to the value of the soil with improvement suggests that other factors were also at work. In some cases, of which the Earl of Yarborough is a good example, the large absolute income yielded by great estates released the owners from the need to maximize their rental incomes derived from land. On the Yarborough estate the level of the personal expenditure of the household was always regulated by economies or eased by borrowing, and never resulted in pressure

to raise the rental of the agricultural land of the estate. An outstanding characteristic of the owners of large estates, like the earls of Yarborough, was the extent to which they emphasized the non-pecuniary aspects of landownership. To them the ownership of land was as much a source of social prestige, and a satisfying way of life, as it was a source of income. And on the large estates on the Lindsey uplands, landlord-tenant relations retained at least a veneer of "feudal harmony" on top of the basic pecuniary contract. In the eighteenth century this veneer was reinforced by the elevation of some of the larger owners to the peerage, and by the growth of interest in foxhunting and horse-racing, and other activities of a social nature in which both owners and tenants participated. And, in the nineteenth century, its beneficial effects for the tenants were reinforced by the growth of public opinion, which was said to require "landlords to be very lenient to their tenants."²

To some extent low rents may have been the product of "the ignorance of the landlord of the worth of the land," which was especially a likely state of affairs in a region and at a time when rapid agricultural progress and fluctuating prices made it hard to assess the value of the land. In contrast to parts of Scotland, farms in Lindsey were never let by auction as a means of determining the market value of land, or at least the extent of the "hunger for land." And, as the annual turnover of tenancies even during periods of pronounced depression represented only a minute proportion of the total, and as the bargaining between landlords and potential successors was not conducted openly, no adequate alternative mode existed for determining the annual market value of land. Even when tenancy changes increased, during periods of exceptionally low prices for agricultural produce, conditions were far from optimal for determining land values for the longer term, or even for the acquisition of tenants on terms commensurate with the current value of the land. As Lord Monson was advised in 1851, when some of his tenants petitioned for a substantial reduction of their rents: "The test of the matter is, could you get the same rents

¹ Caird, *op. cit.*, pp. 188, 191, 476-7.

² Laverne, *op. cit.*, p. 247.

from new tenants—generally I imagine you could not—and that you would have to stand a reduction of rent and to find money for buildings and tiles which a new tenant would stipulate for.” Rather than negotiate the tenancy of a farm for a lifetime in the most unfavourable of conditions, landlords were generally prepared to go to considerable lengths to accommodate sitting tenants during periods of agricultural distress. Moreover, in most cases, the rent that a potential successor to a farm was prepared to offer was only one, and that within limits not necessarily the most important, of the criteria adopted by the landlord in the process of selection. In considering the respective merits of two applicants for a farm of 700 acres on the Monson estate, for example, the agent stressed that one applicant was “a very proper man . . ., both as regards his knowledge of farming and circumstances, but from enquiries I have made respecting the other applicant (Mr. Adams), I do not hear so favourable an account either as to his Capital or ability as a farmer.” And it was only after the rejection of the application from Mr Adams, that the bargaining over rent and conditions of tenure was commenced with the remaining candidate.¹

The structure of holdings and the nature of agricultural change on the uplands had marked effects upon the level and course of rents. The concentration of holdings in the larger size categories, where optimal returns were realized, and the large capital required to convert the land from pasture to tillage, and to operate the resulting mixed farming system, tended to limit considerably the number of potential tenants for the farms. And, after 1813, when the prices of agricultural produce fell, the number of potential tenants was further reduced on account of the high level of skill and ability that was required to operate the farms successfully. In the words of a German visitor to England in the mid-1830's: “The times are past when a wholly ignorant person might . . . manage a large farm. The person and capital are of more importance than ever.”² Even for those who possessed the requisite skills, such as

small farmers and labourers, there was virtually no farming “ladder” on the Lindsey uplands after 1813. The initial capital resources required to occupy a large farm on the uplands were too large, and the difficulties that small farmers faced after 1813 permitted few of them to accumulate capital. The latter, in large numbers, appear to have preferred to relinquish their holdings and emigrate to the U.S.A. and the colonies, where land was cheap and a substitute for capital, rather than face the alternative of submergence in the agricultural proletariat. On the uplands, on the other hand, the bargaining power of the sitting tenants was considerably enhanced as the number of potential successors narrowed. This was reflected in the ability of the tenants to wring the concession of a tenant right to unexhausted improvements from an initially reluctant body of landlords during the years immediately following 1813. And, the existence of tenant right reinforced the desire of landlords to accommodate sitting tenants rather than face the prospect of taking farms “in hand” for a period. As Lord Monson was informed by his agent early in March 1850, when a large farm on the estate was as yet untenanted:

it is now well known about here, that the Farm is not let, and I begin therefore to fear we shall not succeed in getting a Farmer in this neighbourhood to take it at Lady day & if a Tenant should not be found very soon, I need hardly inform your Lordship that it will be necessary to agree to the usual arrangements being made with reference to the Claim of the Outgoing Tenant for his Tenant Rights, w.^h will be considerable.³

While the rental incomes of the landowners on the Lindsey uplands were never maximized in pecuniary terms they did increase substantially, at least in real terms, during the first half of the nineteenth century; and this was one reason for their satisfaction with the existing low returns in relation to farm profitability. On the Cliff estate of Lord Monson rents were raised by an average of 70 per cent in 1803, and

¹ L.A.O., Mon. 25/13/10/3/46, 52; 25/13/10/1/34, 35.

² L.A.O., Mon. 25/13/10/2/36.

³ F. von Raumer, *England in 1835*, 1836, I, 168.

a further overall increase of 23 per cent in 1809 brought the average rent of land on the estate to 21s. The rental of the estate, which incorporated a large area of low-lying land, which was acutely affected by falling prices and outbreaks of the "rot" or liver fluke amongst sheep, fell by 15 per cent between 1813 and 1818. However, by the early 1840's the rentals of the two remaining parishes on the estate were 7.5 and 20 per cent respectively above the level of 1810. Yet between 1810 and the early 1840's a substantial fall had taken place in the price level generally, and in the prices of agricultural produce in particular.¹

In contrast to the Monson estate on the Cliff, where the lag of rents behind farm profitability was of short duration, although the level of rents was fixed "with a view to the reasonable comfort and profit of the several occupiers," the rental of the Yarborough estate on the wolds was not significantly increased until the 1830's. This substantial time-lag of rents behind agricultural progress appears to have originated as a deliberate decision on the part of the owner. As the steward of the estate observed in the mid-1830's: "the land wanted sub-dividing and bringing into cultivation, the expense of these improvements, to a certain extent, fell upon the tenants, but they were suffered to remain at this low rent until such time as it was considered that they were fairly remunerated for their outlay." In practice, however, the policy appears to have been prolonged for a longer period of time than was originally intended, and helped to establish a low level of rents in relation to farm profitability as a custom of the estate. In 1833, when the estate realized a gross income from the rent of agricultural land of £44,829, or an average of 17s. per acre, and the wold land was let for as little as 10s. to 12s. per acre, a valuer put the total value of the agricultural land on the estate at £72,237 per annum. And although rents were raised following the valuation, and the rent of wold land in particular was increased to 20s.-21s., and in some cases to 27s. per acre, the amount of the increase was substantially less than that justified by the

valuation or by the real value of the land.² Nevertheless, by the mid-1830's, and within a matter of forty years, the gross income of the estate increased more than threefold, and in real terms the amount of the increase was substantially greater, although it did not consume more than a small proportion of the returns actually accruing to the farmers.

Little is known of the manner in which the "clear profit" of farming on the Lindsey uplands was employed. In the early years of agricultural progress a large proportion was probably reinvested in farming, to bring more and more pasture under the plough, to provide implements for arable farming, and to acquire or hire bloodstock of improved breeds of cattle and sheep. As regards the latter, for example, Philip Skipworth of Aylesby paid 600 guineas for the hire of a New Leicester ram for a single tupping season, and, in 1812, four farmers raised 1,000 guineas between them for the hire of a ram for Buckley of Normanton in Leicestershire.³

By the 1820's it is evident that the opportunities for reinvesting capital on the farms were declining. The deadstock on the farms generally lasted a lifetime or longer, most implements were comparatively inexpensive, and there were few significant innovations in implements between 1815 and the later 1830's. Economies were achieved in the utilization of implements as the acreage of the tillage land on the farms increased and the efficiency of the farming system improved. Substantial savings in the cost of fertilizers were achieved by bulk purchases, and by experiments which indicated that a reduction in the quantity applied did not reduce yields. And, after the 1820's, the Lindsey uplands became a net exporter of improved types of livestock, for which farmers in other parts of the county, and subsequently in England and the world, were willing to pay high prices. At the dispersal sale of William Torr of Aylesby in 1875, for example, 84 head of shorthorns sold at the average price of £500 each, and the 2,160 guineas paid for a single cow established a record price for England up to that time. Admittedly, Torr

¹ *Ibid.*, 19/2; 8/64; 19/8/1.

² *Ibid.*, 19/2; L.A.O., Yar. 5; B.P.P., 1836, viii, p. 72.

³ Collins, *op. cit.*, pp. 32, 35.

was "one of the greatest breeders of shorthorns that ever lived in England." Nevertheless, apart from purchases of shorthorns at Christopher Mason's dispersal sale in County Durham in 1826, and individual purchases from amongst the "tribe of shorthorns" of Thomas Booth of Worlaby in Yorkshire, few significant additions were made to the bloodstock of Lindsey after 1815. And, by 1840 at least, the county was a source of stock for improving the breeds in other parts of the country.¹

The farmers do not appear to have squandered the increasing surplus of profit, beyond that required for investment in farming, upon forms of conspicuous consumption. Admittedly, the larger farmers lived "in the manner of the best country squires." The standard of accommodation to which they were accustomed was a "capital and superior Residence seated on a Lawn," and throughout the Yarborough estate "the residences of the tenants [were] more in the style of small mansions than farm-houses." But such accommodation was provided at their landlord's expense, and the rent and costs of upkeep were included in the costs of farming.²

Many of the larger farmers were said to be "able to hunt in scarlet, riding the best of horses, [and] to keep valuable racehorses." Foxhunting appears to have been a particular, and apparently expensive, passion amongst the larger occupiers on the uplands, who took the field with the Burton, Brocklesby, and South Wold hunts. However, foxhunting was in fact a comparatively inexpensive pastime for upland farmers. The feed of their hunters was available at wholesale prices, and the breeding of hunters contributed to the profits of many farms by producing surplus stock adapted to team-work on the light soils of the region, and by the sale of superior progeny at Horncastle horse fair. The latter

was always well attended by the representatives of the continental foxhunting nobility, and by the English aristocrats who hunted the "shires." In 1832 a tenant on the Yarborough estate disposed of six hunters at the fair for a total of £1,000.³

During the first half of the nineteenth century, very few Lindsey farmers appear to have applied their savings to the purchase of land. In 1838 Samuel Slater purchased the entire 1,795 acres of the parish of North Carlton on the Cliff from Lord Monson for £80,000, after he had "for many years paid but 1£. per acre to Lord Monson for the principal part of this property." To meet the purchase price Slater had to sell his prize flock of New Leicester sheep.⁴ However, his example does not appear to have been widely emulated, and the particular instance was largely brought about by Lord Monson's decision to sell part of his Lincolnshire estate in order to recoup the losses made by his predecessor, who had the misfortune to purchase three "rotten" boroughs in Kent shortly before the Reform Act of 1832. The number of estates in Lindsey coming on to the market was not very large, and most of these were purchased either by existing landowners or by "outsiders." The low pecuniary return from landownership, especially in comparison to the profits of farming, induced very few Lindsey tenants to make the transition to owner-occupiers before the 1850's.

A cursory survey of limited and readily accessible material does not indicate a sizeable flow of farm profits into manufacturing investment. In 1840 two farmers joined with a surgeon to erect and operate the first oil and cake mill to be built at Lincoln. But, by the mid-1850's the mill had been sold to a company without agricultural origins. Three of the five directors of Sowerby & Co., linseed cake manufacturers at Grimsby, were wold

¹ J. Sinclair, *History of Shorthorn Cattle* 1908, pp. 222-6; R. Smith 'Report on the Exhibition of Livestock at Chester', *J.R.A.S.E.*, xix, 1858, pp. 362, 365.

² Collins, *op. cit.*, p. 9; *L.R.S.M.*, 17 June 1842; *The Date Book for Lincoln and Neighbourhood from the Earliest Time to the Present*, Lincoln, n.d., p. 343.

³ Collins, *op. cit.*, p. 9; Sidney, *op. cit.*, p. 78; *L.R.S.M.*, 24 Aug. 1832. Working horses were disposed of in large numbers at Lincoln April Fair. In 1838 a wold farmer sold twenty-three such horses at this fair for 1,700 guineas. (*L.R.S.M.*, 27 April 1838).

