

The AGRICULTURAL HISTORY REVIEW



VOLUME V 1957

PART I

*

PRINCIPAL CONTENTS

Pollen Analysis: a technique for investigating early
agrarian history
by J. W. FRANKS

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The Sheep-Corn Husbandry of Norfolk in the Sixteenth
and Seventeenth Centuries
by K. J. ALLISON

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The Consolidation of the Crofting System
by MALCOLM GRAY

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THE Agricultural History Review

Vol. v Part 1

Edited by H. P. R. FINBERG

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Pollen Analysis: a technique for investigating early agrarian history

By J. W. FRANKS

THE fact that the remains of plants are preserved in deposits laid down under waterlogged conditions has been known since peat deposits have been worked; and amongst the remains so preserved are pollens. Pollen analysis is the study of the pollen content of sedimentary deposits. During the past fifty years it has developed rapidly. The technique is based on the fact that all the higher plants (trees, herbs, and ferns) release pollen and spores into the atmosphere. These pollen grains and spores, being very small, are carried about by air currents and become mixed before settling out of the air. In the process of settling they are known as the 'pollen rain', and it is one of the basic assumptions of pollen analysis that the composition of the pollen rain is proportional to the composition of the vegetation from which it is derived. This assumption is not strictly true: the forest trees do not produce equal amounts of pollen, and no satisfactory measure of the inequalities has yet been devised. Furthermore, we do not know exactly how pollens are incorporated and preserved in peats and sediments. Nevertheless, so long as these limitations are borne in mind, it is believed that pollen analysis can tell us something about the history of vegetation.

The pollen content of sedimentary deposits is investigated by applying a standard chemical treatment to digest small samples of the deposit, and mounting the resultant suspension of pollen grains on a microscope slide. The pollens are then identified and counted.¹ The results of the pollen counts are calculated as a percentage of the arboreal pollen or of the total pollen of each count. These calculations are then presented graphically as a pollen diagram (see Fig. II).

The science of pollen analysis first came into being as the result of work by the Swedish scientist von Post. In the early 1900's he produced the first percentage calculations of pollens preserved in peat deposits, thereby putting the study of past vegetation on a quantitative basis for the first time. Since von Post's pioneer work pollen-analytical studies have been used chiefly for the purpose of elucidating the history of vegetation since the last ice age, with the result that in N.W. Europe a regular pattern of development over the last 10,000 years has emerged (see Fig. I). It is against the background of this work that recent studies of man's influence on the vegetation must be

¹ Faegri and Iversen, *Textbook of Modern Pollen Analysis*, Copenhagen, 1950.

<i>Approx. Age</i>	<i>Pollen Zones</i>	<i>Name of Zone or Period</i>	<i>Type of Vegetation and Climate</i>	<i>Forest Destruction</i>
10th cent. A.D. 0	VIIIB to recent	Post-atlantic	Mixed oak forest with little elm. Climate: Cool oceanic.	Oak forests cleared. Norse land-takes.
B.C. 3500				
	VIIIA	Atlantic	Elm declined. ?Climatic deterioration.	
6000				
	VI	Boreal	Mixed oak forest, alder in the damper places. Climate: Warm oceanic.	
	V		Pine-hazel woods with some birch, oak, elm, and alder. Climate: Warm dry.	
8000				
	IV	Pre-boreal	Birch-pine woods, with many herbs. Climate: becoming warmer.	
10000 to 13000	I, II, and III	Late-Glacial	Climate: Cold.	

FIG. I

Table of Vegetation and Climatic Type in the English Lake District.

considered.¹ So far pollen analysis has suggested the following sequence in the development of vegetation prior to man's influence.

After the last glaciation temperatures increased and birch woodland expanded rapidly. At the beginning of this period, the pre-boreal, there were many herbaceous species, but they became more abundant as it progressed. From this we may infer the development of denser woodland. In the boreal period the birch woods were invaded by pine. This points to a decrease in rainfall. The hazel became an important component of the vegetation at this time, probably forming pure hazel woods. The oak, elm, and lime began to appear, fostered by the still increasing temperatures. Soon after the appear-

¹ J. Iversen, 'Land occupation in Denmark's Stone Age', *Danm. Geol. Unders.*, II, 1941, Nr. 66, pp. 1-68; and 'The influence of prehistoric man on vegetation', *Danm. Geol. Unders.*, IV, 1949, Bd. 3, Nr. 6, pp. 1-25.

ance of the trees of the mixed oak forest, ivy appeared, showing that the climate was becoming more oceanic.¹

At the end of the boreal period a major change in the vegetation occurred. The alder, which had been present in small amounts since the pre-boreal, expanded rapidly. The amounts of birch and pine, until now the most important trees, declined sharply. This expansion of alder was almost certainly brought about by climatic change. At this time the mixed oak forest became established as an important unit of the vegetation. The period characterized by this type of vegetation is known as the atlantic.

The end of the atlantic period was marked by the decline of the elm. This was followed by a series of clearances which destroyed the mixed oak forest and produced the present vegetational landscape. That these clearances were man-made has been shown by the pioneer work of Scandinavian scientists. The initiative was taken by Iversen, whose work on early forest clearances was the first attempt to investigate the problem by pollen-analytical methods, and is still the outstanding work in this field.² Iversen demonstrated, by means of pollen analyses from several Danish sites, the temporary clearances of the atlantic mixed oak forest by axe and fire, and he worked out the details of clearance, occupation, and regeneration on these sites. He emphasized the importance of certain pollens as indicators, particularly the ivy and mistletoe. The climatic requirements of these plants are strictly defined and well known, so that their occurrence throughout the whole of the clearance period suggests that climate was not the primary factor in bringing about these changes.

Since then Iversen, together with Troels-Smith and others, has shown that it is possible to clear considerable areas of high forest using only the Neolithic wooden-hafted polished stone axe and a primitive burning technique still in use in Finland. Crops have been grown on the land so cleared.³

Iversen's work on forest clearance in Denmark has established for that country a clear picture of the course of events when the Neolithic farmers attacked the virgin forests of the atlantic period. First came the steep decline in the mixed oak forest, together with the first appearance of the narrow-leaved plantain. The depression of the mixed oak forest was followed by an expansion of birch and hazel. Immediately after the clearance fire, traces of which are found as charcoal stratified into the deposits, birch became more abundant than at any time since the pre-boreal. However, it was soon shaded

¹ D. Walker, 'Skelsmergh Tarn and Kentmere, Westmorland', *New Phytologist*, LIV, 1955, No. 2, pp. 222-54.

² J. Iversen, 'Land occupation in Denmark's Stone Age', *loc. cit.*

³ The experiment at Draved in S. Jutland. There is no published account.

out by the regenerating mixed oak forest. Hazel declined more slowly, but was nevertheless suppressed by the mixed oak forest. The great expansion of birch after the clearance fire can be explained by its efficient seed dispersal and by the extremely favourable conditions created for the germination of its seeds by the removal of the undergrowth.

The interpretation of the pollen diagrams receives confirmation from several other circumstances. First is the presence of a charcoal layer stratified in the deposits. Second is the fact that at the level of clearance the absolute frequencies of arboreal pollen fall very low and then slowly recover.¹ Finally, there is the striking evidence yielded by the non-arboreal pollen content of the deposits. Just above the charcoal layer the non-arboreal pollen increases suddenly, as would be expected from Iversen's hypothesis. But especial importance is attached to his identifications of the species contributing to this total. Firbas had previously suggested that it was possible to distinguish the pollen of cereals from that of other grasses on the basis of size;² by this method cereal pollen was identified from the deposits. Pollen of the plantains and mugwort was found in some quantity in the same deposits. Mugwort remained a serious weed in Denmark until deep ploughing became a regular practice. The occurrence of weeds in large numbers confirms Iversen's hypothesis of a community practising tillage only in the most rudimentary form.

Although the significance of Iversen's work was realized in this country, no attempt was at first made to study the effect of human influence on vegetational development in detail. References to forest clearance have appeared in British literature, but no detailed studies have been attempted. Some work was done by W. Pennington on the past vegetation of the Windermere region, the results of which were published by Pearsall and Pennington in a paper on the Ecological History of the English Lake District.³ In this paper they surveyed the archaeological background of the region, and from the evidence of the Windermere pollen diagrams deduced stages in the historical development of the vegetation. These included: the clearing of the valley alder swamps by the Norsemen; the destruction of the low-level oak woods; the great expansion of the grasses due to the above and to monastic sheep-farming; and the extension of pine. In an earlier work Pennington had proposed

¹ Absolute tree pollen frequency is calculated on the basis of the number of pollen grains per unit area of the microscope slide, samples of comparable size being used. It is of only limited value as too many uncontrollable factors are involved.

² F. Firbas, 'Der Pollenanalytische Nachweis des Getreibaus', *Zeitschrift für Botanik*, BXXXI, 1939.

³ W. H. Pearsall and W. Pennington, 'The Ecological History of the English Lake District', *Journ. Ecol.*, xxxiv, 1947, No. 1, pp. 137-47.

a time scale for the region based on rates of sedimentation.¹ When applied to the pollen diagrams this gave the age of the supposed Norse clearance as about A.D. 1400. This date applies to the height of the clearance, but the historian will be quick to point out that there is a considerable margin of error. The fact is that pollen analysis can only determine sequences in the history of vegetation; for the chronology of those sequences, additional evidence must be sought from archaeological or other techniques.

In Pennington's work only a small proportion of the non-arboreal pollens were identified, so that the evidence for the deductions made was rather slender. Nevertheless, later work has in the main supported the ideas put forward in his paper. In general, however, when British workers have used pollen analysis in connection with archaeological investigations, they have used it chiefly as a dating tool.² In the course of a general pollen-analytical investigation of the vegetational development of the Esthwaite basin in the English Lake District, I have devoted special attention to the effects of early forest clearance. During the routine investigations a well-marked clay band was seen to be associated with changes in the pollen diagram that suggested forest clearance. An analysis of the deposits was made, using as the standard count 1,000 grains of arboreal pollen (as against the usual 150), to give greater statistical accuracy. The pollen diagram (Fig. II) shows the result of this analysis. For convenience of interpretation the diagram has been zoned into six arbitrary phases, each characterized by its own type of vegetation. The sequence of changes shown by these phases can be seen to represent a double cycle of a weakening of the mixed oak forest followed by its regeneration.

These changes may be regarded as stages in the utilization of the area by man. Their interpretation rests largely on the appearance and disappearance of the plantains, and upon comparison with earlier accepted clearance diagrams.

PHASE

- I. Typical atlantic mixed oak forest.
- II. Small depression of the mixed oak forest.
- III. Regeneration of the mixed oak forest.
- IV. Major depression of the mixed oak forest and birch.
- V. Appearance of herbaceous types in large numbers.
- VI. Regeneration of the woodland with more birch than formerly.

¹ W. Pennington, 'The bottom deposits of the N. Basin of Windermere, Diatom Succession', *New Phytologist*, XLII, 1943, No. 1, pp. 1-27.

² J. G. D. Clark, *The Excavations at Star Carr*, Cambridge, 1955; H. Godwin, 'The Meare Pool region of the Somerset Levels', *Phil. Trans. Roy. Soc., Ser. B*, CCXXXIX, 1956, No. 662, pp. 161-90; H. Godwin, 'The age and origin of the Breckland heaths', *Nature*, CLIV, 1944, p. 6.