⁴ *L.R.S.M.*, 3 Aug. 1838.

farmers.¹ However, such examples were not numerically significant, and the projects themselves appear to have been undertaken more for the purpose of ensuring an adequate supply of good quality farm inputs at reasonable prices, than as an outlet for surplus capital. Given the high level of profit and the lack of

sizeable outlets for funds in farming or local manufacturing, it is likely that the bulk of surplus farm profits were channelled into government securities, mortgages, and other relatively secure assets. But this hypothesis will have to be tested by future research.

¹ L.R.S.M., 4 Dec. 1840; H. W. Brace, *History of Seed Crushing in Great Britain*, 1960, p. 138; L.O.A., Yar., 5.

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(continued on page 159)

The Cluster Potato: John Howard's Achievement in Scientific Farming

By R. W. ENGLAND

JOHN HOWARD (1726–90) established his place in the roster of eminent English social reformers chiefly through his personal inspections of domestic and foreign prisons during his final sixteen years, and by publishing in several editions of two large books his massive and horrendous findings.¹ But his very fame as a prison reformer virtually eclipsed a reputation he gained as an experimental farmer. Save for a passing mention by his friend and first biographer, John Aikin,² none of Howard's chroniclers recorded a contribution he made to English agriculture of such singularity that it was publicized over many years in farming periodicals of the eighteenth century, and that he won a gold medal for it. Moreover, three articles Howard wrote on the matter have never been included in lists of his publications. This paper describes his contribution and the circumstances surrounding it.

The only son of a prosperous London upholsterer, Howard had been indifferently educated in Hertford and London. After coming into his patrimony in his early twenties he lived obscurely in and around the city until his second marriage, settling finally in Cardington, Bedfordshire, in 1762. The notable Bedfordshire shrievalty which started his career of prison inspection would not occur until 1773, but among several activities that engaged him during the decade preceding it was the discovery and promulgation of an unusual variety of potato.

The present writer came upon the facts

about the potato episode in course of following up a letter Howard wrote on 28 February 1771 to a neighbouring country gentleman, Arthur Young, of North Mimms, Hertfordshire.³

I Receiv'd Your oblidging favour; Our Cottagers have now got so much into the use of the American Potatoe I can hardly procure any from them, but I have some which are much at your Service with pleasure I shall send a Basket by our Coach a Monday (which I can more depend on than the Waggon) to be left for you at the Checquer at Hatfield.

Permit me now Sir to offer My thanks for the entertainment of your very ingenious and usefull labours, and the Honour you did me in the mention of my name. . .

Arthur Young, of course, was to establish a wide reputation as a traveling diarist, editor, farming expert, and writer on economic and foreign affairs, and would in 1793 become Secretary of the new Board of Agriculture. But in 1771 he was little known, and had recently moved to Hertfordshire from his mother's farm near Bury St Edmunds. Even so, he had already written a number of books including the first three of his famous agricultural surveys.⁴ The "oblidging favour" mentioned by Howard was probably his receipt from Young of a copy of one of the three, and the "Honour" probably Young's praise therein for Howard's role in building a certain causeway road in Cardington.⁵ An exchange

¹ *The State of the Prisons in England and Wales*, Warrington, 1777, 1780, 1784; *An Account of the Principal Lazarettos in Europe*, Warrington, 1789. Posthumous editions of both books were published in 1792 and 1791 respectively.

² John Aikin, M.D., *A View of the Character and Public Services of the Late John Howard, Esq., L.L.D., F.R.S.*, 1792, p. 40.

³ B.M., Add. MSS. 35,126, *Original Letters Addressed to Arthur Young, Esq.*, f. 92.

⁴ *A Six Weeks Tour through the Southern Counties of England and Wales*, 1768; *A Six Months Tour through the North of England*, 1770; *The Farmer's Tour through the East of England*, 1771.

⁵ *Six Months Tour . . .*, 2nd edn. 1771, I, p. 50.

of favours between gentlemen is not remarkable, but the letter did suggest that the two men were acquainted, presenting the further possibility that Young's letters or other writings contained material useful to a Howard biographer. This proved to be the case. A revealing passage in Young's journal describes their first meeting (which did not occur until 1772).¹

This year I visited Samuel Whitbread, Esq., at Cardington, in Bedfordshire, and as Mr. Howard, who afterwards became so celebrated in his philanthropy, lived in the same parish, Mr. W. took me to call upon him one morning. He was esteemed a singular character, but was at that time quite unknown in the world. He was then only famous for introducing a new series of potatoes into cultivation. We found him in a parlour, without books or apparently any employment, dressed as for an evening in London—a powdered bag wig, white silk stockings, thin shoes, and every other circumstance of his habiliments excluding the possibility of a country walk. He was rather pragmatical in his speech, very polite, but expressing himself in a manner that seemed to belong to two hundred years ago. I asked Mr. Whitbread if Mr. Howard was usually thus dressed and confined to his room, for he was as intimate with Whitbread as with anybody. He had never seen him otherwise, he said, but added that he was a sensible man and a very worthy one.

In view of Howard's busy Cardington life, we can take Whitbread's reply as alluding only to his costume, for the energetic Howard would not have much idled about. Whatever welcome additional data Young thus supplies about the philanthropist's eccentricities, Young's mention of "a new series of potatoes" led into a curious by-way of agricultural history.

Designated by colourful names, scores of potato varieties were being grown in England and Ireland by the mid-eighteenth century.

Potato-naming, a folkish and sometimes whimsical business, was unco-ordinated between sections of the country, the same variety often bearing different names in different places. The potato identified with Howard came itself to be known around Cork as both Bull and Bear, and in some English districts as Surinam, Ox-Noble, Bedfordshire, and Red Cluster. Ferreting from the voluminous agricultural writings of the period the facts on Howard's potato, Arthur Young had provided a lead by referring in his journal to a "Howard and cluster" potato.² (Simply "Cluster" became the name most commonly used.) Howard's potato enterprise occurred as part of the growing interest during the eighteenth century in science generally, and in agricultural science in particular. By mid-century there had been established on the Continent several agricultural improvement societies. England's counterpart, organized in 1754, was the Society for the Encouragement of Arts, Manufactures, and Commerce, to whose irregularly published *Memoirs of Agriculture and other Oeconomical Arts*³ John Howard, a member since 1758, thrice contributed.

Relatively rich in nutriment, readily grown even in poorish soil, and storing well, the lowly potato had potential as a cheap staple for the rural poor whose food supply was threatened by the accelerating enclosure of commons and common fields. But to eighteenth-century farmers a particular advantage of successful potato culture rested in the tuber's value as supplemental winter fodder for livestock, whose numbers had long been severely limited by farmers' straitened capacity to provide feed during the cold months. Carrots, turnips, cabbages, and potatoes were seen as possible winter provender and were much experimented with to this end in the eighteenth century. Because it was eventually learned that potatoes were the more nourishing and economical, during much of that century (and well into the next) boiled, baked, steamed, and raw potatoes were fed in the off-seasons to horses, sheep, poultry, hogs, and cattle,

¹ M. Betham-Edwards, ed., *The Autobiography of Arthur Young with Selections from His Correspondence*, 1898, pp. 59–60.

² *Ibid.*, p. 59, in reference to Howard's letter.

³ Edited by Robert Dossie; volumes of the *Memoirs* appeared only in 1768, 1771, and 1782.

greatly facilitating the maintenance of continuing stocks of animals. So the potato got considerable attention from "scientific" rural gentlemen, including John Howard.

There is evidence that Howard, about whose life before 1762 little is known, had been interested in science during his London years. Aikin and other contemporaries said that medical literature, astronomy, and experiments with primary colours had been among Howard's diversions; and he did, on three occasions, submit temperature readings to *Philosophical Transactions* in a day when even such casual study of "vapours" was regarded as furthering the science of meteorology. Though we cannot be sure that Howard's potato experiments reflected an attraction he might have felt toward experimentation itself, his procedures showed that he grasped the principle of control of variables, an understanding not always shown by other country gentlemen who reported their farming experiments.

His first research report, dated 21 December 1768, was entitled 'Memoir on the Qualities and Cultivation of a New Kind of Potatoe'.¹ Howard says that while "at Clifton, near Bristol" in 1765 he heard about an unusual potato "brought from America." After some difficulty he obtained roots, planting three sets that autumn and three the next spring in his Cardington garden. Harvested in the autumn of 1766, their yield in weight far exceeded that of his cottagers' usual potatoes, and he got "upwards" of "a waggon load" just from the trial crop. He had offered seed potatoes to all, receiving requests from his own and other counties.

Howard's experiments, which included careful trials with hillock-spacing, transplantation, soil types, and propagation with cuttings and whole tubers, continued through 1767 and 1768. Early the next year (15 February 1769) he had more to say in 'Additional Memoir on the New Kind of Potatoe &c'.² when he felt justified in concluding that the yield ratio of his plant over "common" potatoes was 3:1, and asserted that his experi-

ments proved the cluster potato to grow even in soil considered unsuited for that crop. Boiled, his potato was preferred over others by hogs; he himself had been eating them "well-boiled," and his dinner guests declared them tastier than others; roasting best brought out their flavour. Howard expressed hope that they would be "a help to a most valuable part of our fellow-creatures, the labouring poor in this kingdom."

What was John Howard's potato like, and how came it to win a prize? Robert Dossie, who strongly urged its cultivation, fortunately supplied answers. Aesthetically, the tuber was grotesque and somewhat repulsive. Dossie suggested that it be called the "Conglomerated Potatoe" because it "consists of a number of lesser tubers, or potatoes grown together; or is, as it were a cluster of several united with each other."³ Weighing between 4 and 5 pounds each, the ugly mutant was reddish inside, marbled with streaks of deeper red; only prolonged boiling could turn it white. It was extraordinarily prolific: even above-ground shoots produced miniature potatoes, and Dossie reports that one forgotten for two months in a dry room without soil or water sent out a "great number of small fibrous roots, and about sixty or seventy small tubers or potatoes of various sizes, from that of a horse-bean to that of a small pea."⁴ But its appearance, he suggested, worked against its acceptance for table use.

As to the prize. It was then a practice for planters to submit specimens of their husbandry to the Society for the Encouragement of Arts, Manufactures, and Commerce in competition for awards offered by this body. Samples of the cluster potato were received by the Society at about the same time, says Dossie, from two independent sources. One sample, which came from the Duke of Northumberland's garden at Syon, near London, was grown from tubers sent down by an unnamed Northumbrian gentleman who had noticed his tenants growing a strange potato; they surmized that it had originally washed on to the nearby coast with the refuse

¹ *Memoirs of Agriculture and Other Oeconomical Arts*, II, 1771, pp. 300-3.

² *Ibid.*, pp. 304-7.

³ Editor's comments, *ibid.*, p. 292.

⁴ *Ibid.*, p. 299.

from some passing vessel. The Syon products proved "heavier, more solid, and sweeter in their taste, than the common sorts."¹ Specimens were sent to the Society probably late in 1768, while Howard, Dossie tells us, sent his with his communication of 21 December that year. Howard's potato won. In words apparently drawn from a summary of a committee report, Dossie lauds it as highly prolific, nutritious, easy to harvest because of its shallow root system, requiring less land, doing reasonably well in indifferent soil, and relished by hogs; it is, he says, "a most important improvement in agriculture."² For this "improvement" John Howard was, in 1772, awarded the Society's Gold Medal, with the citation: "Clustered Potatoc, the Culture of this Kind rendered generally useful, John Howard, Esq. of Cardington, Bedfordsh."³

Perhaps encouraged by this honour, Howard contributed his third and final paper, dated 17 January 1772, entitled 'A farther Account of the Culture and Uses of the Cluster Potatoc: and Observations on the Prospect of Advantage in cultivating in England, the Maize, otherwise called the *Turkish or Indian Wheat*...' ⁴ The future reformer thanks the Society for the medal, and continues to press the virtues of his unique plant. He has had, he says, good reports from growers in several counties, and that he "daily" eats bread comprised one-third of potato and two-thirds wheat flour, but admits that others prefer rather to feed the potato solely to animals. He had further experimented "on some poor clungey, common

field land, which I let at one shilling and sixpence per acre, without any manure, and only plowed when they are put in, in March,"⁵ obtaining a yield of 40 bushels from a half-acre, where other varieties would not, he says, have yielded one-quarter as much.

For some years thereafter the cluster potato received favourable mention in print. It was adjudged the "most extraordinary of all" potatoes in yield by a Lancashire experimenter.⁶ Thomas Butterworth Bayley, of the same county, found that his cattle ate it with "eagerness."⁷ Lt R. Hay of "Eggie" reported in 1775 that he used Howard's potato as winter feed, raw but "washed clean," for his horses, which consumed it "greedily."⁸ It was Arthur Young himself, however, who wrote most about the cluster potato, did the most experiments with it (winning thereby a silver medal) and delivered its strongest accolade. Between 1770 and 1784 he ran fifteen quite varied tests, after which he declared it "one of the most important articles that can at present be cultivated upon any farm."⁹

At least three more communications on the unique tuber were published in the 1780's,¹⁰ and in the mid-1790's the cluster potato, together with a few other varieties, received favourable official mention in a lengthy report on that vegetable published by the new Board of Agriculture. The cluster potato, said the report, was by then being grown in Lancashire, Kent, Suffolk, Sussex, and Ireland.¹¹ But it appears not to have been much adopted for human consumption, disappointing Howard's

¹ *Ibid.* ² *Ibid.*, p. 311. ³ *Memoirs* . . . , III, 1782, p. 450, list of prizes awarded in 1772.