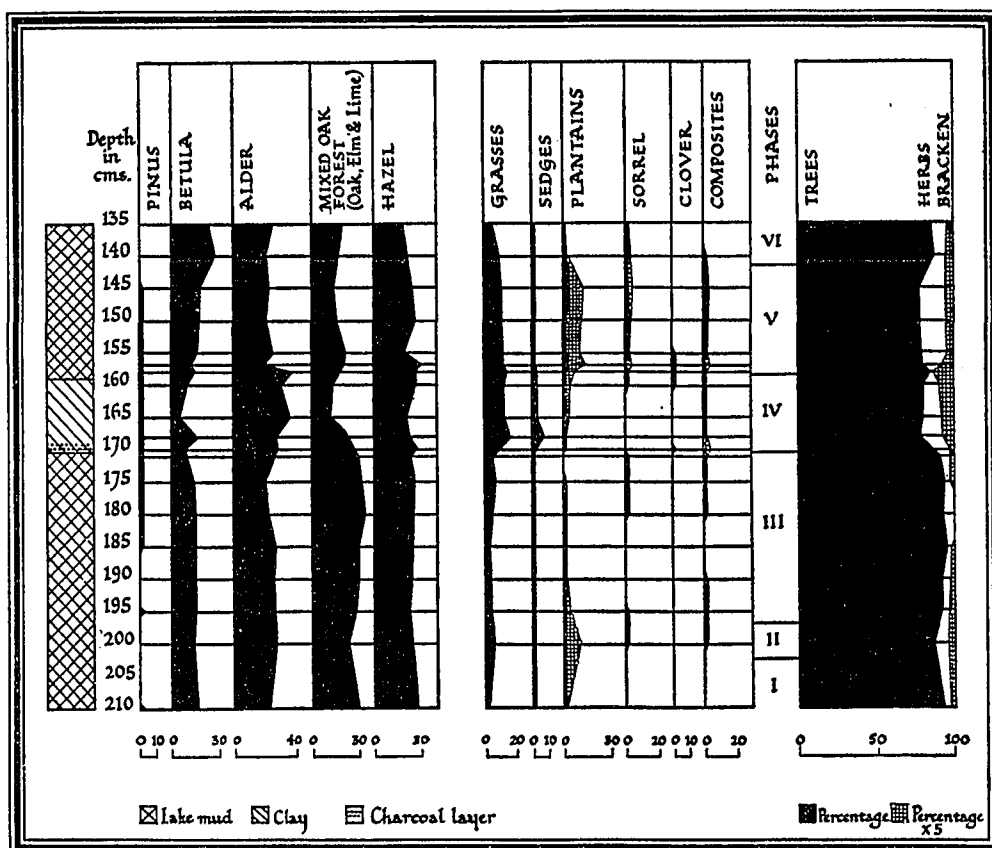


FIG. II.

The early part of the diagram (phase I) is typical of the atlantic period, in which no trace of human activity can be found. At 200 cms. there is a small depression of the mixed oak forest (phase II). This, taken in conjunction with the prolific growth of plantain, grasses, and bracken, provides some evidence of human activity; but compared with the later clearance, this appears as a very short-lived attack on the mixed oak forest, for the latter immediately returns to its former importance. The plantains, grasses, and bracken decline, and by phase III the mixed oak forest has returned. The following phases, IV, V, and VI, can be considered as representing successively the clearance, utilization, and abandonment of the area by man.

Phase IV, which begins with the decline of ash and birch, is interpreted as representing the period during which the forest was actually cleared. Later the oak was considerably reduced, and the non-arboreal components of the vegetation became of greater importance. At this time the absolute frequency of pollen fell.¹ Amongst the non-arboreal components of the vegetation, the

¹ See footnote, p. 5, on absolute pollen frequencies.

grasses and bracken predominated; the large numbers of other herbaceous types associated with the occupation phase were not represented. The delimitation of the clearance phase, judged from the pollen diagram, corresponds almost exactly with the stratigraphic horizon formed by the clay band. It seems probable that this clay band was produced by the increased erosion that followed large-scale human interference with the vegetation cover.

Phase V, the phase of occupation or utilization, began with an increase in the amount of birch, which continued throughout the phase. There was also a slight increase in oak and hazel, but the oak immediately declined. The increase in birch is explained by its superior powers of dispersal and the extremely favourable conditions for the germination of its seeds existing after the clearance fire. There is considerable evidence to support the hypothesis of such a fire. First, small particles of charcoal have been observed in the lower part of the clay layer, and secondly, occasional moss spores resembling these of *Funaria* (a species often growing on burnt areas) have been found immediately above the clay layer. The grasses declined slightly at the beginning of this period but quickly rose to a new maximum. At the same point the plantains reached their highest frequency. Sorrel rises to its maximum slightly later. The behaviour of bracken during this period is of particular interest. It can be seen from the pollen diagram that bracken decreased steadily throughout the occupation phase. This may perhaps have been due to treading by cattle. It is during this period that the greatest numbers of herbaceous types occur. They suggest that either the dense woodland earlier destroyed was being replaced by a more open type of woodland, or that extensive clearings had been made.

The final stage in this cycle (phase VI) is the regeneration of the forest. This was characterized by a further extension of birch, and to a lesser extent of oak. This part of the diagram differs considerably from Danish examples where regeneration was complete. It seems probable that the difference can be at least partly explained by the location of the Esthwaite basin in a mountain region, with the consequent leaching of soils. It may well be that at the time of the clearance the oak woods were maintaining themselves with difficulty on the upper slopes, and that the introduction of an adverse factor such as grazing had a far-reaching effect on the vegetation.¹

In the foregoing pages the changes in the vegetation reflected in the pollen diagram have been attributed to man's interference. The possibility that they were brought about by climatic influences has been rejected for the following reasons.

¹ Cf. W. H. Pearsall, 'Woodland destruction in Northern Britain', *The Naturalist*, 1934, pp. 23-8, on "zones of tension."

First, to bring about changes of the suddenness and magnitude of those shown in the pollen diagram a major climatic change would have to be postulated. Moreover, it is difficult to imagine climatic conditions which would favour alder and the even more demanding hazel at the expense of birch and oak. Such changes would of necessity affect the whole region, yet in the Esthwaite basin the elm and lime remained unaffected throughout the period. This suggests that they were growing outside the area of clearance and that we are here not dealing with a regional climatic change.

Furthermore, a forest in which alder is replacing birch is not a habitat in which high percentages of grasses, plantains, and bracken would be expected.

The remaining possibility is that some factor other than climatic was responsible for the surface on which erosion took place. When the assemblage of plants recorded is considered, the interpretation which best fits the facts is that these changes represent the product of human activity in the region, and most probably of a clearance fire, as suggested by the charcoal fragments found in the clay.

Archaeological investigations in the Lake District provide evidence for a considerable occupation of upland sites. This evidence comes largely from burial sites and stone circles, dating from late Neolithic times onwards.¹ There is also the important site of the Great Langdale Stone Axe Factory, the date of which is placed at around 1900 B.C.² The culture here appears to have remained at Neolithic level until Romano-British times and perhaps even later. It is thought that the Neolithic people of this district were cattle raisers, perhaps grazing their cattle in the upland woods, thus depressing the growth of trees and encouraging that of herbs. This type of occupation might well explain the earliest depression of the mixed oak forest (phase II). It has already been mentioned that the upland woods at this time may have been a 'zone of tension', and a factor such as grazing could well have been decisive in preventing regeneration.

It is at once apparent, however, that this is not the type of clearance characteristic of the major clearance, phase IV. The evidence shows that this belongs to a valley occupation and is a real clearance rather than an effect of grazing pressure. In this respect it is interesting to note the absence of any pollen which can with certainty be identified as cereal. The lack of cereal pollen, together with the herbaceous assemblage recorded, gives good

¹ R. G. Collingwood, 'An introduction to the prehistory of Cumb. Westm. and Lancs. N. of the sands', *Trans. Cumb. and Westm. Antiquarian and Archaeological Soc.*, N.S. xxxiii, 1933, pp. 163-200.

² C. Fell, 'The Great Langdale Stone Axe Factory', *ibid.*, N.S. I, 1951, pp. 1-14.

grounds for supposing that the clearance was made for pasture rather than for cultivation. It is noteworthy in this connection that there is no great rise in the quantity of mugwort at the end of the occupation phase such as takes place after clearances for cultivation. The virtual absence of nettle pollen strongly suggests that the clearance was made and maintained for pasture, and not for cultivation by a people permanently domiciled in the district, for pollen of this plant is only found in large quantities in diagrams from the vicinity of settlements. R. G. Collingwood points out that there is no evidence to show where the earliest settlers in the Lake District dwelt, and he therefore considers that their settlements were of a temporary nature.¹

In the absence of radio-carbon dating and specific archaeological evidence, it is difficult to ascribe the clearance to any particular period, beyond saying that it is pre-Viking, i.e. not a part of the permanent clearance, which began with the Norse land-takes in the tenth century A.D. The pattern of clearance, however, shows considerable affinities with Danish Neolithic clearances. Nevertheless, any attempt to place this diagram in the Neolithic period on the basis of comparison with Danish diagrams would be fraught with danger, for the effect of Neolithic culture on the vegetation of this country is not known. Added to this there is the fact that the density of population in Neolithic Denmark was undoubtedly much greater than in the Lake District.

The major contribution of the Esthwaite site to the picture of early forest clearance is that it provides evidence for the occupation of a valley site in the period between the initial Neolithic colonization of c. 2000 B.C. and the permanent clearance beginning c. A.D. 900.

Whilst the sketch of previous pollen-analytical work presented in this paper is by no means complete, it is hoped that sufficient of the background has been drawn in to enable the non-specialist to appreciate the value of these studies for early agrarian history. The brief account of my investigations in the Esthwaite basin is necessarily incomplete, and will appear in greater detail elsewhere. Although the site has known archaeological correlations, the results do show the potentialities of such detailed studies. How much more valuable, then, would be investigations carried out with full co-operation between botanist and archaeologist or historian. Besides working out an agreed date for early settlements, we might then attempt a detailed study of the plants associated with man, and might gain much consequent insight into farming methods and the problems which confronted early man.

¹ R. G. Collingwood, *op. cit.*

Notes and Comments

THE BRITISH AGRICULTURAL HISTORY SOCIETY

A one-day conference was held jointly with the Association of Agriculture at the London University Institute of Education on the 1st of December 1956. The chair was taken by the President, Sir James Scott Watson, and about forty people attended. Three papers were read, the first by Mr F. G. Payne of the Welsh Folk Museum on 'The Plough in Britain', the second by Miss M. E. Marston of the University of Nottingham on 'The History of Plant Propagation in England', and the third by Mr G. E. Fussell on 'Grasses and Grassland Cultivation, 1500-1900'.

THE AGRARIAN HISTORY

The project for an Agrarian History of England, announced in these pages a year ago, is gathering momentum. It is being assisted by a grant of £6,000 generously contributed by the Nuffield Foundation towards the expenses of the pilot volume. This, the first volume to be put in hand, will cover the period from approximately 1500 to 1640. It will be edited and in part written by Dr Joan Thirsk, senior research fellow in agrarian

history at University College, Leicester; and in order to help the work, a new post of research assistant has been created in the department of English Local History at the College. Miss L. M. Midgley, M.A., hitherto editor of the Victoria County History of Staffordshire, has been appointed to the post. Meanwhile sub-committees are being set up to plan the work on several other volumes.

A NEW JOURNAL OF FOLK LIFE

We welcome the arrival of *Gwerin* as a new contemporary in a closely related field. There has long been need for a journal devoted to folk life, and *Gwerin* has made its appearance at a timely moment when interest in folk-life studies is rapidly increasing. Dr Iowerth Peate, the Keeper of the Welsh Folk Museum, who edits the new journal, has striven for some years to bring it into being by gathering together support both in the British Isles and overseas, and the first issue does his efforts great credit. It is pleasingly produced and sells at the modest price of 6s. for 48 pages. It will be published twice a year.

In his editorial notes Dr Peate explains that

(continued on page 30)

NOTES ON CONTRIBUTORS

J. W. Franks, B.Sc., Ph.D., formerly a research scholar in the department of botany at University College, Leicester, is now Assistant Keeper in Palaeobotany in the department of palaeontology at the British Museum.

K. J. Allison, B.A., Ph.D., formerly Dean research scholar in the University of Leeds, has published a study of the lost villages of Norfolk, and is now continuing his research into the agrarian history of the county.

Malcolm Gray, M.A. (Aberdeen), is

lecturer in economic history at the University College of North Wales, Bangor, and author of *The Highland Economy, 1750-1850*. He has also published several articles on the subject in the *Economic History Review* and elsewhere.

W. H. Chaloner, M.A., Ph.D., is a senior lecturer in history and economics in the University of Manchester.

R. E. F. Smith is a member of the department of economics and institutions of the U.S.S.R. in the University of Birmingham.

The Sheep-Corn Husbandry of Norfolk in the Sixteenth and Seventeenth Centuries

By K. J. ALLISON

I

DURING the later seventeenth century and throughout the eighteenth, new methods of husbandry were gradually established in Norfolk. The new 'Norfolk Husbandry', developed above all in the north-west of the county, involved crops, rotations, methods of stock feeding, and conditions of land tenure which greatly improved upon earlier practices. In the eighteenth century, Townshend, Coke, L'Estrange, and Walpole were prominent in the systematic development of the new husbandry, but it should be remembered that the various individual practices were being gradually introduced by a multitude of small farmers long before the big estate owners achieved their fame. The object of this paper is to describe the older system which was to be transformed into the new 'Norfolk Husbandry' by the enclosure of open arable fields and commons.

If the Broads and Fens are excluded, an open-field, sheep-corn husbandry can be discerned over about two-thirds of the county in the later Middle Ages and the sixteenth century. The other third, distinguished on Fig. I, may appropriately be called the Wood-Pasture Region with its heavier and inherently more fertile soils. The contrast was well appreciated in the past: one seventeenth-century writer noted that the county "is compownded and sorted of soyles apte for grayne and sheepe, and of soyles apt for woode and pasture."¹ In the area of grain and sheep, with which this paper is principally concerned, the soils were light or medium in character and their sandiness made them relatively (and sometimes absolutely) infertile. Before the eighteenth-century developments in systematic marling and new crops, the sheep and their dung were indispensable for arable cultivation, and with their aid the area was famed for its barley.

As the map shows, the Sheep-Corn Region extended in an arc from south-west to north-east Norfolk. In the south-west the soils of Breckland deteriorate to shallow, wind-blown sands which are still regarded as sub-marginal for cultivation, but the sandy soils in west and north-west Norfolk were sufficiently superior for Arthur Young to christen this the "Good Sand

¹ Norwich Public Library (= N.P.L.), MS. 2641 (undated, seventeenth century).

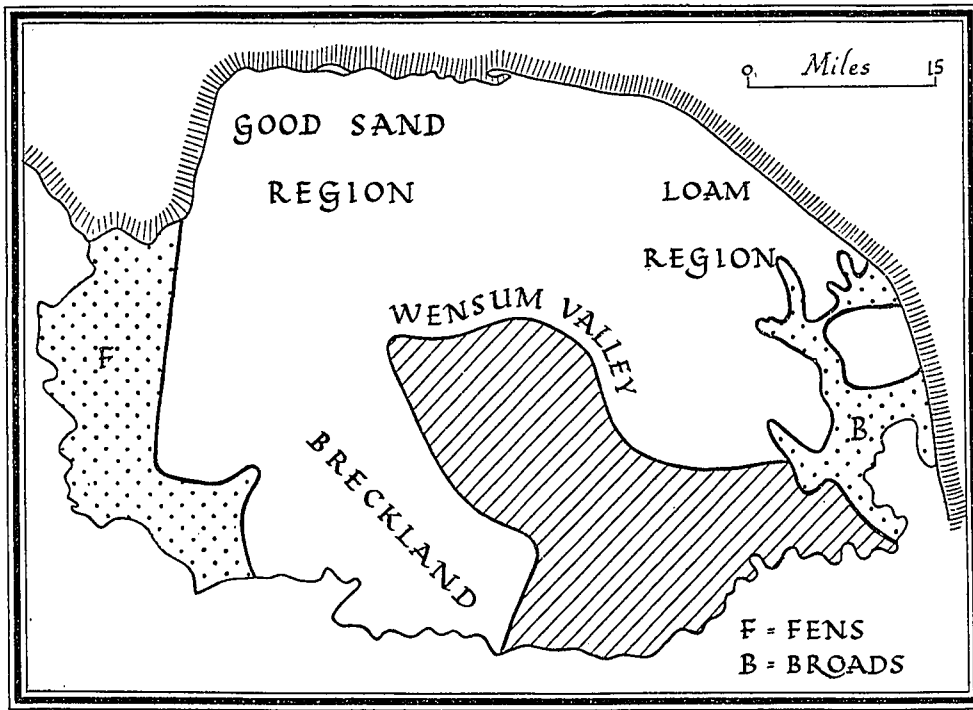


FIG. I

Extent of the Sheep-Corn Region and the Wood-Pasture Region .

Region." Yet until the improvements of the eighteenth century, Good Sand and Breckland formed one single land-use region. Three other districts lay within the Sheep-Corn Region: the sands of the morainic Holt-Cromer Ridge; the broad belt of valley sands and gravels along the Wensum Valley; and scattered patches of light and sandy soils within the Loam Region of north-east Norfolk.

The Sheep-Corn Region was a country of extensive open arable fields and equally extensive heaths and commons. Only limited enclosure of open-field land had taken place there before the seventeenth century, and both landlords and tenants enjoyed all-important common rights over the fields and heaths. With large flocks of sheep to dung, or "tathe,"¹ the light soils, the Sheep-Corn Region was renowned for its barley production, with wheat of secondary importance; the foot of the sheep did indeed turn the Norfolk

¹ Tathe—"a provincial term, conveying a compound idea, for which we have no English word. When we make use of the term fold, as applied to the fertilizing effect of sheep pent upon land, we do not mean to convey an idea merely of the foeces they leave behind them, in this case, but also of the urine, the trampling, and perhaps of the perspiration, and the warmth, communicated to the soil by the practice of folding."—Marshall, *The Rural Economy of Norfolk*, 1795, I, pp. 33-4.

sands into gold. In contrast, open fields were less extensive in the Wood-Pasture Region, where piecemeal enclosure had progressed far more rapidly; on these heavier soils of central and south-east Norfolk, heaths and commons were far less in evidence although there was more woodland here than in the Sheep-Corn Region. Both heavier and more fertile, these soils did not need intensive sheep-dunging, and although barley was still the predominant cereal, wheat was of considerably greater importance than in the Sheep-Corn Region. Finally, the conditions in the Wood-Pasture Region were far more favourable for the development of good grassland, and it was said that this part of the county was "sustained chiefly by grasinge, by Deyries and rearings of Cattell."¹

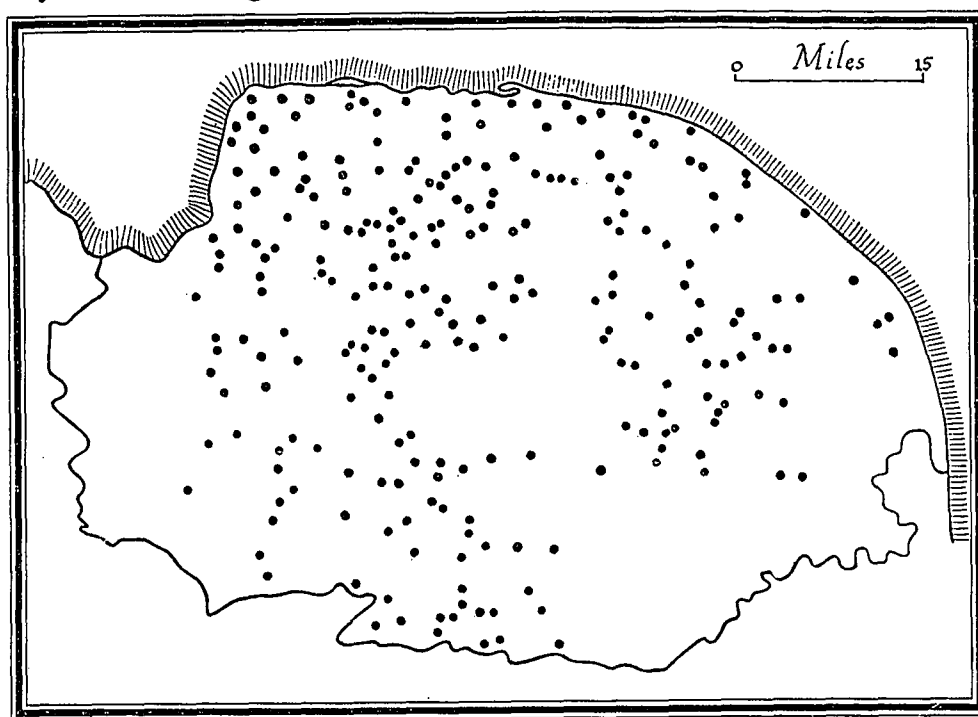


FIG. II

Distribution of Foldcourses.

The limits of the Sheep-Corn Region may be accurately established by mapping the townships for which evidence of the peculiar Norfolk sheep-corn husbandry has been found. The basis of that husbandry was the fold-course, an institution unique to this county and to the north-west of Suffolk.²

¹ MS. printed by W. Rye (ed.), *State Papers Relating to Norfolk*, 1907, pp. 180-7.

² Some of the provisions of Statute 25 Henry VIII, c. 13, applied to foldcourse owners in both Norfolk and Suffolk. See also J. Spratt, 'Agrarian Conditions in Norfolk and Suffolk, 1600-1650', M.A. thesis, University of London, 1935, pp. 199-200, unpublished.

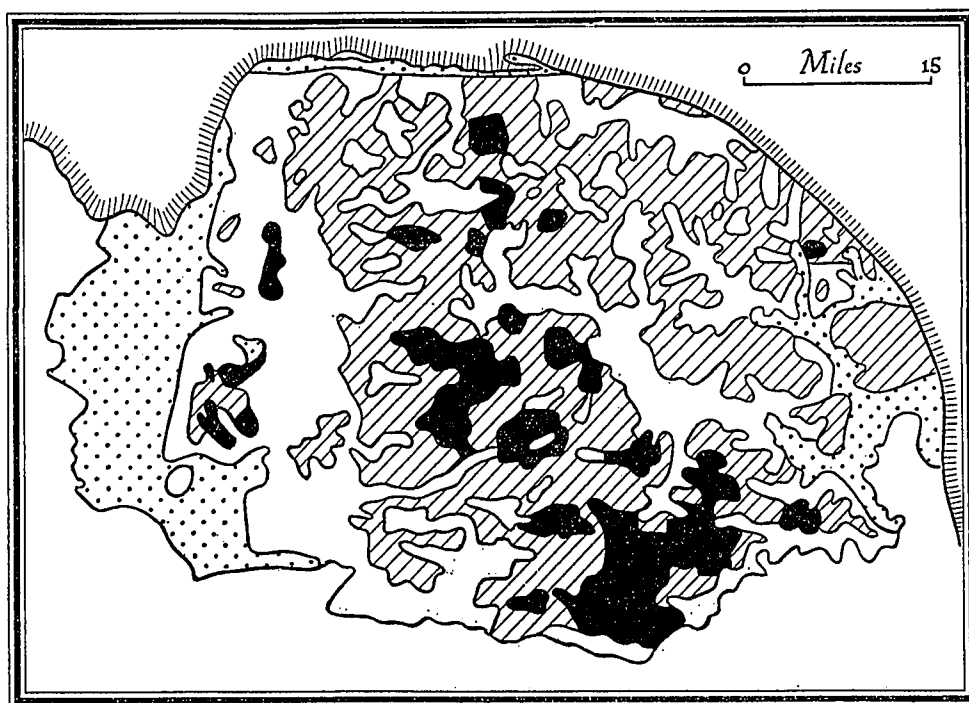


FIG. III

Soil Types: Alluvium, Light, Medium, Heavy.

Fig. II shows the distribution of some 250 townships in which the fold-course system is known to have been used.¹ Comparison with Fig. III shows how close is the correlation between the sheep-corn husbandry and the light and medium soils of the county.

II

Norfolk sheep farming was predominantly the concern of the manorial lord or his lessee. The demesne flocks did not, however, feed solely on demesne land but ranged over the open-field holdings of the lord's tenants. Norfolk villages rarely contained a single manor,² and the open fields and heathland of a village were divided between the flocks of two or more manorial lords: the area allotted to each was called a foldcourse. In the words of certain "poor inhabitants" of Norfolk, "within euery Towne and vyllage

¹ References from a variety of manuscript and printed sources, detailed in K. J. Allison, 'The Wool Supply and the Worsted Cloth Industry in Norfolk in the Sixteenth and Seventeenth Centuries', Ph.D. thesis, University of Leeds, 1955, Appendix I, unpublished.