⁴ *Ibid.*, pp. 305-11. Possibly Howard hoped for another coup with his ideas on the use of maize, but nothing came of them.

⁵ *Ibid.*, p. 306.

⁶ Richard Townley, 'On the Culture of Potatoes', *Georgical Essays*, 2nd edn, 1773, IV, pp. 23-53, 45.

⁷ T. B. Bayley, 'On the Howard, or Large Bedfordshire Potato', *Georgical Essays*, York, 1777, pp. 335-6. Bayley like Howard, was to become a prison expert; he would see erected in 1787 in Manchester a model gaol he instigated, and be much sought after as a prison consultant.

⁸ R. Hay, 'On the Cluster Potatoc', *Memoirs* . . . , III, 1782, pp. 312-13, communication dated 4 Nov. 1775.

⁹ Arthur Young, 'Howard or Clustered Potatoc', *Transactions of the Society for the Encouragement of Arts, Manufactures and Commerce*, III, 1785, pp. 30-99; 'Continuation of the Experiments on the Clustered Potatoc . . .', *ibid.*, IV, 1786, pp. 61-106. Quotation is on p. 106.

¹⁰ Hutcheson Mure, 'Value of the Cluster Potatoc, and of Carrots, ascertained in Feeding Hogs', *Annals of Agriculture*, I, 1784, pp. 124-7; Nathaniel Turner, 'Experiments on a New Potatoc', *ibid.*, pp. 189-92; Anon., 'Cultivation and Use of the Cluster Potatoc', *ibid.*, II, pp. 7-17.

¹¹ *Report of the Committee of the Board of Agriculture . . . Concerning the Culture and Use of Potatoes*, 1795, pp. 1, 49-50, 63.

philanthropic hope for it as a cheap food for the labouring poor.¹

By early in 1773 Howard had begun trials with another potato variety, informing the Society of Arts that results would not be known for two years.² But 1773 was also the year when his stint as sheriff of Bedfordshire

abruptly changed the course of his life from rural concerns to the plight of prisoners, and he apparently never again wrote on agriculture. Had his work in experimental farming not been interrupted, John Howard might have made a quite different kind of mark on his country's history.

¹ *Report of the Committee of the Board of Agriculture*, p. 137. See also Arthur Young, *A Tour in Ireland*, 2nd edn. 1780, I, p. 415; not even the poor in County Cork would eat it.

² Royal Society of Arts library, *Transactions 1772,73* (MSS.), f. 24, letter, Howard to secretary, 6 Feb. 1773.

NOTES AND COMMENTS *continued from page 125*

Dr W. H. Chaloner, Dr D. G. Hey, and Professor F. M. L. Thompson.

In her Chairman's report Dr Thirsk announced that despite the constant pressure of rising printing costs the Society proposed to hold its annual subscription at £3.50, and appealed for new members. The membership now stood at 792, a slight increase on 1975. Arrangements were in hand for the Winter Conference in London and for the Society's Silver Jubilee Conference on 4-6 April 1977. To celebrate this event it was proposed to offer a prize essay (for details see page 159). An arrangement had been made with University Microfilms Limited of High Wycombe to reprint all back numbers of the REVIEW.

The Treasurer reported that the balance of income over expenditure was only £96 compared with £967 in 1975 and that if printing costs continued to mount the Society would need to raise the subscription. However, with reserves of £4,100 in the bank the E.C. had decided to hold the subscription for another year.

The Editor reported that he had received 29 articles, of which he had accepted nine. He submitted proposals for reducing the cost of the REVIEW by redesigning its layout and typeface. He asked the meeting to choose between two typefaces, and after a vote, Bembo was selected. The meeting passed a vote of thanks to Mr Mark Overton of Cambridge University for organizing the Conference.

THE WINTER CONFERENCE

The Winter Conference will be held on Saturday, 4 December 1976, jointly with the Historical Geography section of the Institute of British Geographers. It will be held at the Polytechnic of Central London, and the theme will be on farming in and around London and other cities. All inquiries should be addressed to Mr Dennis Baker, The Polytechnic of Central London, 32-8 Wells Street, London W1P 3FG.

FOURTH INTERNATIONAL CONGRESS OF AGRICULTURAL MUSEUMS

The International Association of Agricultural Museums (AIMA) held its fourth Congress at the University of Reading on 5-10 April 1976. Fifty-seven delegates from 21 countries attended, and 41 papers were presented on the general theme of *The Impact of Industrialisation on Agriculture and Rural Life since 1800*. Prof. Dr Wolfgang Jacobeit, Director of the Staatliches Muzeen zu Berlin für Volkskunde, DDR, was elected President of the Association. The retiring President, Mr John Higgs, was re-elected to the Presidium as Vice-President. The next Congress will be held at Neu Brandenburg, DDR, in September 1978. The formation of a UK Standing Committee of AIMA has been proposed. For further information write to Andrew Jewell, Museum of English Rural Life, The University, Whiteknights, Reading RG6 2AG.

Review Article: Fields, Farms, and Families: Agrarian History in Kent¹

By ALAN EVERITT

KENT has been both fortunate and unfortunate in its historians. In Hasted it produced one of the finest of the older county histories. In the nineteenth century it produced more than its fair share of regional and parish histories, a number of them works of real scholarship like John Furley's *History of the Weald of Kent* (1871), and many by no means to be despised, though we should now regard them as antiquarian in tone. In the more modern development of local agrarian history, however, its performance cannot be described as more than average. True, it has produced a few seminal studies, amongst them the work of R. A. L. Smith, F. R. H. Du Boulay, and Alan Baker, the last two of whom are represented in this volume. But considering the importance of its agrarian and settlement history, from both a local and a national standpoint, Kent has not produced much published work of the same kind and class as that of W. G. Hoskins and the Victoria County History for Leicestershire, or that of Margaret Spufford, J. R. Ravensdale, and the V.C.H. for Cambridgeshire, though both these counties are much smaller than Kent and less well endowed archivally. The Records Branch of the Archaeological Society has produced some useful volumes; but it is not in the same street as the Northamptonshire Record Society or some of the North Country societies. The V.C.H. never got as far as the first topographical volume and in its general articles typically devoted three times as much space to sport as to agriculture. The Historical Monuments Commission has never turned its attention to the county—astonishingly, since it has more surviving medieval and sub-medieval buildings, including farm buildings, than any other county in England. (How one envies west Cambridgeshire its wonderful

H.M.C. volume!) Much of the work in vernacular architecture that has been done locally is of first-rate quality, it is true, particularly that of S. E. Rigold, whose important article 'Some Major Kentish Timber Barns' (*Archaeologia Cantiana*, LXXXI, 1966) would have been a welcome addition to the volume under review. But there is no general survey of Kentish vernacular buildings to compare with, say, those of Monmouthshire and Cambridgeshire. Although at the amateur level, moreover, there is a widespread interest in local history in Kent—it has more local history societies than any county but Lancashire, nearly sixty in all—much of this interest is channelled in the direction of archaeology rather than the historical reconstruction of Kentish society. The unfortunate recent demise of the local historical journal *Cantium*, and the overwhelming bias of *Archaeologia Cantiana* itself over the past fifty years, both serve to underline this fact. One does not wish to tilt at archaeology, still less at *Archaeologia Cantiana*, which amongst county journals has maintained unusually high standards of scholarship. But one does hope very much that the volume under review, by ranging over a wide variety of subjects directly or indirectly related to agrarian history, will stimulate further work.

There is any amount to be done, and perhaps we have not much excuse for not doing it. This is not the place for a discourse on archival sources in Kent; but it may be said at once that few areas have better archive offices, and there are not many with larger collections of the basic records of agrarian history. Wills and probate inventories, family archives and estate papers, maps and plans of farms and estates, medieval and early modern ecclesiastical archives, the records of small

¹ Margaret Roake and John Whyman (eds.), *Essays in Kentish History*. Cass, 1973. x + 301 pp. £4.75.

boroughs and market towns, Anglo-Saxon charters, the evidence of place-names, of farm buildings, and of the landscape itself: all of these are exceptionally abundant in Kent, as one quickly discovers in turning to other areas. Something of the wealth of the records of Christ Church, Canterbury, comes to light in three essays in this volume, by Miss Smith, Dr Baker, and Professor Du Boulay. Something of the wealth of local estate material has been shown elsewhere by one of the editors, Miss Roake, in her thesis on the Smith-Masters family of Camer: a family that was highly typical of those many new minor gentry who were rising to local prominence in the eighteenth century, and whose history in most parts of England is almost a complete blank.

For these reasons this volume is a particularly welcome one. The editors have had the useful idea of reprinting a series of twenty-three articles from the pages of *Archaeologia Cantiana*. They have prefaced it with a brief introduction in which they say that "in making their choice [they] have sought to offer a reasonably balanced picture of the social and economic scene from the Middle Ages to the nineteenth century." In this they have succeeded and deserve our gratitude. Ten of the articles relate to the period before about 1735 and twelve to more recent times. A useful article on Kentish historiography by Dr Felix Hull, the county archivist, is also included. *Archaeologia Cantiana* was first published in 1859, and since then it has produced eighty-eight volumes; but none of the articles here reprinted dates from before 1917, a fact that "is explained by the changing nature of historical research and the current interests of economic and social historians." The editors also tell us that they have in mind a further volume of essays, based on current research in the economic and social history of Kent. This will be doubly welcome, and no one is better qualified to produce it than the members of the economic history department at Canterbury, with its vigorous interest in the past of the county.

All the essays are worth reprinting except that by W. K. Jordan. This is not actually an article but an extract from the introductory pages of his volume *Social Institutions in Kent, 1480-1660*. Probably nothing very useful can

be said about such a subject in three and a half pages, and in any case Jordan's account is not based on original research and contains several misleading statements. It is ironical that his description of Kent as one of the most urban of English counties (pp. 87-8) is followed on the very next page by Christopher Chalklin's comment—possibly a little exaggerated but surely nearer the truth—that the atmosphere of these Kentish towns "can hardly have differed from that of the surrounding countryside."

The remaining articles are naturally of varying quality and interest to agricultural historians but they include several seminal studies. Probably the most important is Alan Baker's on 'Some Fields and Farms in Medieval Kent', an article which is of wider significance than its modest title implies, and which is basic to the study of early Kentish settlement as well as medieval agriculture and society. It is a pity that Dr Baker's scattered articles on Kentish fields and field systems, all of them important, have never been brought together within a single book.

Ann Smith's article on 'Regional Differences in Crop Production in Medieval Kent' is also important, particularly for its massive statistical analysis of the Beadles' Rolls of Canterbury Cathedral Priory. It is unfortunate that it is marred in places by confusing statements, and by an obscure and occasionally slovenly style. "Beans was chiefly a garden crop" (p. 44) and "a strata within the major formation" (p. 49) are amongst its grammatical infelicities. Three manors near Ashford are described as on the "western Lower Greensand," whilst four between Maidstone and Tonbridge, twenty miles further west, are said to be on the "eastern Lower Greensand" (p. 41). The author places Appledore in Romney Marsh and is then surprised (p. 41) at the extent of its wheat and barley land in view of the "ill-drained nature of the reclaimed marshland." But was this cornland in fact in the marsh at all? The settlement and much of the parish lie on the upland above the marsh. Some elucidation is surely necessary also of two apparently contradictory statements on page 43. The implication that barley was relatively unimportant on the Lower Greensand is followed in the next paragraph by the

statement that acreages of oats were small on these lighter soils, to which the more profitable grains of wheat and barley were more suited. The author is in fact up against a difficult problem in Kent in endeavouring to relate whole manors to a single soil type, when in fact there are often marked differences in drift geology within a single manor. Nevertheless, her article remains a basic one for the historian of medieval agriculture. So too does Professor Du Boulay's brief essay on 'Late-Continued Domesne Farming in Otford'. Like Miss Smith's, this is based on the records of Canterbury Cathedral Priory, but its scope is more limited and relates to a single manor in the fifteenth century.