² Even in 1600, after much consolidation of manors had taken place, 30·3 per cent of 637 Norfolk villages contained more than one manor.—Spratt, *thesis cit.*, p. 20.

is most comonly one ij or iij manors or more and to euey manor a Shepps Course or ffouldcourse belongyng."¹

The inclusion of both open-field and heathland within a foldcourse was essential if the flock was to have pasturage available for the whole year. The sheep fed over all the unsown arable land (which they shared with the tenants' great cattle),² but although this was extensive in autumn and winter after the harvest, it was severely limited during the summer months. Consequently, the most important summer pasturage was that provided by the heaths and commons. The importance of the two types of feed was well expressed by Thomas Russell, lord of the manor of North Hall in West Rudham: "Whereas a great part of Norfolk is champion consisting of open fields where the lands of several men lie intermixed, and whereas the commodity and wealth of that part of the county comes chiefly from foldcourses of sheep and corn; the foldcourses being mostly on arable land lying fallow and unsown for certain terms and at certain times for sheep pasture, whereby the land gives greater yeild;" and speaking of his own foldcourse, Russell added "these sheep have always been depastured and fed yearly and at all times of the year on pasture, bruery, and heaths in W. Rudham called the Somer pasture of the said foldcourse."³

Provision was made in all foldcourses for summer and winter pasturage, but in some cases there was variation from the simple formula of heathland and open-field arable land. Foldcourses frequently included closes, both arable and pasture, whose owners were obliged to provide gaps for the sheep to enter at the appropriate seasons. Three of the foldcourses at North Creake, shown on Fig. V,⁴ included closes which were definitely used by the sheep: two of the closes, for example, were "parcell of Shammer foldcourse" and "parcell of Shammer shackle" (the latter was the word used to describe feed on the harvest fields). It will be seen later that the progressive piecemeal enclosure of open-field land during the seventeenth century endangered the foldcourse system, whose existence depended essentially on rights of commonage for sheep over the unsown fields; but ancient closes had fitted easily into the system. The writer of a seventeenth-century treatise on foldcourses⁵ insisted that all land within a foldcourse should be subject to feeding by the lord's sheep: if they did not feed in a tenant's close, then the lord had released it, or taken some composition for it, or the close had never "anciently" been

¹ Public Record Office (=P.R.O.), E 163:16:14 (*temp.* Elizabeth I). See *infra*, pp. 22-5.

² Great cattle were the larger pasture beasts, principally horses, cows, and bullocks.

³ P.R.O., C 2:R 6: 61 (*temp.* Elizabeth I).

⁴ N.P.L., NRS 3503 (undated, early seventeenth century).

⁵ British Museum (=B.M.), Add. MS. 27,403 (undated, seventeenth century).

part of the foldcourse. Some foldcourses also included meadow land, which provided sheep feed after hay had been mown; and in other cases the summer pasture was provided, not by heathland, but by fens and salt marshes.¹ Two of the foldcourses at Holkham, shown on Fig. IV,² included large areas of salt marsh, and this was true of all the villages along the north Norfolk coast.

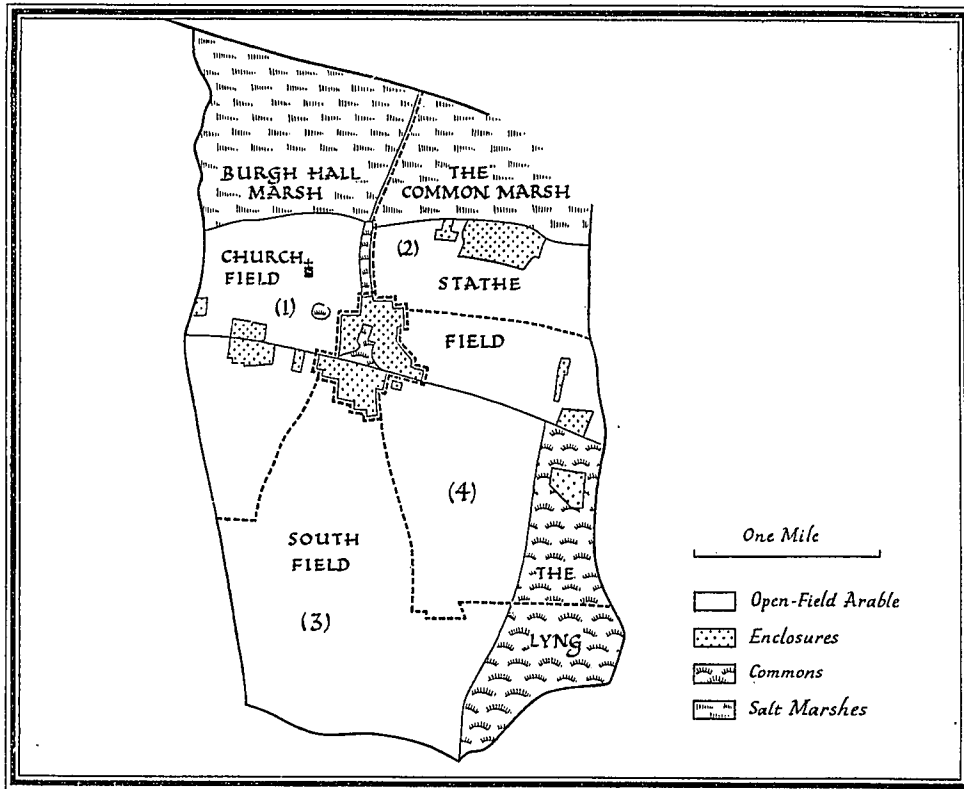


FIG. IV

Holkham 1590. Boundaries of the four Foldcourses shown thus: - - - - -.

Foldcourse boundaries and the extent of land subject to feeding by the flocks were always rigidly fixed. In special circumstances additional pasture could be provided: at Sculthorpe, for example, Thomas Fermor had the right to feed his flocks over 50 acres of ground during the winter months "in

¹ E.g., at Feltwell, on the Fenland border, a foldcourse included open-field arable land, heathland, meadows, and fens.—N.P.L., NRS 10030 (1539-40).

² Holkham MSS., Map 1 (1590). I am indebted to the earl of Leicester for permission to consult the documents at Holkham and to publish this map, and to his librarian, Dr W. O. Hassall, for his assistance.

the time of froste and snowe and not other wyse."¹ Since foldcourses were fixed in area, an equally strict customary limit was placed on the size of flocks which could be maintained. While most foldcourses carried a few hundred sheep, some were sufficiently large for flocks of over 2,000 head.

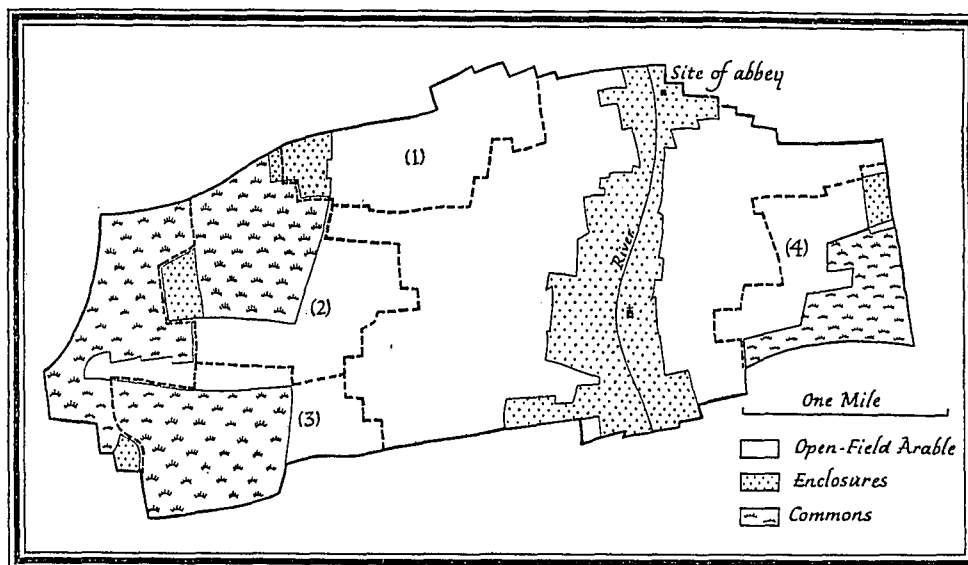


FIG. V

North Creake. Early seventeenth-century boundaries of the four Foldcourses shown thus: - - - - -.

In some villages, like West Lexham,² the entire open-field area lay within the bounds of a single foldcourse; in others, foldcourse boundaries, like manorial land ownership, transgressed parish boundaries. But since most villages contained a number of manors, it was far more usual for the open arable fields to be divided between a number of foldcourses. In many cases, the foldcourses between them occupied the whole of the arable fields: as Fig. IV shows, this was so at Holkham, where Church, Stathe, and South Fields lay within the four foldcourses. Fig. V illustrates the opposite situation: the four foldcourses there covered only part of the fields, the remainder being enjoyed solely by the tenants' great cattle during the appropriate seasons. The extent of summer feed provided by heathland was equally variable. In some villages, the heathland was used jointly by lord's flock and tenants' cattle: the Lyng at Holkham (Fig. IV) was used all the year round by the sheep of two foldcourses and by the tenants' "horse, neate, and

¹ N.P.L., NRS 14327 (1584-5).

² Holkham MSS., Map 5: 87A (1575).

swyne.”¹ In other cases, the summer pasture was divided between flocks and cattle, and in others again it was used by the flocks in winter and by the tenants’ stock in summer: it was during the summer that tenants relied most heavily on heathland pasture, for their stock had ample feed during the winter on the harvest fields.

III

It was in the feeding of flocks over the open arable fields that the foldcourse system demanded the closest co-operation between flock-owner and tenant landholders. Although the sheep took most of their summer feed from heaths and commons, they were, throughout the year, moved over those parts of the open fields which were unsown. After harvest, extensive areas of stubble were available, both for the flocks and the tenants’ great cattle; this feed was known as shack, and all tenants had a right of shackage. Feed on the harvest fields was called Michaelmas shack to distinguish it from Lammas shack on meadow land from which hay had been mown.² The shack period on the fields normally lasted for six months, from Michaelmas (29 September) to the Feast of the Annunciation (25 March); but there were local variations, and it might be affected by unseasonable weather or by the crop. Since the shack fields were extensive, there was no need for the lord’s sheep to be separated from tenants’ animals and penned within folds: “all mens cattell go then promiscuously.”³

In addition to winter shackage, the arable land also provided sheep feed “when it lyeth somerley in the somer tyme.”⁴ Much smaller areas of the fields were lying unsown at this season and it was necessary to fold the sheep on the fallow strips: “A fouldre is ye least butt most eminent parte (of the whole foldcourse), a small enclosure made with Hyrdells to shutt ye sheep in eyther for Tathing or other wyse ordering of them.”⁵ Even when the summer fallow had been ploughed for winter corn, it was still available for pasturage until the seed was sown; but during this short intermediate period, the foldcourse owner was obliged to fold his sheep on his own strips only and tenants were allowed to tether their great cattle only upon their own holdings.⁶ After winter corn had been sown, of course, those strips were denied to sheep and cattle feeding on the Michaelmas shack.

¹ Holkham MSS., uncatalogued, quoted by H. L. Gray, *English Field Systems*, 1915, pp. 328–9.

² B.M., Add. MS. 27,403 (undated, seventeenth century). ³ *Ibid.*

⁴ P.R.O., E 315: 201: 55–9 and 65–173 (1625 and 1596), quoted by Spratt, *thesis cit.*, p. 245. Also used as sheep feed were ‘ollands’, parcels of land lying unsown for more than one year.

⁵ B.M., Add. MS. 27,403 (undated, seventeenth century).

⁶ P.R.O., Star Chamber 2: 8: 158 (*temp.* Henry VIII).

Close co-operation between landlord and tenants was essential: it was important that the winter shackle should not be fragmented by scattered strips of winter corn, and that summer fallow strips should not be widely dispersed in the sea of spring corn. In fact, customary regulations were observed by tenants to ensure that fallow and sown land should be as compact as possible, and that winter and spring corn were kept separate. To this end, certain areas of the arable fields were set aside for sowing each year: the fields were divided into 'shifts'. According to Thomas Russell, the lord of North Hall in West Rudham, "The custom and usage there is and time out of mind of man has been that lands lying in the fields of W. Rudham have been divided into several shifts or parts of which some have been used yearly and every year and in course have been sown with corn, and some yearly left fallow."¹ At Docking, too, the farmers of the lord's foldcourse had right of shackle in East Field and other field ground in which the sown land lay each year in a 'shyft'.²

The tenants' ability to comply with these regulations was increased by the lay-out of strips in the Norfolk open-field system. Since the rotation of spring corn, winter corn, and fallow was not based on fields or furlongs, it was not necessary for a man's strips to be equally distributed between the different parts of the open-field area of a village. (In Norfolk, it was more usual for the open-field area to be divided into 'precincts' than into 'fields'.) The strips of a tenant's holding were consequently not widely dispersed but were situated relatively compactly in one sector of the fields. When that sector lay within a sown shift, the tenant sowed his land accordingly; when it lay within a fallow shift, he refrained from doing so. The owners of foldcourses normally gave a tenant compensation for obliging him to leave his strips fallow during any one year, compensation taking the form of demesne land offered in exchange, a temporary reduction in rent, or an increased number of animals which the tenants might put into the lords' flocks.³ But the tenants, in some townships at least, were obliged to make an annual payment for each acre that benefited from tathing by the lords' flocks.

In the previous paragraph, mention was made of one other important aspect of the co-operation between flock-owner and tenants. Many tenants

¹ P.R.O., C 2:R 6:61 (*temp.* Elizabeth I).

² P.R.O., C 2:H 11:45 (1591).

³ B.M., Add. MS. 27,403 (undated, seventeenth century). E.g. at Sedgeford, "where it falls out in Course that any of the Coppiehold or ffreehold lands are to ly lay for the purpose aforesaid (shackle) the lord allowes to the Tenants in exchange recompense for the same a like quantity of his Demeane arrable lands."—L'Estrange MSS., Box IC (eighteenth century). At Hindringham, certain tenants were obliged to give up their lands lying in the summer pasture of a foldcourse—they were given compensation of either other land in exchange or 8d. per acre involved.—P.R.O., DL 3:49 (1541-2).

possessed a 'cullet right' which enabled them to keep a few sheep in the lords' flocks. In most townships of the Sheep-Corn Region, therefore, tenants had three sources of feed for their animals: their great cattle were turned on to the shackage of the harvest fields, their great cattle and sheep fed on the heathland commons, and a small number of sheep was put into the demesne flock. Cullet rights assumed even greater importance in those townships where tenants had no other means of feeding their sheep. This was the case at Holkham: the tenants' horses, cattle, and pigs shared with the lord's flock both the heathland and the shack fields of which Caldowe foldcourse was comprised, but neither heathland nor shack fields were available for tenants' sheep.¹ These tenants did, however, have cullet rights, and in 1559, for example, Caldowe flock was made up of 725 of the lord's sheep and 150 belonging to 10 tenants.²

The numbers of sheep put into a flock by individual tenants were determined by the amount of land which they owned in the open fields. "By the custom of the said county any man that have any land lying in any open field (except such as has liberty of foldcourse and foldage) ought to shack there with his cattle according to the proportion of his land lying in the said field;" and this cullet right "is to have a number of sheep certain appurtenant to some tenement as a hundred or two hundred sheep going and feeding after or with the lords flock."³ The number of cullet sheep reached several hundreds in the larger flocks.

Cullet sheep were tended throughout the year by the lord's shepherd, but tenants took both the increase of lambs and the wool clip. If any cullet sheep died or were sold, others could be put into the flock to replace them, but the number was never to exceed that allotted to each tenant and in the summer any excess resulting from the birth of lambs was to be removed. Tenants were obliged to wash, clip, and brand their own sheep, and they made a small payment to their landlord for the privilege of putting each animal into the flock. In some cases, however, cullet rights were restricted to the freeholders in a village and no payment was exacted from them; a similar allowance was usually made to shepherds and was their most valuable perquisite of office.⁴

¹ Holkham MSS., uncatalogued, quoted by Gray, *op. cit.*, pp. 328-9.

² Holkham MSS., Holkham Deeds, 10:318.

³ P.R.O., Star Chamber 3:3:42 (*temp.* Edward VI).

⁴ The sheep accounts of flock-owners give details of such payments and allowances; these accounts are examined in Allison, *thesis cit.*, pp. 187-306.

IV

When co-operation between landlord and tenant was forthcoming, the foldcourse system was mutually beneficial, but there was a potential divergence of interest between them as flock-owner and corn-grower. The ill effects of that divergence were keenly felt during the sixteenth century when many landlords were giving increased attention to their sheep farming. Often they farmed out their demesne land but retained their foldcourses, and widespread landlord abuse of the foldcourse system goes far towards explaining the peasants' antipathy towards its regulations, and their increasing resistance to its maintenance in the seventeenth century.

The Norfolk rebellion of 1549 was largely inspired by social and agrarian grievances; thirteen of Ket's twenty-seven complaints related directly to the agrarian situation, and two aimed at limiting the number of sheep owned by landlords. It was, in Professor Bindoff's words, "a radical programme, indeed, which would have clipped the wings of rural capitalism."¹ But the rebels were routed near Norwich and Ket was hanged; this was merely an interlude in the story of oppression that was intensified in the second half of the century. The forms which that abuse was taking are clearly indicated in a petition submitted to Queen Elizabeth by certain "poor inhabitants of Norfolk"²—and their complaints centred around the gentlemen's abuse of the foldcourse system.

Customary regulations required flock-owners to fulfil a number of obligations to tenants who possessed land in their foldcourses. But as the poor inhabitants alleged, and as abundant evidence confirms, they frequently failed to do so. They made no allowance to tenants for the use of unsown land; they lengthened the shack period;³ and they fed their flocks over winter corn sown by tenants.⁴ The petitioners claimed, moreover, that their own cattle could not be fed in the fields, "the Shak ons defyled and oueronne ons with sheppe," and they asked for the shack period to be limited to the three months between 1 November and 2 February. Even more damaging to tenants' rights was the diminution of shackle by landlords. Both lord's flock and tenants' cattle shared the shackle of demesne and tenants' land alike; but landlords frequently enclosed their demesne strips

¹ *Ket's Rebellion, 1549*, Historical Association, 1949, p. 9.

² P.R.O., E 163:16:14 (*temp.* Elizabeth I).

³ E.g. at Fakenham in 1520, until 3 May.—P.R.O., Star Chamber 2:15:11-13.

⁴ E.g., the inhabitants of Alethorpe alleged that the lord of the manor "breaketh up other mens seuerall grownde for the more freer passage and ease of his sheepe, and as it is well to be proved, even att this tyme doth drive over their new sowen winter corne and into their home yards and Orchards, eatinge spoylinge and breaking downe their new sett grists and plants." MS. printed in *Norfolk Archaeology*, x, 1888, pp. 150-1.

in the open fields, enjoyed the sole right of shackle on the enclosed strips, and yet put an undiminished flock on to the remaining stubbles.¹ In some cases, such enclosure of demesne land in the open fields caused flocks to be depastured for a prolonged period on the heathland sector of the foldcourse, to the detriment of tenants' common rights there.² Demesne enclosures, like those made by tenants, should have been laid open to tenants' cattle as well as to the flock during the appropriate seasons.³ Other landlords fed a larger flock on the fields than the feed would support, extended foldcourses to land that did not customarily lie within their bounds, and even set up completely new foldcourses.⁴

A great wealth of evidence suggests that abuse of tenants' rights of commonage on heathland and waste ground was even more widespread. Flock-owners commonly overstocked the commons with larger flocks than their foldcourses customarily carried, and they used commons which, in the poor inhabitants' words, "ought to be noo parcell of eny ffoulde coursse." With summer heathland pasture 'surcharged' by enlarged flocks, tenants were losing commonage when they most needed it, and a frequent demand was that lords should respect their tenants' sole right to use certain areas of heathland during the summer: the period suggested by the poor inhabitants was from 2 February to 1 September. In many cases, the overstocking of commons did not satisfy the gentlemen's "unlawfull desyres of suche thyngs as be not ther owen," and many heaths were enclosed for the sole benefit of their flocks.⁵

Flocks were increased in number and size by one other means: the denial of tenants' cullet rights. The poor inhabitants complained that they could keep scarcely any sheep in the foldcourses, "neyther ffor the lands that they

¹ At Alethorpe again, it was alleged against the lord that "whereas many of his growndes lay open heretofore, for the maintenance of his fold course, he hath now inclosed the moste parte of them and keepeth them several to himself all the yeare and yett notwithstanding doth mantayne his full number of sheepe as ever he did before."—*ibid.*

² E.g., at Woodbastwick, open demesne land was enclosed, with the result that the sheep fed to a far greater extent on Mousehold Heath.—P.R.O., E 178: 7153 (1588-9).

³ "One who hath purchased divers parcells together, in which the inhabitants have used to have shackle, and long time since have enclosed it, and notwithstanding allwayes after harvest the inhabitants have had shackle there by passing into it by bars or gates with their cattell there, it shall be taken as common appendent or appurtenant and the owner cannot exclude them of common there, notwithstanding that he will not common with them, but hold his owne lands so inclosed."—Le Neve's MS. Collections, fo. 67d, printed by W. Rye, *Materials for the History of the Hundred of North Erpingham*, 1883, I, p. 28.

⁴ E.g., at Hunworth: B.M., Add. MS. 39,221 (1611); at Kilverstone: P.R.O., E 134: 35 Elizabeth/Easter 24 (1592); and at Great Dunham: P.R.O., Requests 2: 252: 20 (1551).

⁵ E.g., this was yet another complaint made by the inhabitants of Alethorpe.

haue in the seyde Townes or vyllages, althowe the seyde Sheppe do ffede or pasture the halffe yere and more upon the same Tenants londs, nor yet for ther money." Evidence from other sources again supports their allegations.¹ Cullet rights were often limited to the freeholders in a village, but the petitioners wanted the privilege to be universally extended to other tenancies, too; and they demanded that cullet sheep should be allowed in respect of tenants' land lying in the foldcourses without any money payment.

By abusing the foldcourse system, landlords were able to enlarge their flocks without recourse to the large-scale enclosure and conversion of open-field arable land to pasture that took place in certain parts of England. Small-scale enclosure and conversion was, however, frequent as a corollary of the forms of oppression peculiar to Norfolk: the enclosure commissioners of 1517 reported nearly 10,500 acres allegedly enclosed in Norfolk, but the majority of the individual enclosures were of small extent.² Moreover, fewer than 8,700 of those acres were converted from tillage to pasture. Some of the enclosures remained in arable cultivation, but they involved the removal of open-field demesne land into severalty and the extinction of tenants' rights of shackle; others involved the surrender of tenants' rights of commonage on pasture land enclosed.³

Enclosure and conversion alone were rarely so extensive in Norfolk as to cause village depopulation of the Midland type;⁴ but the Norfolk landlords' manifold abuses of the foldcourse system often achieved that result by a more gradual process. Those abuses were frequently accompanied by the acquisition of houses, landholdings, and commons; large estates were built up, and villages were depopulated. There is a considerable body of evidence to support the poor petitioners' allegations: their petition would have been readily signed by the inhabitants of the lost village of Alethorpe, whose landlord had driven his sheep into their corn, home-yards, and orchards, deprived them of their shackle, and surcharged and enclosed their common;⁵ they would have been supported by the people of Sturston, evicted

¹ E.g., at Taverham, the foldcourse owner removed cullet sheep from the flock and sold them; one tenant was denied his right to keep fifty sheep in the flock in respect of nineteen acres which he owned in the foldcourse.—P.R.O., C 1: 1219: 16-19 (1544-53).

² The returns of this Commission of Enquiry are analysed by I. S. Leadam, 'The Inquisition of 1517, Inclosures and Evictions', *Transactions of the Royal Historical Society*, New Series, VII, 1893, pp. 134-218. The returns covered all but two hundreds of the county.

³ These two types of enclosure accounted for 1,485 and 277 acres respectively, out of the total of 10,454 acres.

⁴ The Commissioners reported that the hamlet of Holt had been depopulated by the enclosure and conversion of arable land to sheep pasture; the extensive enclosure and conversion which they found at Choseley probably accounts for the depopulation of that village.

⁵ *Supra*, p. 22, n. 4, p. 23, n. 1, 5.

by a landlord who had appropriated their land and commons, pulled down their houses with the exception of three which he converted into malting, brewing, and dairy houses, taken over the glebelands, and added the glebe foldcourse to his own two courses;¹ they would have been joined by evicted tenants in the lost village of Narford,² and by the tenants of the notorious Thomas Thursby and his son, who had converted their holdings to sheep pasture, evicted them from their dwellings, deprived them of their commons, and pulled down their houses in numerous villages, including four that are now deserted.³

Although landlord oppression caused the complete depopulation of a number of villages and the shrinkage of many others, little extension of permanent sheep pasture was involved and the foldcourse system was not discarded. In the conditions of the Sheep-Corn Region, even the depopulating landlord maintained the sheep-corn husbandry, although every acre in the foldcourse and every sheep in the flock was now his own. The village of Pudding Norton had been depopulated in the sixteenth century, but when the lord of the manor died in 1617, his wealth did not lie solely in his sheep: the flock feeding in Pudding Norton was valued at £240, and the crops grown there at £334.⁴ Although many of them were anxious to exclude their tenants from participation in the sheep-corn husbandry, it was not the landlords who, as early as the sixteenth century, expressed dissatisfaction with the foldcourse system.