Another important study is R. E. Glasscock's 'Distribution of Lay Wealth in Kent, Surrey, and Sussex in the early Fourteenth Century'. This is of course based on the Lay Subsidy of 1334, which also forms the basis of Dr Glasscock's chapter on 'England, circa 1334' in Professor H. C. Darby's *New Historical Geography of England* (1973). The latter study throws up such a number of apparent oddities in the 1334 assessments that in moments of depression one is inclined to doubt the validity of all taxation records as indices of wealth. In Northamptonshire, for example, we find Castor assessed more highly than Northampton, whilst in Norfolk Walpole and Wiggenshall were more highly rated than King's Lynn. But Dr Glasscock's more detailed study of Kent, Surrey, and Sussex suggests that we should not take too gloomy a view of such anomalies. Broadly speaking the distribution pattern of wealth in Kent in 1334 is confirmed by other lines of argument. Its most important characteristic was the relative poverty of the Weald and most of west Kent and the striking concentration of wealth in the east of the county. This characteristic does not come as a surprise to anyone who has worked on the early history of the county: it was simply a continuation of an age-old pattern, in which the east was always the dominant area. It forms a suggestive contrast, however, with the situation in the seventeenth century, when the Weald was one of the most populous rural areas of the county, though west Kent, outside the immediate vicinity of London, was

still poorer than the east. Was the economic rise of the Weald in the late medieval period due entirely to its industrial development as a clothing and iron-working area, as is often suggested, or were there also, perhaps, more general and agrarian factors at work? There is a great field for research by agricultural historians in this region and period.

Of the remaining articles probably the most important for readers of this journal is David Harvey's 'Fruit Growing in Kent in the Nineteenth Century.' In eleven concise pages of text and two of maps Dr Harvey has concentrated a wealth of detailed information without allowing the detail to obscure his general theme. This is not the complete history of fruit farming in Kent, even in the nineteenth century; but as well as providing the outlines of the story it points up many underlying characteristics that call for further investigation. Contrary to popular belief, in most of the 400 rural parishes of Kent fruit-growing has never been important. The maps show that even at the end of the nineteenth century, when it was more extensive than ever before, there were only two or three limited areas, near Faversham and in the middle reaches of the Medway Valley, where orchards covered more than 20 per cent of the land. In at least three-quarters of the county they accounted for less than 3 per cent of the acreage.

Nevertheless, in terms of profitability, the cultivation of fruit has long been a basic feature of the economy of Kent. One of the principal factors in its rapid expansion in the latter half of the nineteenth century was undoubtedly the building of railways after 1840. It is hardly too much to say that two of the five fruit-growing districts of the county were virtually created by this means: the Wealden area around Brenchley and the soft-fruit-growing district of north-west Kent around Swanley. For both these regions the railways not only created a market by linking them with London but also supplied the means of wealth. For Victorian London, with its hundreds of thousands of horses, provided the manure that converted their relatively infertile farmland, which in the Swanley area included thousands of acres of uncolonized heath and scrub, into the fabled garden of England.

It is one of the merits of Dr Harvey's article that it highlights the remarkable regional differences between the various fruit-growing districts of the county. East Kent, mid-Kent, north Kent, north-west Kent, and the Weald all developed their own specialized branches of fruit farming, and possessed a distinct character of their own. The author himself points out the marked tenurial differences between these regions, and reading between the lines one senses that differences of social structure, farming organization, and land-ownership, as well as the more obvious factors of soil-type, climatology, and transport differentials, also underlay these distinctions. In the differing character of these regions, which at first sight seem so similar, there is in fact a splendid field for sociological research of the kind David Jenkins developed in *The Agricultural Community in South-West Wales at the Turn of the Twentieth Century* (1971). The north-west Kent area, for example, with its vast commercial farms of 500-1,000 acres (p. 223) was completely different in character from the traditional land of cherry orchards between Newington and Boughton-under-Blean.

It was in this latter countryside, forty or fifty miles from London, that fruit-growing had first been established in Kent in the sixteenth century, and in the nineteenth it still owed much of its character to these distant origins. Although, after a chequered history, it now turned to the growing of small fruit as well as cherries and hops, most of the farmers were still smallholders and many of them owner-occupiers (p. 224). It was not an area of great capitalist farmers like north-west Kent, where by 1900 the Wood family farmed 2,000 acres of fruit alone. Like the east Kent area, it was pre-eminently the home of the old farming dynasties of the shire, many of whom were intensely localized and inbred, and had farmed in this area for centuries. The great annual fruit auctions at which the crop was still sold "off the tree" went back to the sixteenth or seventeenth century, when the London fruiterers, who were often kinsmen of the farmers themselves, came down in the spring or at "cherryty

time" to purchase the prospective harvest. In the late nineteenth century the area still remained a genuine natural *pays*, limited by Chatham and Rochester at one end and Blean Forest at the other. The re-creation of its farming life and social structure would certainly provide a fascinating field of research.

The publication of this volume prompts a number of general reflections on the state of historical studies in Kent which it would be inappropriate to enlarge on further in this journal. It is pertinent, however, to point out that several of the articles in this volume are unduly compressed. Fourteen cover fewer than twelve pages each, and only four cover more than fifteen. These figures include illustrations and tables, moreover, so that the text itself is in most cases even shorter than the pagination suggests. Dr Glasscock's major article on the wealth of three counties in 1334, for example, a complex subject if ever there was one, extends to just over eight pages and comprises fewer than 3,000 words. For this excessive brevity the editors of this volume are of course in no way responsible, and one suspects that the authors themselves would sometimes have welcomed more space to develop their ideas. Not that all historical articles need be lengthy. There is a place for short accounts like Elizabeth Melling's useful little note (pp. 249-53) on the important *corpus* of business records relating to insolvent debtors, now in the Kent Archives Office. But it is next to impossible to develop any serious historical theme adequately in an article of fewer than 3,000 words, if that article is based, as many of these rightly are, on extensive new research. It is significant that the most thoughtful and far-ranging article in this volume, Alan Baker's, is one of the two longest and extends to twenty-five pages with a text of 6,500 words. The only other article of comparable length was published nearly sixty years ago—in 1917. In recent numbers of *Archaeologia Cantiana* one is glad to note a number of more substantial historical articles, such as Dr Roger Kain's on 'The Tithe Commutation Surveys' in the 1974 volume. It is to be hoped that this is a good sign for the future.

List of Books and Pamphlets on Agrarian History

1975¹

Compiled by SARAH CARTER

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BOOKS RECEIVED continued from page 143

- ALAN ROGERS and TREVOR ROWLEY (eds.), *Landscape and Documents*. Nat. Council Social Service, 1974. 85 pp. illus. £1.50.
- MARGARET W. ROSSITER, *The Emergence of Agricultural Science: Justus Liebig and the Americans 1840-1880*. Yale U.P., 1975. xiv+275 pp. £8.25.
- FRANCOIS SIGAUT, *L'Agriculture et le Feu: Rôle et Place du Feu dans les techniques de préparation du champ de l'ancienne agriculture Européenne*. Paris, Mouton, 1975. 320pp. 38Fr.
- EDGAR T. THOMPSON, *Plantation Societies, Race Relations and the South: the Regimentation of Populations: Selected Papers*. Durham, North Carolina, Duke U.P., 1975. xv+407 pp. Cloth \$12.75; paper \$6.75.

B.A.H.S. SILVER JUBILEE PRIZE ESSAY

In order to mark its Silver Jubilee, a prize of £100 is to be awarded by the Society to the best essay written by a younger scholar on a subject in British agricultural history. The selection will be made by a special committee, and it is hoped that the prize-winning essay will be published in the REVIEW. Conditions for entry are as follows:

- (1) essays, based on original research, not previously published, and not awarded any other prize, may be submitted by anyone interested in British agricultural history who is aged under 35 years on 28 February 1977;
- (2) essays may deal with any aspect and period of British agricultural history (including the agricultural history of Ireland);
- (3) essays must be in typescript, double-spaced, and must not exceed 10,000 words in length, including footnotes;
- (4) the closing date for the receipt of essays is 28 February 1977. Entries, marked "Jubilee Prize Essay," and stating the author's date of birth, should be sent to the Editor, together with a stamped addressed envelope for the return of the typescript.

Letter to the Editor

DEAR SIR,—In a recent issue of *The Economic History Review* (vol. XXVIII, 4), Dr M. Turner remarks that “new evidence suggests that the cost of enclosure was far greater than previous historians . . . were aware.” This evidence took the form of a most perceptive and detailed account of certain aspects of enclosure costs in Buckinghamshire, and appeared in the 1973 issue (vol. XXI, 1) of this Journal. It seems useful to attempt to place the present state of the discussion within some sort of perspective, since Turner’s main source of comparison was a piece written by me many years ago (republished 1967). The latter had aimed to challenge the prevailing views on the subject expressed in the writings of W. E. Tate and others. This opinion held that “contemporaries and later historians had greatly exaggerated the cost of enclosure, and that the monetary outlay was not enough in itself to have any serious effect in driving the (small) man out of business.”

Apart from attempting to broaden the definition of the term “cost” as applied to enclosure, I drew four main conclusions from a study of Warwickshire material (none of which had previously received much attention); they were (1) for every acre enclosed the public costs alone rose probably six-fold over the course of the eighteenth century; (2) the figures arrived at were considerably in advance of the average of £1 (which included fences) quoted by Mr Tate, and the General Report of 1808; (3) for the small owner the share of the commissioners’ public expenses, and the cost of physically making his enclosures were markedly higher, acre for acre, than for his more fortunate neighbour who received an allotment of say 200 acres; (4) the cost of physically creating the enclosures, until then virtually ignored, was in any case found to be higher than the sum of the public expenses set out in the commissioners schedule.

While Dr Turner has little to say about (3)

and (4) his paper shows that during the special economic climate prevailing in the French Wars men were encouraged to push forward with enclosures which could be effectively exploited only by the additional outlay of large sums of money on ancillary improvements (particularly on new roads). Such operations commonly extended over a period of years, and (not surprisingly) are therefore difficult to take fully into account (even, as Dr Turner demonstrates, where commissioners’ minute books survive). On the basis of examples of the proportional cost of road improvement quoted by Turner and myself (£1,010 of £2,898 at Oxhill, Warks.; and £3,930 of £11,722 at Princes Risborough, Bucks.), it is possible to view ancillary improvement as the main determinant of cost per acre from around the turn of the century. Turner’s charge that my figures understate the final bill for public costs seems perfectly plausible for the years after 1800, but much less so for the eighteenth century: in Warwickshire, at least, protracted outlay of capital on ambitious ancillary projects was largely a by-product of hugely inflated farming profits in the 1790’s.

Whatever the outcome of that particular question, there remains an even more important area of enquiry (in addition to those suggested by Dr Turner) to which researchers might profitably direct their attention: further light needs to be thrown on the private individual costs of actually making the enclosures, and the means by which this outlay was met; such an investigation would also further illuminate the practice by which the smallest owner appeared to be saddled with a disproportionate share of this expense. This side of the problem is as important as that of the inflation of public costs, and is linked to the notable changes within the ranks of landowner families to which Dr Turner draws attention in his more recent paper.

MICHAEL MARTIN

Book Reviews

G. E. FUSSELL, *Jethro Tull: his influence on mechanized agriculture*. Reading, Osprey, 1973. 134 pp. £2.45.

The last major review of Jethro Tull's work and writings was made by T. H. Marshall in an article in 1929. He dealt harshly with some of Tull's theories on plant nutrition—"childish absurdities", he called them—but judged more appreciatively his practical achievements: Tull learned important lessons from English, French, and Italian gardeners about the value of spade cultivation, and these were an underlying inspiration when he campaigned for row cultivation and invented the horse hoe. His theories about plant nourishment, however, showed up badly when set against those of his scientific contemporaries in the Royal Society.

In this new publishing series on great innovators, Dr Fussell takes a fresh look at Tull's work and reputation. The title of his book does not exactly repeat the tribute engraved on a recently erected memorial plaque at Basildon, which called Tull "Pioneer of Mechanized Agriculture." Dr Fussell claims only to describe Tull's "influence on mechanized agriculture." He is cautious in assessing his role in the history of mechanized agriculture, and with good reason, for the story is a strange one. One is still left wondering what tricks history may have played with Tull's reputation.

Dr Fussell starts with a careful re-examination of Tull's career, adding some new information about his lease of the farm at Shalborne, based on documents in the Wiltshire Record Office. Gaps in the chronology of his life remain, however, as the principal source of information on Tull is still an article written in the *Gentleman's Magazine* in 1764, nearly twenty-five years after his death. Dr Fussell then describes Tull's precursors. Seventeenth-century agriculturists toyed with the idea of a seed drill, attempted to devise a satisfactory machine, and wrote books about their inventions. Dr Fussell refuses to treat them seriously, and while he is doubtless right in claiming that their practical achievements were disappoint-

ing, it is not clear that they were a complete failure. At all events, interest in experimentation was kept alive, while books on agriculture continued to stimulate the search for new ideas. But Dr Fussell has a prejudice against the seventeenth-century "book farmers", and even sweeps Walter Blith into this category. Yet Blith was the son of a farmer, his brother was a substantial gentleman farmer, and Walter's son inherited his uncle's estate. So what does the term "book farmer" mean? Many gentlemen in the seventeenth century owned farms and studied books on farming. They were deeply serious agricultural improvers, and took it for granted that theory and practice went hand in hand. Were they any different from today's farmers who have degrees in agriculture and continue to read the technical literature?