V

During the sixteenth century, many landlords and flock-owners found it increasingly difficult to secure the essential co-operation of their tenants: the normal restrictions of the foldcourse husbandry were becoming more and more irksome to tenants who were in danger of losing their share of the benefits of the system. Individual tenants were failing in two ways to fulfil their obligations: they were sowing their corn on parcels of land dispersed throughout the open fields, contrary to the shift system, and they were en-

¹ P.R.O., E 123: 23 (1597), E 134: 38-9 Elizabeth/Michaelmas 9 (1597), E 123: 26 (1597), E 207: 33: 3 (1598).

² P.R.O., E 134: 21-2 Elizabeth/Michaelmas 31 (1578-9).

³ Report of the 1517 Commission of Enquiry, see Leadam, *op. cit.*, p. 153; P.R.O., C 2: W15: 61 (1522), Star Chamber 2: 15: 76-7 (1534), Star Chamber 3: 6: 13 (1540), Requests 2: 18: 114 (1548), Requests 2: 138: 49 (1587), Star Chamber 8: 182: 23 (1616). For village depopulation, see K. J. Allison, 'The Lost Villages of Norfolk', *Norfolk Archaeology*, xxxi, 1955, pp. 116-62.

⁴ Testamentary inventory of William Reynold; Bishop's Chapel, Norwich, inventories, Johnson 147.

closing their open-field strips to exclude the lords' flocks from summerley and shackle.

Thomas Russell of West Rudham declared that with the observance of the shift system by his tenants, "the sheep of the said foldcourse can more conveniently feed and shack;" but he complained that two of his tenants had disregarded the shifts by sowing dispersed and contiguous strips, sowing spring and winter corn on adjacent strips, enclosing several parcels of their land, and sowing strips that lay within the shift set apart for summer fallowing.¹ Similarly at Docking in 1591, the shift for winter corn consisted of about 100 acres in East Field, leaving about 1,000 acres unsown for shackle; but two tenants had sown strips outside the shift.² And again, at Holkham, three men sowed several strips dispersed in South Field with "sundry kinds of corn," thus "incompassing some parts of the said foldcourse circlewise with one or two ridges of corn."³ In such cases as these, sheep were denied access to part of the unsown fields and were deprived of feed on the strips which had been illegally sown.

Similar results followed the enclosure of tenants' open-field strips: not only did the flock lose its feed over the enclosed parcels, but its free passage over the fields was obstructed. If such piecemeal enclosure was carried out on a large scale, foldcourses were threatened with complete disruption. In 1592 the lord of Beck Hall in Foxley listed the "Lands Inclosed within the shackle of ffoxley," which had been "always before fed with ffoxley flocke in shack time;" he showed that nineteen tenants had enclosed twenty-one parcels of land totalling $70\frac{1}{4}$ acres, and that the closes prevented the flock from reaching a further $14\frac{1}{2}$ acres of the fields.⁴ Tenants were at first obliged to lay open such obstructive closes, but as piecemeal enclosure became more widespread, many landlords were persuaded to tolerate the closes, provided that gaps were made for sheep to enter when the land was unsown, especially in shack time. Already at Great Bittering in 1533-4, for example, a landlord upheld his right to feed his flock over the shack fields, and tenants who had made enclosures during the previous twenty years were ordered, not to remove their fences, but simply to open their closes at shack time.⁵ By tolerating these 'half-year closes', landlords had admitted the thin end of a wedge that was to be firmly driven home during the seventeenth century.

In 1627 a Privy Council order was necessary to force tenants to observe the customary regulations at Anmer, and the justices foresaw the ultimate

¹ P.R.O., C 2:R6:61 (*temp.* Elizabeth I).

² P.R.O., C 2:H 11:45; *supra*, p. 20.

³ P.R.O., C 2:R4:18 (*temp.* Elizabeth I).

⁴ Holkham MSS., Billingford and Bintree Deeds 12:846.

⁵ Carthew, *The Hundred of Launditch*, 1878, II, p. 560.

breakdown of the foldcourse system if such difficulties increased. "This Court was now of opinion that the plowing and sowing of small quantities of land dispersedlye or disorderlye within ye shacks and winter feedinge of ye said ffouldcourses, and the refusal of a few wilfull persons to lett ye owners of ffouldcourses have their quilletts of land (Llying intermixt in the places where ye sheep pasture is layd) upon indifferent exchange or other recompense for the same, are things very mischievous and will tend to ye overthrow of very many fold courses."¹

Half-year closes, sometimes called half-year or shack lands, were increasingly tolerated during the seventeenth century; and half-year lands were gradually converted to whole-year lands, upon which the flocks were no longer entitled to feed. At Kenninghall in 1610, for example, the tenants purchased their lands lying in the foldcourse in order to make them whole-year lands.² By such agreements, tenants lost the benefit of tathing, but they gained freedom from common-field and foldcourse restrictions and were enabled to introduce improved methods of cultivation.

The most noticeable of such improvements was the introduction of turnips as a field crop.³ The cultivation of autumn-sown turnips was incompatible with the foldcourse system, for land no longer lay unsown for winter shackage, and piecemeal enclosure often went hand in hand with the introduction of turnips. Nevertheless, many landlords fought hard to maintain their flocks. At Shropham in 1681, for example, a tenant was summoned to appear in the manorial court after he had harvested a rye crop only to sow the land immediately with turnips, and when similar trouble was encountered there in 1696, the owner of the flock was instructed to "turne in his sheep and eat vp the Turnips" if the offender gave no satisfaction.⁴ Even when landlords were forced to accept turnip cultivation by tenants, they often attempted to reconcile it with the foldcourse system. The farmer of a

¹ Privy Council Orders, 1627, printed in W. Rye, *State Papers Relating to Norfolk*, pp. 70-1.

² Blomefield, *op. cit.*, I, p. 220.

³ The field cultivation of turnips in Norfolk began in the first half of the seventeenth century and was well established by the latter half of the century. Early references to both turnips and carrots in Norfolk concern their growth as garden crops in closes outside the city of Norwich by Dutch immigrants after 1565: P.R.O., SP 12:20:49 (1575); Norwich Corporation Muniment Room (N.C.M.R.), Court Books (C.B.) 13:110 (1596), 190 (1598), 15:506d (1623), 16:455, 457 (1633), for example. Turnip cultivation was not, of course, limited to the Sheep-Corn Region of Norfolk but was developed equally in the Wood-Pasture Region. Dr Kerridge has recently written of the turnip husbandry of High Suffolk in the seventeenth century, in conditions almost identical with those of High Norfolk—i.e. the Wood-Pasture Region; three of the "Suffolk" villages for which Dr Kerridge has found early references to turnip cultivation are, in fact, in Norfolk.—*Economic History Review*, Second Series, VIII, 1956, pp. 390-2.

⁴ N.C.M.R., C.B. 25:98; 26:24d.

foldcourse in Foxley tried to do so in 1755: he agreed to accept two shillings per acre for shackle lost on land sown with turnips, but he obliged tenants to cultivate the crop only on such enclosed and open-field lands "as shall lye in Shifts or Contiguous together." At Michaelmas, when shackle began, his tenants were to "hurdle or Fence the same out with a Fencing Stuff in such a manner as the Shepherd . . . may without any Annoyance keep the flock . . . from feeding of the said Turnips."¹ By such means, the disruption of many foldcourses was delayed until they were finally removed by the Parliamentary Enclosure Acts in the second half of the eighteenth century.²

VI

In many parishes in the Sheep-Corn Region, enclosure and the extinction of the foldcourse system were not left to the Parliamentary Enclosure Acts. While some landlords fought to maintain their foldcourses until the eighteenth century, many other, more progressive, farmers had reorganized their estates during the seventeenth century, and numerous parishes were wholly or partially enclosed by the time the Enclosure Commissioners arrived. On these estates the traditional Norfolk open-field system was completely displaced: the arable fields were enclosed as the 'infield'; the heaths and commons were divided into enclosed brecks, and became the 'outfield'. The infields were leased in large, compact farms to tenant farmers whose labour was provided by the remainder of the former open-field landholders. New crops, rotations, and methods of fertilization replaced tathing, but sheep assumed a new importance, folded and fattened on turnips. The outfield brecks might be included in these farms, but were often leased separately as 'foldcourses'³ (although they bore little resemblance to the traditional foldcourses) and were prepared for periodic cultivation by large flocks.⁴

¹ Holkham MSS., Billingford and Bintree Deeds 15:1003-4. Similar conditions were imposed on tenants in Hellesdon in 1723 when turnips and carrots were cultivated as field crops.—N.P.L., MS. 9697 (bundle of MSS. concerning the foldcourse, 1684 to 1723).

² E.g., that for Happisburgh and Lessingham in 1801 was "An Act for dividing, allotting, and inclosing the open and common fields, half-year or shack lands, commons, severals, and waste grounds within the parishes—and for extinguishing all rights of sheepwalk and shackle in, over and upon the lands and grounds within the said parish of Happisburgh."—Statute 41 George III, c. 22.

³ E.g., at Warham in 1712, the heathland consisted of "The breaks or fold course."—Holkham MSS., Map 2:23.

⁴ Farmers of foldcourses were strictly bound by their leases: for example, L'Estrange insisted in 1696 that one lessee should "tath in ye last year as much of the Brecks and Cleylands as shall be somertilled, with his Flock which shall consist of 700^c sheep and the Fold to consist of 8 dozen hurdles sett in a square fold."—L'Estrange MSS., KA 14.

As a feature of the changes involved in the development of the new Norfolk Husbandry, the infield-outfield system was the creation of the later seventeenth- and eighteenth-century improvers. In some parts of the country, however, an infield-outfield system was employed at a much earlier period for the cultivation of sandy and infertile soils. In Northumberland and Cumberland, for example, it has been shown that the infield-outfield system was the primitive predecessor of open-field farming.¹ The infield-outfield system of Norfolk was of an entirely different nature.

Until the seventeenth century, most villages in the Sheep-Corn Region of Norfolk contained a large, permanently cultivated field, and extensive outlying heaths and commons (see Figs. IV and V, for example). In some cases, modification of this lay-out began in the sixteenth century: a few acres of heathland lying in a foldcourse, and dinged by a flock of sheep, were occasionally tilled.² Later, such pieces of heathland were enclosed as brecks and tilled at regular intervals. But no essential change in the Norfolk open-field system was involved, and the foldcourse husbandry was not affected by the fact that the new brecks fluctuated, as it were, between the arable and heathland sectors of the foldcourse.³ It was, indeed, sometimes land in the demesne brecks that a landlord offered to his tenants in exchange for feed on their strips that lay within the summer fallow shift of his foldcourse.⁴ This stage in the development of the infield-outfield system is well illustrated by the situation at West Wretham and Great Massingham.

During the seventeenth century the cultivation of heathland brecks was greatly extended; flocks then fed on the unenclosed heathland, the brecks, and the summer fallow and winter shackle of the open-field arable land—the infield. A further improvement was effected by dispensing with summer fallowing as methods of husbandry improved.⁵ Finally, in the later seventeenth and early eighteenth century, both heathland and open fields were completely enclosed, and the terms ‘infield’ and ‘outfield’ were widely used for the permanently cultivated closes and the periodically tilled brecks.

¹ See the discussion by H. P. R. Finberg, ‘The Open Field in Devon’, in Hoskins and Finberg, *Devonshire Studies*, 1952, pp. 283–8.

² E.g., at Hargham a foldcourse included heathland, common and waste land, part of which “may be plowed at ye Lord’s pleasure.”—B.M. Hargreaves 249 (1629).

³ E.g., at West Wretham the heathland included seven brecks—the outfield; the whole of the heathland, including the brecks, and the open infield lay within the demesne foldcourse. See H. C. Darby and J. Saltmarsh, ‘The Infield-Outfield System on a Norfolk Manor’, *Economic History*, III, 1935, pp. 30–44. And at Great Massingham, three foldcourses extended over the open arable infield and the “owte fyldes or sheps walks.”—Holkham MSS., Massingham Deed 6:103 (1538–9) gives the earliest available reference to the system here.

⁴ E.g., at Docking.—P.R.O., C 2:H 11:45 (1591). For such exchange, see *supra*, p. 20.

⁵ L’Estrange MSS., Box IC (undated, early eighteenth century).

These changes are perhaps best illustrated by maps of the earl of Leicester's estates.¹ The infield-outfield system in Norfolk was the basis of a husbandry greatly improved from that of the traditional Norfolk open-field system.

A quantitative assessment of the different ways in which the traditional sheep-corn husbandry was displaced is impossible. Throughout the Sheep-Corn Region, modifications and improvements were being made during the seventeenth century as new crops and methods were introduced. In some areas, above all in the Good Sand Region, extensive enclosure had ousted open-field farming and profoundly changed the nature of the foldcourse system by the early eighteenth century. While the more progressive farmers had recognized the inefficiency of common-field farming and the profitability of mutton production in a new sheep-corn-turnip husbandry, other landlords had attempted to maintain the traditional foldcourse system and to reconcile it with the increasingly popular piecemeal enclosure and turnip cultivation by their tenants. For this reason, the foldcourse system survived precariously in many townships until the second half of the eighteenth century, to receive its death-blow from the Parliamentary Enclosure Acts. Soon after 1800, open-field farming and the foldcourse system were finally superseded by the new Norfolk Husbandry throughout the Sheep-Corn Region.

¹ E.g., Flitcham, N.P.L. MS. 4290 (map, 1550-80), 4293 (map, 1655), 4295 (map, 1728-44), 4296 (map, 1828); Wighton, Holkham MSS., maps 3:27 (1720), 3:31 (c. 1750); Longham Holkham MSS., maps 5:92 (c. 1580), 5:93 (1700-25).

NOTES AND COMMENTS (*continued from page 11*)

it is hoped to publish articles on, "the problems of folk life in England, Ireland, Man, Scotland, and Wales," as well as material on cultural links with Scandinavia, Europe, and America. He also explains that the name *Gwerin* was chosen since it is the Welsh word for folk, and he defends its choice on the grounds that the inspiration for it, and many of its subscribers, came from Wales. Since, however, the aim is to produce a publication of universal appeal a title in a more commonly understood language would be preferable.

Volume I No. 1 contains articles on the construction of straw rope granaries in Ireland by A. T. Lucas, Hebridean traditions

by C. I. Maclean, rake and scythe-handle making in Bedfordshire and Suffolk by T. W. Bagshawe, and a note on the Welsh folk-life survey. Future numbers will contain book reviews. *Gwerin* is published by Basil Blackwell in Oxford, and an annual subscription for two issues costs twelve shillings.

SHOOTING ON HILL PASTURES

Capt. Sir Hugh Rhys-Rankin writes:

I should like to emphasize a point in British farm history which no historian has yet noticed, namely, the effect of shootings upon the hill sheep industry and on sheep

(*continued on page 51*)

The Consolidation of the Crofting System

By MALCOLM GRAY

ONE of the most notable results, perhaps, of local study has been to modify conceptions, long held, of a concerted advance, through the centuries and over Britain as a whole, towards a system of large farms, run by men of capital and manned by a numerically predominant wage-earning labour force; and of the progressive thinning of the rural population to fit the needs of efficient cultivation. Here and there have emerged discrepant areas—areas of a continuing small peasant system, of overpopulation, of mixing of occupations. And one of the tasks of agrarian history must be to disentangle the forces that have produced such oddity within the broad trend. Apart from Ireland, the best known of these areas is the Highlands of Scotland, where there persists, in the form of the crofting system, a society cast in the mould of the early eighteenth century. In this article I propose to discuss the reasons for the divergent agrarian development of the area.

The present distinction between Highlands and Lowlands is not only that between a commercialized, and largely industrial and urban, society on the one hand, and its rural opposite, without towns or industries, on the other. There are also important differences in the strictly rural organization of Highlands and Lowlands. In the former zone, a very high proportion of the population has in one way or another access to land, although only as tenants or subtenants (for the ownership of land within the Highlands has always been aristocratic and highly concentrated). Partly as a consequence of the broad dispersion of rights to land, holdings are generally, by all modern standards, very small, too small to provide full subsistence from the land. Again in the Highland townships proper there is no rural middle class, no significant number of farmers with more than the basic modicum of land. With holdings so small, most of the holders of land, along with their families, are forced to pursue a number of occupations, some of them locally, but some involving considerable periods of absence and perhaps lengthy journeyings. The croft, in fact, is a centre for a family of diverse interests rather than a simple unit of economic operation. And lastly the arable land has, until very recently, been cultivated entirely to produce a subsistence crop; even an area so well adapted to animal husbandry has not developed genuine mixed

farming, and the arable has not been used to any extent to support the rearing of stock, the cash element in the system.

This system of organization does not obtain all over the area geologically defined as Highland (that is over all the land north and west of the Highland line, which runs transversely from south-west to north-east and virtually bisects Scotland). For over the easterly coastal lands, even to the far north, the system conforms, and prosperously, to that of the rural Lowlands; the eastern slopes of the mountain massif, and westward as far as the main watershed, support in the main a system of substantial peasant farming; and the whole of the Highland area is interspersed with large sheep farms. Yet within shrunken geographical limits—along the western coast as it extends north of the Caledonian Canal and through the islands to the north and west of Mull—the crofting system remains compactly organized and undiluted; the sheep farms which lie adjacent to the crofting townships scarcely affect their working except by constriction of bounds¹ and the greater peasant or capitalist farming classes have obtained little hold on the arable land of this north-westerly zone. Crofting may be studied, then, as a coherent and virtually unalloyed social system, with only occasional reference to the big sheep farms lying adjacent, and study should be capable, given the records, of isolating the formative forces. They may be local to the place and particular to the time, but laid alongside the case studies of other areas they may help towards broader conclusions.

I

If it is tempting to see the distinctive Highland system as archaic, or backward, it is easy to explain its persistence in terms of a lag established in the days of isolation and turbulence; the relatively slow development of the Highland agrarian system—if that is the diagnosis—will, in that case, have its roots in two levels of development already relatively fixed in 1745. But this easy theory scarcely stands up to more detailed examination. In fact the decisive period of separate crystallization seems to have been the century following the pacification, precisely the period when age-old isolation and lawlessness were vanishing. In 1750 the economies and agrarian systems of Highlands and Lowlands did not show to contemporaries the monstrous

¹ The conflict between croft and sheep farm is, of course, one of the main themes of Highland history. But the extent to which sheep farmers took over land previously occupied by the small tenantry is scarcely relevant to the present discussion. The important facts are that sheep-farming did not stimulate fresh agrarian adaptations within the peasant sphere (except perhaps by accentuating the existing dominant characteristic of the small peasant system—crowding on the land), and did not suck in local labour to any degree.

contrast between apparent stagnation and undoubted progress that they did a century later. In field arrangements,¹ in size of holdings, in methods of husbandry,² in occupational structure, Highlands and Lowlands were at the earlier date recognizable parts of a single uniform order; the differences were differences of balance rather than of essence. But by 1850, on almost every point by which economic historians seek to define agrarian systems, there was contrast: in the Highlands were to be found now tiny holdings, no wage-earning class, universal access to land, purely subsistence cultivation, mixing of occupations, unchanging techniques; in the Lowlands the growing domination of the rural middle class, large farms (or the intermixture of large and small on a graduated scale), a wage-earning class almost landless, commercial purpose, the gospel of economic efficiency to replace that of social conservatism, the complete specialization of occupation. This had followed a hundred years of complete political control from the country's capital, from the Lowlands; the small peasant system was consolidating in the north-west precisely when the isolation of the area and its social and administrative autonomy were vanishing. Nor is the widening gap to be explained by Highland stagnation at the time of the Lowlands' most rapid development. Indeed, in the Highlands, as in the Lowlands, it was a time of unprecedented change. A population rapidly on the increase, an old field system suddenly overthrown,³ a new basic subsistence crop—the potato—established over the greater part of the land,⁴ the rearrangement of the land as between large and small farmers, the rise and decline of at least two major industries (kelp-making⁵ and linen-spinning), the extensive migration

¹ The runrig system obtained both in Highlands and Lowlands, although not identically; the pastoral component was, of course, greater in the Highlands and 'periodic' runrig (with re-assignment of strips) was still common while in the Lowlands it had widely given way to fixity of individual tenure.

² One major difference was the use in parts of the Highlands of the cas-chrom (a type of spade) rather than the plough; but this was a distinction that time was to accentuate as the cas-chrom lingered in certain populous Highland areas while the Lowlands developed new implements of cultivation.

³ This was the time when the crofts, compact arable holdings, were laid in place of the mangle-mangle of the runrig farms. For a fuller discussion of the nature and results of the process see M. Gray, 'The Abolition of Runrig', *Economic History Review*, Second Series, v, 1952, pp. 46-57.

⁴ On the general adoption of the potato see R. N. Salaman, *The History and Social Influence of the Potato*, Cambridge, 1949, pp. 364-70.

⁵ Kelp was an alkaline extract of seaweed, manufactured by burning great masses of the weed in rough open kilns. From the middle of the eighteenth century onwards it commanded an increasing price, being used in the manufacture of soap and glass. To make it was a laborious, seasonal, and largely unskilled activity, and production was tied to the coasts where the seaweed was abundantly to be found. In the social and geographical conditions of the north-

of labour both within and from the area as a whole: the broad magnitudes of rural life were altering their balance even if many of the minutiae seem to have been set fast.

Such change was no doubt partly a matter of manifold peasant response to industrial opportunity, new agricultural products, fluctuating prices, and an extending horizon; but also there was conscious, and powerful, drive in the energetic experimentalism of a small group—the landlords. In many ways, they moved against the general feeling of peasant society, but they had a power, built into the land system, that was hard to blunt. For the control of landed property was in 1750, and remained thereafter, highly concentrated, and in all the Highland counties a group of less than a dozen landowners controlled the greater part of the land area. Of peasant ownership there was none. Moreover, the great mass of the farmers held their land at will; the law would give no protection against a landlord who wished completely to re-organize the tenancies of his estate. It is true that a portion, sometimes considerable, of the land was in the hands of a lesser hereditary aristocracy, the tacksmen, men who (as collateral relations of the landowners) received their lands on tack (or lease) at long or medium term; but even such men were on the expiry of their leases powerless before the landlord. Many of them indeed had to accept eviction, increased rent, or a diminished sphere of interest in the impending period of change; some were to leave the country, leading the first great emigration movement.

What gave this landlord right its peculiar force after 1750 was the dogmatic addiction of the class to the tenets of the eighteenth-century improving and progressive creed—an addiction somewhat tempered, it is true, by lingering patriarchal sentiments. Men of such outlook found little to their taste in the Highland scene of the time. Privileges of birth tied up a good deal of the land, away from direct landlord control, under men of little agricultural expertise and less ambition. And, even worse, the granting of minute holdings to a numerous population held down a population admittedly too great for the land, and pulverized the land into units too small for systematic cultivation. Here, then, were the attitudes of reform and the power to change that might have been expected speedily to sweep away an old and abhorred system. But there was a counterpoise to reforming energy, and distractions to turn even the landlord from the orthodox aims of progress. In fact, a main theme in the development of our area in the century under discussion is the

west Highlands and of many of the islands, then, production continued to expand through the period of rising prices till the peak was reached about 1810. After 1815, however, prices collapsed and the industry entered a period of decline. See M. Gray, 'The Kelp Industry in the Highlands and Islands', *Economic History Review*, Second Series, IV, 1951, pp. 197-209.

struggle between the apostles of progress—the landlords—and a recalcitrant and back-sliding tenantry. No group can have absolute power over the basic forms of society, and even a reforming Highland landlord of the eighteenth century had to work within a framework which he must take as given and fixed rather than as personally controllable.

The most obtrusive and implacable of the social facts which confronted the reforming landlord was the existence, typically, of a large population on a restricted arable surface.¹ Thus, in the north-west, there would not usually be more than two arable acres worked for each family, and in some districts the average would be down to one to each family.² Moreover, this population was so disposed as to allow nearly every family some land to cultivate as its own; while there were servants—more numerous than a hundred years later—all of them mixed labouring for others with work on the personal holding. The result was a minute parcellation of land that rendered the inadequacy of subsistence all the graver. Whatever the past trends and the present justifications of the system, it challenged the agricultural improver—and therefore the landlords—on the subjects nearest the heart. Holdings arranged in this way could scarcely be worked in accord with the most advanced prescriptions; any improved cultivation of the soil must, it was generally agreed, start with the laying of larger holdings and, presumably, the diminution of the dependent population. Yet landlords were divided in their minds—apart from the acceptance of *force majeure*—on accepting any rigorous depopulating prescription. A large population was the material of an industrial labour force which, at a time of industrial exploration even of this remote fringe, might be turned to good advantage; and few in the eighteenth century could think of a large, or an increasing, population as a bad thing. The landlord had to balance the claims of purely agricultural necessity against the general predilections of the political economy of the time, while

¹ Whether this constituted true land scarcity is doubtful; it is at least arguable that it was not shortage of potential arable land that held down production per head. The smallness of the holdings may, in fact, have been due to other factors than mere scarcity: for example, to gregariousness (or the necessities of defence) which would collect people closely on one arable patch while other scattered, and potentially equally good, patches were left, to the general adoption of household and industrial techniques that used up so much labour power that little time was left to cultivate any substantial area of land, or to agricultural technique (the use of the *cas-chrom*) which kept the agricultural range of the individual family within narrow bounds. What is certain is that all agricultural improvers looked to the broadening of holdings by decrease of population, by extension of the margin of cultivation, or by use of more effective implements and concentration on agricultural tasks—a programme which, if physically feasible, would have to bear away a great weight of social conservatism and inertia.