Fortunately, these prejudices do not obtrude when Dr Fussell comes to assess Tull. He makes "forgotten storms rage again" by giving a full account of the controversies that Tull stirred up in his lifetime. He is more sympathetic than was T. H. Marshall to his theories on plant nourishment, concluding that they were not altogether fallacious, but owed their limitations to the state of scientific knowledge at the time.

Tull's reputation after his death in 1741 makes the strangest reading of all. Silence settled upon his work until the Frenchman, Du Hamel du Monceau, publicized his writings in a French translation in 1753-61. These aroused wide interest in Europe, and English agriculturists once more took notice of their countryman's theories when Du Hamel's work was translated into English by John Mills in 1759 and by Philip Miller in 1764. The idea of row cultivation was canvassed anew, and in the course of the later eighteenth century better seed drills and horse hoes were invented. Dr Fussell concludes with an account of the improved machines of the nineteenth and twentieth centuries.

In the last lines of his book Dr Fussell is happy to describe Tull's seed drill as the first agricultural machine with internal moving

parts, and in that sense Tull may fairly be deemed a pioneer of mechanized agriculture. Whether Tull could ever claim the title of *the* pioneer of mechanized agriculture is another matter. His reputation seems to rest to a large extent on his success as a writer and publicist. In short, the same verdict holds for Tull as for other famous figures in the agricultural revolution. We can be far more certain of their role as publicists than of their role as principal innovators.

JOAN THIRSK

JOAN WAKE and DEBORAH CHAMPION WEBSTER (eds.), *The Letters of Daniel Eaton to the Third Earl of Cardigan, 1725-1732*. Northamptonshire Record Society Publications, XXIV, 1971. lvi + 186 pp., 6 illus., map. £2.65.

The editing of this fine volume of letters of an eighteenth-century land steward to his master stands as a model of how it should be done. Miss Wake and Mrs Webster are to be complimented in that nearly everything is here which either the general reader or the scholar interested in agriculture, in estate management, in the life of the landed classes, in local custom or classes, could want: fine introductions, good maps, photographs and facsimile reproductions of letters, useful appendixes, a glossary of terms used in the letters, and wonderfully useful indexes of places, persons, and subjects. A Plan of the Deene Estate, drawn by Bruce Bailey, at the end of the book can be usefully referred to when reading the letters.

Daniel Eaton (1698-1742) was land steward to George Brudenell, third Earl of Cardigan (1685-1732) whose absences from Deene necessitated the writing of the 167 letters reproduced here. They provide a detailed picture of the running of an estate in Northamptonshire and Leicestershire in the early eighteenth century, and bring a host of local people—farmers, craftsmen, labourers, merchants, and professional people—stewards, lawyers, clergy and surveyors—into the scene of action.

Miss Wake's introduction provides an extremely useful background for understanding the letters; in fact, it could stand alone on its

own merit for it provides a wealth of information on local customs and practices. It begins with short sketches of Lord Cardigan and of Daniel Eaton, before discussing the Brudenell estates, manor courts, woodlands, Deene Park, the home farm and crop management, and an especially useful section dealing with labour "by the great" and by wage-earners. Since Deene Park was being rebuilt to the Earl's specifications during the period of these letters, Miss Wake includes a section on building followed by one on eighteenth-century accounts and finance. Lord Cardigan was an avid fox-hunter and here we find a bit on the history of fox-hunting, the financing of the local hunt by Cardigan, the Duke of Rutland, and by other gentlemen, the breeding and rearing of fox-hounds—all of which are frequently mentioned in the letters. Mrs Webster's introduction, 'The Language of the Letters' is also helpful on Eaton's vocabulary, spelling, grammar, and use of idiom. From his use of language she speculates on the "style of the man."

The letters themselves are largely for the years 1725-7, and a few for the period 1729-32. They show Eaton to have been a highly capable, intelligent, and above all diligent steward. In reading them one is constantly amazed at the experience and knowledge needed by a competent steward: accountancy, costing, surveying, some law, architecture, animal husbandry, farming practices, land improvement, new crops and grasses, and local custom and usage. He wrote frequently and in great detail upon all matters under his jurisdiction. He was full of proper deference to his master, and often awaited his discretion in specific matters. In his beautiful hand he wrote of rent collections, expected or estimated income from sale of wood which he has viewed, progress of building, the condition of hounds and horses—giving each its name, reports on parks and deer, and all with great intimacy. The letters demonstrate as well Cardigan's full acquaintance with his estates, with local problems and expectations, and with persons high and low in the area.

The Northamptonshire Record Society is to be complimented on the publication of these letters which will be useful and infor-

mative to economic and social historians as well as to readers of history for many years to come.

RAY A. KELCH

RAY A. KELCH, *Newcastle. A Duke Without Money: Thomas Pelham-Holles 1693-1768*. Routledge & Kegan Paul, 1974. x + 222 pp. £4.00.

Although its causation is still debated, the "rise of the large estate" was undoubtedly a major feature of British landownership between 1660 and 1815. Exceptions to this trend, however, have been somewhat neglected. Some estates disintegrated for demographic reasons, while sections of the landed *élite*, for example Catholic families in the north-east after the 1715 rebellion, experienced considerable hardship. Sometimes the force of personality also had an adverse effect on developments. Despite safeguards such as strict settlements and increasingly flexible credit facilities, certain landowners undermined their patrimony and were obliged to sell large amounts of property. The primary aim of this work is to outline the economic history of one such individual.

Newcastle is best known as the most influential and successful of contemporary politicians. He held high office, with salaries worth around £5,600 a year, for nearly forty years. However, the bulk of his income, some £27,000 annually, came from property scattered throughout eleven counties. Despite succeeding to this vast, debt-free estate, Newcastle himself was permanently and hugely indebted, owing £88,572 in 1721, £135,998 in 1734, and £285,996 by the early 1740's. Repeated resolves to retrench were interspersed with more drastic measures: trusts for the payment of debts were established in 1721 and 1738, and in 1741 a settlement barring the entail on his estates allowed the sale of two-thirds of his property. Old debts were thereby reduced but so too was income, while new debts were constantly created. After his death much of the rest of his property and effects was sold to satisfy creditors.

Political expenses were partially responsible for this decline, but as Professor Kelch esta-

blishes beyond doubt, unavoidable absenteeism and more culpable neglect were equally important factors. Newcastle's inability to control his expenditure was even more crucial, and will no doubt surprise those hitherto aware only of his skill as a political manipulator. In so far as it derived from his public position his behaviour was rooted in the eighteenth century, but in other respects the scale of his extravagance was reminiscent of a much earlier age. Although on the whole Professor Kelch's careful, well-tabulated analysis commands respect, there is one area of considerable doubt. Due to lack of sources income movements cannot be charted as precisely as patterns of expenditure. For similar reasons, but particularly because of the dearth of estate correspondence, the nature and quality of management policies also remain obscure. A few references suggest that both the situation on Newcastle's estates and his employees' attitude to improvement were governed by political considerations and were also distinctly anachronistic. At present, however, firm conclusions in this sphere are simply out of the question, although a diligent search among the papers of those families who obtained Newcastle's property might yet yield vital additional information. In spite of this flaw the book should be warmly welcomed. It provides a detailed case-study in an area where, curiously, very few such studies have so far appeared.

PETER ROEBUCK

JOHN G. GAZLEY, *The Life of Arthur Young, 1741-1820*. Memoirs of the American Philosophical Soc., Philadelphia, vol. 97, 1973. xvi + 727. pp. illus. \$10.00.

The story of the agricultural revolution has been so expanded by modern scholars that it is almost possible to believe that it began with the expulsion of Adam and Eve from the Garden of Eden. It has been going on ever since, and continues. But of course there were periods of stagnation when men were content to continue in the ways of their fathers, mainly no doubt because they had no other option, climate, soil, elevation, and so on prescribing the boundaries of their efforts and limiting their output because they were unable or un-

willing to make changes; but every human activity is modified as time passes because, fortunately for the race, there are individuals who strike out of the conventional rut and make contributions to what is so curiously known as technology.

Many centuries had passed between the time when primitive man, or more possibly primitive woman, had first planted seeds and when Young was born. It would have been incredible if there had been no improvements in the processes on which life depended during all these centuries. That there had been is because human beings generally speaking are ingenious, and make some improvements in their way of life in spite of the great majority who are diehards.

The condition of society, its structure, and its intimate dependence upon local production, despite an elementary international trade in the eighteenth century, is well known to all historians. It was one restriction, amongst others, that kept population within reasonable limits, but which has vanished with the development of "technology": but when Young was born the country, as is well known, was mainly self-supporting in cereal production, though this self-sufficiency had vanished by the time he died. Then not only cereal products were imported but also large amounts of dairy produce of one kind and another. Not only was there a population explosion in the second half of the eighteenth century which made it necessary to increase food production, but also there was colonial expansion that led to great increases in material wealth, if only in purchasing power in the hands of a limited number of people. These were the greater and lesser landowners, plus the merchants who were making money at home and abroad, and aspired to join the ranks of the aristocracy; but all this is so well known, an old story, especially to readers of this *Review*, that it hardly bears referring to.

The life of Arthur Young was a stimulus to and reflection of the agricultural progress of his period, and a review of his biography could easily slip into a history of farming at that time mixed with some touch of politics—as indeed his own writings are.

The question how should biography be

written must be asked. Gazley has chosen to do so in the most minute detail and seems to have read practically everything Young ever wrote. This is the exhaustive method. The opposite is to tell the story in broad outline, perhaps against a sketch of contemporary events—something that was done by the amateur Amelia Defries in her *Sheep and Turnips* in 1939, and by A. S. Haslam in his biography, up to a point, in 1930.

Gazley wrote in 1941 that he had hoped to complete this work in that year, but it was not finished until nearly thirty years later. This is hardly surprising when the contents of the book are examined. It not only gives minute details of Young's personal life but also examines his mental outlook (psychology) and the changes that took place in some of his opinions as the years passed, something that is not unusual in most people's lives.

In personal character Young was a man who pursued his chosen path with the utmost determination despite an inharmonious married life, continual failures at practical farming, and chronic financial difficulties. He managed to make many distinguished friends, and for a time to lead a fairly gay social life on his visits to London, and, possibly elsewhere, though that is not recorded. But after the death of his beloved daughter, "Bobbin", he sank into the miseries and melancholy of some sort of Methodism. Fortunately this did not prevent him from continuing with his agricultural propaganda and other cognate activities.

With hindsight it is possible to say that Young was fortunate to be born when he was. With the time comes the man, or so it would seem if history is looked upon as a series of biographies of men of influence, invention, decision, and industry. This is indeed no bad way of looking at history, especially when these individuals are men of the calibre of Young and his contemporaries, Coke of Norfolk, the fifth Duke of Bedford, Sir John Sinclair, and many other great improving landlords. The spur was then as ever the lust for money, but although Young, like everybody else, wanted money, the driving force that carried him along was enthusiasm, an enthusiasm that lasted throughout his life in spite of personal difficulties, and at the last a sort of

subfusc colour to his mind so far as his domestic life was concerned.

Young's literary life began with an unsuccessful attempt to write fiction, and a polemic upon politics, a sporadic interest throughout his life for all farmers must watch the market, and in doing so watch the odd manœuvres of the politicians making their futile and often misguided efforts to control it. From this he proceeded to make contributions to the magazine *Museum Rusticum et Commerciale*, but it was not in this direction that he achieved his major success. It was the *Southern Tour* of 1768 which set the pattern of much of his later writing, and has supplied our generation (and earlier ones) with a meticulous, and in some ways profound, description of the places through which he travelled. It had been preceded by the *Farmer's Letters* of 1767, and was followed by the *Eastern and Northern Tours*, each in four volumes.

Young was extremely conscious of the economic side of food production. How could he not be? He was himself a failure as a commercial farmer, not only at Bradfield Combus, but in other places. He seems to have had a genius for choosing infertile and unproductive farms to occupy. Consequently he collected a great variety of indiscriminate economic information, wages, costs of this and that, seeding rates, soil preparation, rates of manuring and material used, crops normally grown, how animal husbandry was pursued, and so on. All this data he tried to tabulate and understand in the closing pages of his *Tours*. Modern economists no doubt regard his methods as unscientific, but it could be argued that their own are too profound. At all events these costs, yields, and so on give his descendants in our generation, who have a somewhat morbid interest in such things, a great deal of material to support a variety of arguments.

It might be asked how a man who was chronically short of money was able to go on these travels. The answer is that it was a time when great landowners, and even lesser ones, were pleased to offer hospitality to such a distinguished traveller, in common of course with the general custom of the time. The drawback to this kind of hospitality was the formidable rank of domestics who gathered to

see the guest off the premises, and who one and all expected their accustomed vails, which may quite often have amounted to more than the expense that would have been incurred at a local hostelry. Young found means of solving this problem, though how is somewhat of a mystery. One repayment of hospitality that he consistently made was to catalogue the *objets d'art* and paintings owned by the nobility and gentry who put him up. When he did stay at inns he must have found it expensive. On one occasion he spent a night or so at the Angel at Cardiff, a hotel that was in existence in the 1930's, and still is. His bill was no less than a guinea a night—almost equal to the charge forty years ago.

Young's writings made him well known, but awakened a good deal of rather acerbic criticism, something he did not bear with equanimity. Like most men of genius he was extremely irascible and impatient of criticism, the brunt of which he could not bear without angry argument. However, this did not very much matter in the long run. His critics have been forgotten and sunk into oblivion while his fame has lasted and is known it could almost be said, to every schoolboy.

Fools, the old adage proclaims, rush in where angels fear to tread. Perhaps the same thing can be said of men of genius. It was certainly true of Young at the outset of his career. His *Course of Experimental Agriculture* was published in 1770, and describes in great detail the experiments this novice in the technique of farming had carried out. It was of course rather in the fashion of the day, and other writers of the time and later have made judgements based upon their own trial plots, real or imaginary. Some of these plots it is certain existed nowhere but in the imagination of their authors. Young does not fall into this category. He did make his trials in the real world. But in this world it is impossible to please everybody, and the *Monthly Review* had no mercy upon Young, remarking that "geniuses may form designs too extensive for themselves to execute." True as this may be, the proportion of his designs that Young was able to carry out is rather more than remarkable.

With his growing reputation it is not sur-

prising that he joined in the activities and competed for the premiums of the Society for the Encouragement of Arts. At that date it was the only public venue for trials and experiments by farmers who were encouraged by the Society to enter for medals and money prizes. At first the Society had no means of publishing the results it obtained, but it encouraged the issue of Dossie's *Memoirs of Agriculture*, and began the publication of its own *Transactions* in 1783. Young became Chairman of the Agricultural Committee of the Society, and in that capacity co-operated in promoting comparative trials of ploughs, crops and other aspects of agriculture, working with other men whose activities have placed them in the memorials of history as persons of consequence in promoting the greatness of the country.

In the 1770's Young was offered a job in Ireland, and though this did not prove a success (it would have been surprising if it had) it produced yet another farming tour published in London in 1780, *A Tour in Ireland*, which demonstrated very clearly that, in spite of the activities of the Dublin Society, farming in Ireland was in neither a prosperous nor a progressive state; the Dublin Society had supported the experimental farm conducted by John Wynn Baker, who was another innovating spirit.

Young modified his opinions upon various subjects as his years and experience advanced. It would be a poor sort of man who retained the inevitable prejudices of his youth for the rest of his life. This resilience is evident in his attitude to the enclosure of waste lands, with its resultant consequences upon the lives of the poorer members of society who lived to some extent, if not wholly, upon the products and privileges of the waste. Young at first had been a virulent supporter of the enclosure of these lands and their more productive use, that is more productive than in a state of nature. He had an eighteenth-century aristocrat's contempt for the lower classes, but this mental attitude changed as his years, and maybe his wisdom, advanced. He began to appreciate that the squatters, the poor who enjoyed privileges on the commons, were human beings like himself and his aristocratic friends, but

had been made into a different sort of human being whose actions and outlook were dictated by the restrictions of a life of poverty, semi-starvation, and exacting physical labour.

It would be ridiculous to try to mention all Young's writings or all his journeys or the psychological changes he underwent. For the best reason all these things have been exhaustively covered by Gazley, but it is necessary to say something about his activities in his later years. In 1784 he initiated the publication of his *Annals of Agriculture* which, after some rather trying birth pangs, achieved a distinctive position in the contemporary literature of farming. In 1793 he became Secretary to the then novel establishment, the Board of Agriculture, and not only served this organization until his death but undertook the preparation of several of the County Reports which were part of its initial programme, and were so strongly supported by Sir John Sinclair.

Mention of Sir John leads to the enumeration, if that were possible, of the nobility and gentry who were friends and admirers of Arthur Young, and who formed the vanguard of agricultural improvement in those days. Young had the widest possible range of friends, admirers, and acquaintances, but he did not want for critics. Who does? In his early days the anonymous writers in the *Monthly Review* were amongst these. In his later days one Thomas Stone, a land agent and surveyor to the Duke of Bedford, was one of the most virulent of his critics, but his virulence (it was a masculine age) was not approved by the *Monthly Review* which made a *volte face*. So do times change all things!

The most famous and well-known of all Young's records of travel is the tour in France which has been repeatedly reprinted. It supplies a sketch of rural France and parts of Spain and Italy on the eve of the Revolution but really needs no more than a mention here.

It is not necessary to say very much more to an informed audience. What can be said is that Arthur Young, as is generally recognized, was one of the most remarkable galaxy of great men who have ever been concerned with the farming of this country, men who lived in a

world of organic materials, whereas we, their descendants, live in a world of plastic and metal tins of food and travel machines.

G. E. FUSSELL

GEORGE ORDISH, *John Curtis and the Pioneering of Pest Control*. The Great Innovators Series, Osprey Publishing Ltd, Reading, 1974. vii + 121 pp., 16 illus. £2.45.

"Bugs," as distinct from fungi, have always consumed a part of the farmer's harvest, and the competition between humanity and pests for the crop remains a problem for agriculturists. This is not to say that the "bugs" ever took a major part of the harvest, except locusts in some unfortunate areas: but they did take a measurable part, so mankind in the temperate zone declared war on the insect pests, with no very great success until modern times, which produced as one of its wonders pest control.

The pioneer in the research necessary to make pest control possible, at least in an effective degree, was the John Curtis who is the centre-piece of this study. Curtis was the first professional scientist, that is to say the first man who made his living out of his work, and was not a dilettante in so far as being able to live upon an income derived from other sources. He lived from 1791 to 1862.

From his early childhood Curtis was fascinated by insect life. He collected specimens and preserved them, and when he learned the art of engraving made pictures of these "beasties." He made a fortunate escape from a Norwich lawyer's office when he was twenty. Simon Wilkin then employed him to arrange and catalogue his collection of insects, and so Curtis was able to develop his natural bent. The rest of his life was spent in studying entomology, depicting the insects in a series of most accurate drawings, and finally in producing his book *Farm Insects*, in which he suggested methods of control.

This is not the place to supply details of his life and work, which are most effectively provided by the author, who is himself a modern authority on Curtis's subject, and is also a historian of the recognition and the development of controls over plant pests and diseases. George Ordish has placed John Curtis in his

appropriate niche, and his book on this great innovator is definitive.

G. E. FUSSELL

D. R. GRACE and D. C. PHILLIPS, *Ransomes of Ipswich: A History of the Firm and Guide to its Records*. University of Reading: Institute of Agricultural History, 1975. ix+64 pp., 17 plates. £2.50 (plus 35p postage and packing).

In 1967 the Museum of English Rural Life launched a project for the collection of records of the agricultural servicing and processing industries, an enterprise which received the financial blessing of the SSRC. An early yield of this initiative is the present volume. The records of the famous firm of Ransomes form the most important single archive of the collection, and their significance is recognized in this handsomely produced and interestingly illustrated book.

The founder of the firm, Robert Ransome, born in 1753, established a trade in supplying farmers of Norfolk and Suffolk with plough shares, and his early venture was supported financially by a fellow Norfolk Quaker, Gurney. Ransome's discovery of "chilling," a process which produced a self-sharpening cast-iron share, and his development of interchangeable plough parts, enabled him to build up the large-scale production of a wide variety of ploughs designed to meet local preferences. Bridge-building and gas-supply work enabled the firm to survive the agricultural depression at the close of the Napoleonic Wars, and subsequently production of railway equipment (and of lawn mowers) played a large part in the firm's business. By mid-century a diverse range of agricultural implements was in production, including steam-engines, and the total workforce numbered over a thousand. In due course export interests grew up, and these compensated for the decline in home demand which was experienced in the period of the great depression. Both World Wars saw a switch to armaments, and between the Wars the depressed state of the agricultural branch was again offset by the development of non-agricultural products.

So bald a summary does no more than indicate the general lines of the story. The volume,

in fact, manages to convey a great deal of detail in a limited space, and brings out admirably the important part which diversification and the seizing of current market opportunities have played in the firm's survival and growth.

The summary catalogue of the records, which takes up the larger part of the volume, gives an excellent guide to the documentary sources available, and should inspire research into more specialized aspects of the firm's history. The present collection has been much affected by destruction in the past, and is therefore unbalanced as between different branches of the firm's activities. However, business and commercial records, and papers relating to manufacturing, engineering, and experimentation are all represented, as well as publicity material, the last making up about a third of the entire collection. As the authors conclude, "the survival of Ransomes is doubly fortunate in that the firm spans the whole development of the industry and also has such a comprehensive set of records. That British agricultural engineering was a major contributor to agricultural development throughout the world and of considerable significance in the economy of a number of country towns is indisputable, but it is still one of the great neglected fields of British economic history."

G. E. MINGAY

HAROLD BONNETT, *Saga of the Steam Plough*, Newton Abbot, David & Charles, new impression, 1972. 207 pp., 18 illus. £3.25.

The problems of lightland farming have been traditionally those of soil fertility, and of clayland farming those of soil mechanics. Steam came late to agriculture, but the steam plough for all its novelty and awesome complexity was no panacea for the clayland ills of high, seemingly irreducible, traction costs and trailing receipts. This book barely touches upon the question of why steam power so transformed work in the barn but had little such impact in the field. Rather, the author is concerned mainly with the practical and mechanical aspects of steam cultivation. Here he is on firmer ground, and the result is an informative though baldly documented account of the historical development of the steam plough

from 1619, when James I granted a patent to his Page of the Bedchamber and one, Thomas Wildgoose, for the making and using of "divers New Apte or Compendious Formes or Kind of Engines or Instruments to Ploughe Ground without Horse or Oxen," to the 1920's when, in the twilight of the steam age, lightweight steam tractors such as the "Rhino-cerus" and the "Foden Roadless" tried unsuccessfully to beat off the challenge of the motor tractor. There are useful chapters on steam plough manufacturers and firms of steam plough contractors, and on the work done by British-built machines around the world—cultivating Prussian *latifundia* and Caribbean sugar plantations, draining the Pontine Marshes, and levelling blue earth and spoil at the Kimberley Diamond Mines.

According to Mr Bonnett 1918 was "the Everest of the steam plough era," and the last "good year" for steam work, when all owners were busy and the smoke of a thousand columns drifted across the countryside. Thereafter, the demise was swift, and by 1940 steam cultivation was virtually extinct. One of the last and perhaps most spectacular feats performed by steam ploughing engines was to wind ashore the PLUTO pipelines at the Normandy Landings, and it is sad but curiously fitting that the same engines should have ended their days in West Africa as casualties of the ill-fated groundnuts scheme.

Today, agricultural steam engines—salvaged and skillfully restored—have a high curiosity value and an enthusiastic following. Essentially this is a book for the enthusiast. It leaves almost everything unsaid about the economics of steam cultivation and about the history and organization of this important branch of the British agricultural engineering industry. Even so, it is compulsive reading. The author has conveyed, less through his use and interpretation of the historical evidence, as through his experiences and reminiscences the impact—practical, visual, and aesthetic—of steam on the Victorian and Edwardian countryside.

The book, I am sure, is worth reprinting although since its original publication in 1965 important research has been done on the subject, some of which at least might have been

noted in the bibliography; this remains, as before, thin and epigrammatic.

E. J. T. COLLINS

KEN SILLCOCK, *Three Lifetimes of Dairying in Victoria*. Melbourne: The Hawthorne Press, 1972. 182 pp. \$A5.95.

In the context of his grandfather's dairying experience, that of his father's, and his own, the author recounts the development of dairying in Victoria from the time of settlement in 1834 to the present. In the first half of the book the life of the settlers, especially in Gippsland, is vividly evoked, although reliance on the more popular historical literature has allowed errors to creep in—squatters moving down the rivers, for instance, did not have legal basis for possessing 5,120 acres (p. 16), and lucerne and white clover were introduced long before 1864 (p. 17).

In the second half of the book Mr Sillcock deals with changes in the present century, drawing on his own experience. After forty years with the dairying division of the Victorian Department of Agriculture he is able to discuss with considerable knowledge the gradual mechanization of dairying, increasing legislative control of the industry, and developments in such fields as scientific research, extension, and marketing. This is a complex story dealt with here in detail for the first time, and it is important for future historians that the views and actions of a person so closely involved in these events have been recorded.

LYNNETTE J. PEEL

PHILIP GABRIEL EIDELBERG, *The Great Rumanian Peasant Revolt of 1907: Origins of a Modern Jacquerie*. Studies of the Institute of East Central Europe, Columbia University, New York, Leiden 1974. 252 pp. 64 guilders. Moscow-orientated Marxists have seldom been able to dissociate the Rumanian peasant revolt of 1907 from the great Russian *émeute* of 1905–7. Yet agrarian discontent had been simmering in the Balkans for years, as was seen in 1900 when the Bulgarian peasants rose against the reintroduction of the tithe in kind; in Rumania, too, Dr Eidelberg shows, there is no proof of a "cause-and-effect" relationship between the Rumanian and the Russian ris-

ings, and he advises that "it is more fruitful simply to look for parallels and contrasts."

The parallels are predictable. Rumania, like Russia, was a backward agrarian society which was rocked by the world depression of agricultural prices. For Rumania the problem was intensified in 1882 by the Austro-Hungarian embargo on the import of Rumanian cattle. Events were now following a familiar course. Landlords, losing revenue as wheat prices dipped, and deprived of the chance of switching to cattle as a cash export product (though, interestingly, Russia later imported Rumanian cattle as draught animals), could only make good their losses by exporting more wheat. With primitive, labour-intensive farming methods this meant demanding more in labour-rent from the peasant. So rents, already pushed up by the population growth, rose yet higher.

Of course, there were also contrasts. The Rumanian agrarian question was complicated by the problem of the *arendasi* (landlords' agents and middlemen)—especially if they were Jewish, by the failure of the co-operative movement and the Popular Bank, and by other local factors, all of which Dr Eidelberg explains with commendable lucidity. Naturally, the Rumanian political response to the agrarian crisis was different from the Russian; Rumanian democracy was no better than that of the other Balkan states but it did allow for more than one reaction to the crisis. Indeed the Liberals, like Stolypin, called for a Darwinistic "wager on the strong," with this Rumanian *Kulak* class guaranteeing a market to developing home industries. The Conservatives, on the other hand, advocated immediate concessions to all peasants on rents and a gradual redistribution of land to the benefit of all.

The careful explanation of the interaction of political developments and the intensification of the agrarian crisis is perhaps the best part of the book. Yet it would seem unfair to isolate any one theme or section of a work which maintains consistently high standards. Four years of intensive research in Rumanian archives and libraries have produced a work of impressive scholarship written with admirable economy, efficiency, and clarity.

R. J. CRAMPTON

MICHAEL ADAS, *The Burma Delta. Economic Development and Social Change on an Asian Rice Frontier, 1852-1941*. University of Wisconsin Press, 1974. 256 pp. \$14.85.

The climax of Professor Adas's study of Burma is the racial rioting which followed the economic depression of 1931, when the primary producers of Southeast Asia faced ruin in consequence of the collapse of their world markets: in twelve months the price of paddy, for example, fell by 77 per cent. The bulk of the study traces the economic and social developments of the previous eighty years which led up to Burma's special vulnerability to the 1931 "crisis of capitalism."

Although India, including Burma, was already on the road to self-government, the *Annus terribilis* coincided with the peak both of the extent of colonial rule in the world and of the faith of the colonial powers in their own beneficence, symbolized by the elderly Rudyard Kipling's patronage of the international colonial exhibition that year in Paris. Of the four colonial powers responsible for the destinies of rice-exporting delta lands in South-east Asia, the French were the most deeply shocked in their self-esteem at the misery the collapse of the market caused; the great survey of the Mekong delta by Yves Henry was commissioned in 1932, and that of the Red River delta by Pierre Gourou followed four years later. The British contented themselves with the reports of the Indian Civil Service on the spot. On the other hand, the regular periodical "settlement reports," initiated by the East India Company, constitute a continuous record of economic and social conditions reaching back to the British conquest of lower Burma in 1852. Relying principally on them, Professor Adas has produced an account of conditions in Burma worthy to be set beside the earlier ones for Indochina of Henry and Gourou.

The social causes of the 1931 disturbances were similar in many respects in all three deltas: the theory that European capital and immigrant labour were going to improve techniques of agriculture had not been fulfilled, and the capital had been channelled unintentionally into native moneylending on a usurious scale. In lower Burma, immigration

of skilled and unskilled labour from south India gathered its own momentum and was paralleled by extensive immigration of Burmans from upper Burma; neither movement slowed down when the surplus land had all been taken up, whereas the entry into the world market of rice from European countries and the U.S.A. lowered the total income to be had from the product. A number of widely held misconceptions are dispelled in this book, such as that the moneylenders were all Chinese or Indian, the borrowers all native Burmans; in reality, Burman moneylenders at one time outnumbered all the foreigners put together. More fundamentally, Professor Adas disputes the attribution of the 1931 crisis by British administrators to external factors alone: he concludes that the system—insofar as it can be called a system—contained built-in tensions which were bound to snap soon, and the world depression was no more than the last straw.

The race riots of the Saya San rebellion in 1931 were a terrible indictment of the capitalist system. It was the Indians who suffered most, the Burmans much less, the Chinese less still, the British not at all; indeed, Englishmen walked the streets of Rangoon and other centres in the midst of the rioters with impunity. Yet the recovery of Burma, as of Indochina, between 1931 and 1941—a period about which this book has rather less to say—was no less an *achievement* of the capitalist system, and brought greater prosperity than ever to all the inhabitants of the Irrawaddy-Sittang-Salween delta. Professor Adas points out that the causes of the 1931 troubles were not in the least political: the troubles which have hit Burma in the age of nationalism can fairly be said to have been solely political.

DENNIS J. DUNCANSON

ROBERT C. STUART, *The Collective Farm in Soviet Agriculture*. Lexington, D. C. Heath and Co., 1972. xx+254 pp. No price stated. Professor Stuart sets out to present "an in-depth analysis of the structural and operational characteristics of the Soviet collective farm as a mechanism for the organization of economic activity in the countryside" (p. 9). The book is well documented, liberally endowed with

statistical tables, and makes few concessions towards literary elegance. The emphasis throughout is on the current managerial and technical aspects of the collective farm. Nearly all data and comment refer to the period after 1950, during which time the numbers of collectives declined substantially, the average size of each rose, and some important administrative changes, including the abolition of Machine Tractor Stations in 1958, took place. The author deals authoritatively with a number of interesting questions, such as the nature of managerial incentives, the development of cost accounting, and the increasing role of decision-making at the brigade level as the size of the collectives increased. He demonstrates that as far as organization and structure are concerned, the collective farms have come increasingly to imitate the state farms (which receive little separate treatment from Professor Stuart). An illuminating chapter deals with the personnel involved in farm management, discussing, with regional data, the age and educational characteristics of collective-farm managers.

Inevitably historians will be disappointed that collective farms during the Stalin era get such limited treatment, as they will be by the scant attention paid to such issues as the impact of collectives on crop yields, the flexibility of crop systems, and the overall implications of such a system for economic development. Within its framework, however, the book is an excellent study of a neglected topic, and presents valuable information on business management in Soviet agriculture.

M. E. FALKUS

L. C. KNORR, *Citrus Diseases and Disorders*. University of Florida Press, 1973. x+163 pp \$10.00

This volume would seem to have little appeal to the historian, but if he should want to identify a citrus disease he would find it useful. It is a compendium in alphabetical order of the names of such troubles, with suggestions for overcoming them. There is no index of scientific names, which might pain the scientist. In its field it is welcome, particularly Appendix 2, which gives a scientific identity to most citrus varieties, thus avoiding much confusion as to

just what species various way-out varietal names (e.g. the "Box Orange") are.

GEORGE ORDISH

C. A. JEWELL (ed.), *Victorian Farming: A Sourcebook*. Winchester, Barry Shurlock, 1975. xx+138 pp. Illus. £3.50.

This interesting volume is very much a product of the Reading Institute of Agricultural History since it is edited by Andrew Jewell, and has an introduction contributed by E. J. T. Collins. The body of the book consists of numerous illustrations and explanatory paragraphs taken from the third edition of Henry Stephens's *The Book of the Farm* (1871). Stephens's work was intended as a textbook for the farm pupil, and the extracts reproduced here serve not only as a conspectus of the implements and methods of the middle nineteenth century but also as a guide to contemporary ideas on how the efficient farming of the time should be conducted.

Stephens, originally a farmer in Forfarshire, settled near Edinburgh in 1830 and took up a career in agricultural journalism. He was, Dr Collins remarks, a master of the art of description, and *The Book of the Farm*, though biased towards mixed farming and Scottish practices, was the leading practical text of its day. More important perhaps for the historian, its illustrations are considered the best which the period offers. In the descriptions of implements Stephens was assisted by the Edinburgh engineer, John Slight, whose son executed the drawings of machinery. The artist, Gourlay Steele, an Associate of the Royal Scottish Academy, provided the striking silhouette drawings of field operations. (It is interesting that so many of these, as of barn work too, show a high proportion of women providing the labour.) For this volume the original illustrations and text have been enlarged photographically by one-third, and they are set out in Stephens's arrangement of following the main farming activities of each season.

Victorian Farming will be invaluable both for classroom use and for specialists in the history of farming techniques. And in view of the number of illustrations, and the quality of the reproduction, it must be considered excellent value in these inflationary times. A microfiche

edition of the complete text of *The Book of the Farm* is available from the publishers.

G. E. MINGAY

M. K. ASHBY, *The Changing English Village, A History of Bledington, Gloucestershire, in its setting, 1066-1914*. Roundwood Press, 1974. xxiii + 425 pp., 8 plates, 2 maps, £5.50.

MARGARET SPUFFORD, *Contrasting Communities, English Villagers in the Sixteenth and Seventeenth Centuries*. C.U.P., 1974. xxiii + 374 pp., 13 maps, £7.70.

The appearance of these two excellent books on English rural life in the same year indicates how far the study of local history has progressed in recent times. Studies of this depth, intensity, and relevance to general historical problems are a relatively new occurrence; and these have the further merit that they deal comprehensively not only with agricultural matters, but also with a wide field of social history. In particular, religion and education can seldom before have been analysed so thoroughly at the village level. These books add new dimensions to the trail which Professor Hoskins pioneered so ably with the *Midland Peasant* in 1957.

Miss Ashby takes one village, Bledington in the Cotswold country between Stow-on-the-Wold and Chipping Norton, where she lived for many years, and traces its development from early times to 1914. By contrast, Dr Spufford examines three Cambridgeshire villages from differing natural regions to see how far environment affected their economic, social—and even to some extent political—development during the critical years of change from a medieval to a modern world. The selected villages are Orwell in the clay plain south-west of Cambridge, Chippenham in the chalk country near Newmarket, and Willingham just into the Fens north-west of Cambridge. The book has three sections (1) People, Families and Land; (2) The Schooling of the Peasantry; and (3) Parishioners and their Religion. The first part is the longest. It comprises an opening chapter on population change in Cambridgeshire from the relative over-population of the pre-Black Death years to the late seventeenth century. This is followed by a chapter on the problem of the

disappearance of the small landowner, which is the central theme of the first part of the book. The final three chapters of this section are case studies of changing landownership in the three sample villages of Chippenham, Orwell, and Willingham.

The second section on the schooling of the peasantry begins with a survey of Cambridgeshire schools and schoolmasters, and ends with an analysis of the extent of literacy, based mainly on the ability to sign wills and other legal documents. Of 316 wills made before 1700 in the three villages of Willingham, Orwell, and Milton only 16 per cent bore the testator's signature. As one would expect, literacy (judged by this admittedly rather crude test) was related to wealth and social status. One-third of yeomen making wills could sign their names; only 10 per cent of labourers, craftsmen, and women were able to do so. However, the sample does not distinguish between wills chronologically, but where this distinction was made (for Willingham wills) there was, surprisingly, very little improvement in literacy during the seventeenth century. Only eight out of thirty-nine testators could sign their wills between 1676 and 1700 compared with five out of forty-four in the years 1601-25. Miss Ashby does not analyse the Bledington wills in quite the same way but she notes that in all the wills and inventories prior to 1700 only one book is mentioned; but adds that "a husbandman's sons, if not himself, must be able to read freely if not to write."

Literacy bore an obvious relationship to the spread of dissent, relying so strongly as it did on individual interpretation of the Bible. However, the relationship was not deterministic judging by the widespread hold of dissent on the Cambridgeshire countryside—far more prevalent than literacy. Dr Spufford analyses its spread and the possible causes thereof in great detail and concludes that no single explanation will suffice. Dissent was widespread among all groups in the villages, except the gentry, but in few was it dominant. However, she quotes a story about a husbandman of Willingham, in 1555, one Henry Orinel, which is very surprising, and should serve as a salutary warning against too easy an acceptance of the idea that villagers were bounded by

the confines of a narrow locality, and were unaware of the events in the wider world. It seems that Orinel, worried by the return of Catholicism under Queen Mary, travelled to Colchester, which he describes as a city which "gave great light to all those who for the comfort of their conscience came to confer there from many diverse places of the Realme, and repairing to common Innes had by night their Christian exercises, which in other places could not be gotten." At the Inn Orinel witnessed a debate between a Dutch Protestant and "a servant to Mr. Lawrence of Barnehall in Essex", on the divinity of Christ. When the servant failed to interpret a Pauline text to his liking, Orinel became so disturbed, that he said "I was fully minded to go to Oxford to aske counsaile of Bishop Ridley and M. Latimer concerning that matter, had I not met with some man, to satisfie my conscience in the meane season." As Dr Spufford aptly comments it is astonishing that a husbandman of small means (he was farming half a yardland—about 15 to 20 acres—in the open fields of Willingham in 1575) should have travelled some fifty miles to Colchester to attend a religious debate, and should have seriously considered going on to Oxford to discuss a disputed point with a bishop. Few such shafts of light on the rural scene have been recorded in contemporary documents, but the existence of even one such example must make us reconsider the significance of abstract ideas and of physical mobility amongst a group often believed to be devoid of both.

In relation to matters more strictly agricultural, case studies of this kind cannot of course resolve leading issues of agricultural history, such as the chronology of the "agricultural revolution," or the decline of the peasantry; but they can offer useful insights. On the question of agricultural improvements the evidence is rather negative. At Bledington enclosure came by private Act in 1769, but it seems that very little change occurred in a fairly simple system of farming, either before or after it. References to the new fodder grasses and roots are few, which is surprising since sainfoin, the most celebrated of them, is said to have been introduced into England at the neighbouring village of Daylesford in

1650. Cropping innovations remained limited, though livestock numbers probably increased judging by land-use figures. In 1798, during the period of wartime corn shortage, the largest farm in Bledington (with about 800 acres) was still mainly in meadow and pasture: only three-eighths of its acreage was growing corn. In 1801 the crop distribution was as follows: 287 acres of wheat, barley, and oats; 80 acres of beans; 25 acres of turnips; half an acre of potatoes; and half an acre of peas. Turnips had certainly arrived, but not apparently in sufficient numbers to affect the rotation very noticeably. Nor is the evidence from the Cambridge villages very striking. At Chippenham, clover and fodder crops were not mentioned in inventories (but then as Miss Ashby states in another context inventories and wills tend to *minimize* change) though a map of 1712 showed sainfoin growing in closes. At Orwell also specific evidence of improvement was lacking, but a major effort to reduce fallow was made because by the early eighteenth century, the old two-course rotation had been replaced by a three-course shift. At Willingham the situation was quite different. There about three-quarters of the land was fen commons, which the Lord, Sir Miles Sandys, accused the tenants of overstocking. His attempts to enclose and deprive the tenants of their commons were not however an "improvement" they appreciated. Resistance was strong and successful. Sir Miles was over-heavily involved in the Earl of Bedford's fen-drainage schemes, and by 1649 was bankrupt. The general impression is that none of these villages was forward in agricultural improvement, but the evidence is nowhere very full and hints like the sainfoin at Chippenham suggest that much may have escaped notice in the records.

On the questions of landownership, tenure, and farm size the evidence is much clearer. Wherever arable farming was important, as at Bledington, Chippenham, and Orwell, there was a clear tendency between 1500 and 1700 towards fewer owners, fewer tenants, and larger farms. But in the fen village of Willingham exactly the reverse was true. As manorial discipline slackened in the seventeenth century, holdings were subdivided so that be-

tween 1575 and the 1720's the number of tenants rose from about 100 to 153, and *only five* of these had more than half a yardland (15-20 acres). Dr Spufford believes that paradoxically it was the sixteenth-century price rise which rendered the old 15 to 30 acre *arable* holding an uneconomic unit. In years of bad harvests (and climatic deterioration seems to have increased these in the late sixteenth century) the small farmer was forced to consume his own scanty produce, and had nothing to sell to meet his sharply rising costs. Sometimes he might even have to buy highly expensive food from larger farms. In these conditions many were obliged to sell their holdings or surrender their leases. Only the man with broad acres could afford to profit from the high grain prices in years of dearth.

No review of books which are as rich and nourishing as these can do more than offer a superficial overview. Miss Ashby has much of interest to say on the development of poverty in the nineteenth century as a steadily rising rural population pressed against a steadily declining number of farms. As one would expect from the author of *Joseph Ashby of Tysoe*, she is excellent on Arch's movement in the 1870's and the reasons for its rise and fall. Her accounts of the village school and the fascinating survival of the Morris-dancing traditions amongst the farm labourers are also full of interest.

In conclusion both authors are to be congratulated on studies which combine significant increases in our knowledge of the structure of rural society with a deep understanding of the virtues and foibles of the human personalities who lie behind the statistical aggregates.

MICHAEL HAVINDEN

IAN KERSHAW, *Bolton Priory: the Economy of a northern Monastery 1286-1325*. O.U.P., 1973. xiii+213 pp. £4.50.

R. B. DOBSON, *Durham Priory 1400-1450*. C.U.P., 1973. xiii+428 pp. 5 figs. £7.20.

These are two welcome additions to the still small collection of competent modern studies of individual medieval religious houses. Both have their limitations imposed by the nature of the surviving records. This is specially true

of Dr Kershaw's book on Bolton Priory. A moderately-sized Augustinian house, it was founded at Embsay near Skipton in 1120 and transferred in 1152 to its splendid setting at Bolton in Wharfedale, more realistically described, from the standpoint of monastic prosperity, as "*in loco silvestri terraue sterili et inculta*." The author is concerned with what he calls the monastic economy; that is how the material side of the life of the house was organized and conducted. Unlike many economic historians he does not use monastic records to study the general development of rural economy and rural society. The work is focused on the period 1286-1325, because for these years alone there survives a quite remarkably comprehensive set of monastic accounts, the so-called Bolton Compotus. Since the financial management of the house was highly centralized, these accounts give as complete a picture of the monastic economy as can be hoped for. Nor have they previously been used for this purpose. Hamilton Thompson in his study of the Priory did not consult them, referring only to indifferently transcribed extracts in Whitaker's *History of Craven* published in 1805. Dr Kershaw has made the most of his opportunity. He looks at how the estates, mostly in the West Riding, were managed and how arable and pasture farming, including wool production, were conducted. It is clear that the support of the household was a heavy burden on the monastic economy and an obstacle to sufficient capital investment. Of most interest is his detailed account of what happened to the Priory between 1315 and 1320 when it was hit by a succession of harvest failures, livestock epidemics, and Scottish raids. Altogether a useful and well-constructed study.

Dr Dobson has a richer subject and a larger opportunity, for the "mynistres of Saynt Cuthbert," the monks of Durham, had, and knew they had, a special place among the English religious houses. Also they left behind them a mass of evidence about what they did and how they managed their affairs. Dr Dobson has chosen to examine in careful detail how the community fared in the first half of the fifteenth century, much of which was covered by the well-documented priorate of John

Wessington (1416-46). But this choice of period has a larger significance for it is generally supposed that by this time medieval monastic life, with a few honourable exceptions, was far-gone in decline and decay. Plainly this was not so at Durham, for there with its organization fully elaborated, the community lived in an atmosphere of genuine *stabilitas*; that monastic virtue upon which the Benedictine Rule particularly insisted. While Dr Dobson's book is more wide-ranging than Dr Kershaw's monograph, he does devote an important chapter to the monastic economy and establishes some significant conclusions. Despite their stake in mining and in pasture farming, the monks of Durham still depended chiefly upon the profits of arable cultivation. When they declined the community was in trouble. Also, between 1407 and 1416 the critical decision was taken to lease almost all the convent's manorial demenses, although this failed to halt the decline of its landed income, something from which all landlords then suffered. Falling population, stagnant land values, scarcity of tenants, low cereal prices, and a contraction in the arable acreage saw to that. Nor was Durham exempt from those twin curses of conventual management, incompetent obedientiaries and ill-advised borrowing.

Yet all this is only a small part of the whole study. There is an unusually interesting account of monastic daily life, and of the intellectual activities of the monks in Durham and at Durham College in Oxford. The surviving evidence also allows a close study of the Prior's household and of his Council. From this follows a description of the use of monastic patronage, and of the dealings of the Prior and Convent with the king's government, particularly in matters of clerical taxation, as well as with the magnates and the gentry of the north-east. This is matched by a consideration of how the Durham community managed its relations with ecclesiastical authority in the shape of the Courts of Rome and York, as well as with their diocesan, and with the provincial organization of the English Benedictine houses. The result is an outstanding piece of scholarly research, admirably documented, and well written. Moreover, in what can properly be

described as a distinguished book Dr Dobson has made a significant contribution to our understanding of monastic history in the later Middle Ages.

GEOFFREY TEMPLEMAN

MICHAEL HAVINDEN (ed.), *Husbandry and Marketing in the South-West, 1500-1800*. University of Exeter, 1973. 74 pp. 75p.

This volume is the eighth of a series of occasional papers published by the University of Exeter's Department of Economic History. It concentrates on changes in farming and marketing activity from the sixteenth to the eighteenth centuries, in contrast to an earlier volume (No. 5) which dealt with problems of agrarian structure and transport since 1800. A succinct, lucid introduction by the editor is followed by three farming papers relating to Dorset, Devon and Cornwall, and Cornwall respectively, together with a paper on marketing which offers rather wider coverage.

Vast flocks of sheep have always been the chief characteristic of Dorset agriculture. Joseph Bettey discusses the consequences of a remarkable growth in sheep numbers during the sixteenth and seventeenth centuries: competition for grazing rights on the Dorset chalk downs, which frequently flared into disputes and riots; progressive enclosure by agreement (involving both downland and common arable fields); a great increase in wealth, evidenced by the superb manor houses and farms of the period; and, most notable, the development of water meadows especially along the valleys of the Frome and Piddle.

It is generally held that outfields were used to supplement corn crops by being cultivated in small plots annually. Harold Fox believes, however, that in the south-west outfields "functioned primarily as pastures and were cultivated occasionally and sporadically." His evidence derives mainly from an intensive study of the Exe estuary parish of Kenton. This raises the question of how far Kenton's pattern of outfield management was typical. Investigation of other areas with rural economies similar to those of Devon and Cornwall might provide more conclusive evidence.

Mark Overton's study of the Cornish crop returns for 1801 is intended to show how a

pastoral county reacted to the crisis of the Napoleonic wars when imports of corn were virtually cut off. Overton argues gallantly, albeit somewhat misguidedly, for progressive and up-to-date farming in Cornwall. That the argument is poorly conceived, and the conclusions only partial, must surely reflect the qualities of the source material, notoriously inaccurate and full of omissions. There is no reference to the fact that arable crops in Cornwall were subordinate to the livestock sector, and therefore cannot provide a representative indicator of Cornish farming as a whole. In this respect the returns tell us much less about the progress of farming in Cornwall at this time than in most other counties. Surely the 1801 returns must be analysed in relation to rainfall, relief, and soils. If this were done it would no doubt be seen that grains, particularly wheat, were still being grown in bulk on the unkindest of soils and at unsuitable heights, a form of land-use which cannot be explained by the crisis of war since a similar pattern obtained before 1750. There is no reference to the quality of grains harvested yet, unless the returns for Cornwall are markedly different from those of other counties, references to quality and yield should appear in places in the raw data. Or were the yields so low and the quality so desperately poor that they are best forgotten? In processing the data in the crop returns and in the production of some excellent maps Mr Overton has performed a valuable service. But this evidence on its own is unreliable, and the writer's theme untenable. The backwardness of Cornish farming has yet to be disproved.

It is reassuring to see how the marketing arrangements of a region improved simultaneously with technical changes in its husbandry. Until fairly recently this has remained an undeveloped theme: the effects of changing demands upon the methods of distribution from farm gate to final consumer have received all-too-little attention from agrarian historians. John Chartres casts his net rather widely, and the south-west remains subordi-

nate to a much larger region liberally defined as the "west of England." A dearth of source material no doubt makes a study within more modest limits difficult. The result is, however, an excellent model of its kind. Following a furrow ploughed by Professor Everitt, we are shown the break-up of an old system based on fairs and markets, and the growth of a new network of private marketing arrangements. A number of economic and social developments affected the pattern of food-marketing during this period: an increase of population in London and the provinces; the rise of a leisured society and a sophistication of tastes; the extension of agricultural specialization; and the improvement of all forms of transport and communication. The result was that much inland trade shifted from the smaller to the larger market towns, an increase in the scale of commercial dealings was evidenced, and there was a migration of trade from the traditional "open market" to the "private market" located in corn chambers, warehouses, and above all the inns of London and provincial towns.

Each contribution presents, in its own way, confirmation or disputation of an already familiar hypothesis: the "floating" of Dorset water meadows provides further evidence of a technical development emphasized by Dr Kerridge; the management of outfields in Devon and Cornwall differs markedly from the practices revealed in classic studies of Scotland by Gray and of the Norfolk Brecklands by Saltmarsh and Darby; analysis of the 1801 crop returns challenges time-honoured literary sources as well as Dr Rowe's acceptance of traditional backwardness in Cornish agriculture; a study of marketing in western England substantiates, for this region, the growth of private marketing activity in ever-larger urban centres that was, as Professor Everitt has shown, a development of national significance. Altogether this collection of papers provides a modest addition to the growing body of regional studies in British agriculture.

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