² See, particularly, the details of estate layout given in several volumes of the *Forfeited Estates Papers*.

perhaps casting back a thought to the days of patriarchal glory when a long tail of followers was the essence of power and prestige. Into this crowded social scene there was injected, through the succeeding century, a general, and sometimes dramatic, increase of population. With rising physical productivity (per acre and perhaps per man), a death-rate probably falling (through inoculation against smallpox), rising money incomes, and a land policy that made holdings readily available, most of the parishes of the north-west were to see their population doubled before 1850, and, in some, numbers were to increase threefold. This demographic trend fitted into the agrarian order—whether as cause or effect—by the multiplication of holdings, to such a degree that the increased numbers of families were all accommodated on separate holdings of one sort or another.¹ Why holdings were allowed to increase in number on a restricted land surface at a time when improving dogma pointed to consolidation and diminution of numbers is perhaps the most pregnant question that we could ask about the period; certainly the answer must contain some essential clues to the problem of Highland eccentricity.

But the Highland economy was not, even in the earlier eighteenth century, a simple subsistence system, and welfare and development depended on factors other than the physical product of the land and the numbers of people who must depend on that product. It had also an important commercial, or money, component, and the drift of prices—which also the landlords had to accept as an external fact—would presumably affect immediate standards and future possibilities of growth, in helping to determine population trend, the extent to which land might be subdivided, occupational grouping, and technical exploration. The peasant's need for money and the importance to him of fluctuations in his money takings arose for three main reasons. He paid for his land by a money rent; he must purchase certain raw materials (such as timber and iron) out of which he manufactured both consumption and capital goods;² and frequently he must purchase food (in the

¹ Not all families were accommodated as direct tenants or on official holdings; in fact the proportion of direct holdings to all families, about 1850, varied in north-westerly parishes between 30 and 70 per cent, the remainder obtaining their land as subtenants (or cottars). But the number of direct holdings (i.e. holdings created by direct action of the landlord) increased at least proportionately to the general increase of population. In about half the parishes of the north-west the number of such holdings in 1850 was greater than had been the total number of families a century before. See M. Gray, *The Highland Economy, 1750-1850*, Edinburgh, 1956, Table X.

² To this list might be added the purchase of a few already manufactured goods (from the Lowlands). In the main, however, the Highland peasant either made himself, or employed local semi-specialized labour (often on barter terms) to make not only his clothes and articles of household use, but also the ploughs, boats, mills, and cottages that formed the rudimentary

form of meal) to make up for the deficiencies of the arable patch.¹ Thus, any change in his money income fitted into the welfare and demographic picture in complicated fashion. An increase might be skimmed off in increased rent; or it might be taken out in more varied and plentiful consumption goods; or holdings might be made smaller, the tenants living more by purchased food and less by their own subsistence efforts.

Thus, one of the paramount facts of Highland development—and of the situation to which landlords had to adapt their policies—was the rise in prices, and consequently in peasant incomes, that held till about 1815. The main source of income was traditionally the sale of cattle, and cattle prices about trebled in the second half of the eighteenth century,² while the price of meal, the main commodity to be purchased by the Highland peasant, remained more or less steady; on the central nexus of exchange the Highland economy was undoubtedly gaining till about 1815. In addition, during this time the steep rise in the price of kelp—the seaweed product that, given only an adequate labour force, could so well be produced along great parts of the western seaboard—opened to the peasant the possibility of adding to his income by industrial work over a short summer season. Linen-spinning also was expanding, but scarcely reached the north-west coast as a significant activity. Fishing, on the other hand, was an age-old and already commercialized peasant occupation, and, on the whole, while prices remained steady, total output seems to have been slightly on the increase through the second half of the century. All this added up to an almost dramatic increase in the returns from Highland produce sent to Lowland markets and, consequently, to an extension of the capacity of the Highland economy as a whole to purchase the materials, foods, and commodities on which welfare and growth depended. In fact, as we have seen, population was growing, but neither the individual size of the holding nor the subsistence product available to each family seems to have diminished; although there may have been some slight decrease in average stocks of cattle. Increased money income capital equipment of his technology; but there was scarcity of crucial raw materials, particularly timber.

¹ Most Highland districts were steady net importers of meal from distant parts, sometimes up to half of the required subsistence being purchased in this way; but a few parishes might reach self-sufficiency in the better years, and in the odd case (such as Kilmuir in Skye) there might be a surplus to distribute in surrounding regions. See, particularly, amid other evidence, the parish reports in the *Statistical Account of Scotland*, Edinburgh, 1790–8.

² Cattle prices are particularly difficult to handle owing to local differences, short-term fluctuations, doubts about the age and type of animals listed, etc., but there is sufficient statistical fullness to justify firm generalization. See *Commissary Court Records* and the *Old Statistical Account*. For meal the evidence is much thinner, but all tends to the conclusion that there was no dramatic change in the period.

went, then, partly in greater dependence on purchased rather than home-manufactured goods; but much more notably, by a rise of rents more than proportionate to the increase of incomes, a larger share of total money income was diverted to the pockets of the landlords: almost the whole of the peasant's money income, as derived from the land, was handed over in rent, while the peasant drew his food more completely by the simple subsistence cultivation of his patch.¹ The years after 1815 were to tell a different tale. Agricultural prices dropped and the kelp industry was virtually destroyed. But the drop in income did not restore the pre-inflationary situation. Population was irrevocably greater than it had been in 1750, and landlords, thinking that bad times were but temporary, held their rentals at or near the top levels. The result was peasant debt and a great wastage of capital—by selling of cattle—which reduced nearly all peasants to the basic minimum of stock. Any consolidation of holdings was ruled out not only by land scarcity but also by shortage of the capital necessary to stock larger holdings.²

A third set of facts that the landlord had to accept was peasant response to schemes of land rearrangement, to the unfolding possibilities of improved cultivation, and to specific admonitions. On the whole, perhaps because of the mere fact of distance, the farmer of the north-west showed much less inclination to desert his traditional land for the gains of the Lowlands than did his like in the southern and eastern parts of the Highlands;³ consequently the gentle reliefs of voluntary migration were denied in the former area and any consolidation of holdings was the more difficult. By universal testimony, too, the tenant of the north-west was more conservative in his methods of cultivation; while turnips, artificial grasses, and many of the prescriptions of the improver were commonly adopted even by the smaller tenants, say, of Perthshire, they remained unknown among the crofters further north and west. But perhaps it would be unjust to call the north-western Highlander simply blind or obstinate. His preoccupations were different—simple subsistence yield rather than the greater cash product that might be removed by the landlord—and his holding was miserably small

¹ There were still, of course, wide purchases of meal; but they were paid for often by money earned in industrial by-employments, particularly kelping.

² This, for example, was the unanimous testimony of the witnesses examined by Sir John M'Neill before making his *Report to the Board of Supervision on the Western Highlands and Islands*, 1851.

³ There was considerable net migration from all Highland counties to other parts of Scotland in the half century before 1850; but this rate was significantly greater from Argyllshire than from the more northerly Highland counties. Correspondingly, the figures of population increase are more dramatic in almost all north-westerly parishes than in most of the parishes of the more southerly and more easterly Highlands. See *Census Report* for 1851.

for any experiment. Even the landlord enthusiastic about the lore of improvement found it hard to pass his enthusiasm on to the men who mattered in this respect—the working farmers themselves. One capital fact, however, represents rapid peasant adaptation—the general adoption, from 1750 onwards, of the potato as the main food crop. It was a crop temporarily satisfactory, perhaps, in increasing the food yield of small holdings, but which also set in train, or accelerated, demographic reactions that would render agrarian reform all the harder.

II

These, then, are the main facts which landlords had to accept and to which they must adapt their devices—overcrowding on the land, increase of population, fluctuations of money income, and peasant conservatism, mitigated by alacrity in adopting the potato. Their problem was how to adapt the dogmas handed to them by the articulate social thought of the time to the objective and inescapable local situation. Here, three main themes of policy may be picked out of the complex system of ideas of agrarian betterment which was the orthodoxy of the time: the determined destruction of the old field system with its scattered strips and division into infield and outfield; the attempt to lay holdings in desirable sizes (which raised the problem, generally, of how to deal with the superfluous tenants); and finally the stimulation of diverse industrial pursuits and the separation of the occupations of agriculture from those of industry. If this was a programme—enclosure, consolidation, and specialization—it is as interesting in showing how far performance fell short of, or even diverged in direction from, theoretical desiderata as in sketching any ultimately achieved social reality. Analysis of the reasons for this divergence will show how the conditions of the Highlands could distort a programme elsewhere achievable.

The first theme—the destruction of the old runrig farms—is simple both in conception and result. It represented a straight line of policy energetically pursued and it created the physical form of the croft as we know it today. There were no doubts in the minds of landlords about the true dictates of progress here and little that could stand against the achievement of their programme (even if the tenants themselves were much attached to older forms of organization). Thus, in the course of about eighty years—between 1770 and 1850—an age-old and highly uniform system of farm arrangement, the runrig system, was swept away throughout the Highlands, to be replaced by the townships as we know them today. Again the superficial form was surprisingly uniform from place to place—the clustered array of compact holdings surrounded by the hill grazing, which remained undivided

common, allocated on a system of stints. Only one comment need be added. This, of course, was a form of enclosure, the gathering together of scattered arable strips in compact blocks; but it was seldom followed by physical delimitation between croft and croft. The arable remained open ground and many of the indiscriminate pasture arrangements of the old township were retained. The abolition of runrig did not mean any sudden jump in methods of husbandry.

The second theme—that of the size arrangements of the holdings—was again, or so it might seem, wholly under the control of the landlords; the Highland landlord could, for all the law had to say, rank and shape his holdings as he might wish. And the instructions of the improver seemed to be quite unequivocal. The importance of capital as a social agent was never far from the eighteenth-century mind, and the improving discussion generally ran in terms of handing over the land to men of capital, men who would organize on it an efficient wage-earning force accurately fitted in numbers to full productive necessities. It was almost a truism that only thus could energy and initiative be found, only thus the labour force set efficiently to work, and only thus the funds found for the equipment of the farm and the permanent improvement of the soil. Yet the landlords' responses to the challenges of situation and thought were by no means firm and unequivocal, and the results were often opposed outright to all that agrarian reformers had to say. The interests and the obstructions that produced this wavering are the sum of the local peculiarities which, in the general march of the time, turned the direction of Highland development.

First, farms of even moderate size would be achieved only by tearing apart the existing social system. There had been no continuing movement through the centuries (as in England) to produce even the beginnings of a class of substantial well-to-do farmers, the men who alone could stock and run such farms; and while every family clung grimly to its land as of ancient right, even individual wage-earners of the landless sort were difficult to find. Further, agrarian rationalization demanded not only that the number of independent holders of land be reduced—a task in itself hard enough—but also that the total rural population be thinned.¹ Nothing short of forcible eviction was

¹ The only painless way of creating larger farms was to extend the arable area to support the existing population more thinly dispersed (even then, if the farms were to be of any size, a wage-earning force must be found), and some seized on this possibility as the solution. The extent of possible arable cultivation in the Highlands has always been doubtful and in the eighteenth century was often optimistically estimated. But at best this could only be a solution over long term and it did not overcome the difficulty that no employing class offered itself. The Highland landlords of the eighteenth century, partly for financial reasons, were generally immersed in immediate problems and could not afford too long a view.

likely to move a population as devoted to traditional homes as was this. Even widening economic opportunity in the Lowlands and the knowledge of that opportunity that must have been carried back by seasonal migrants would not pull the surplus off the land. In short, the opposition of the small peasant system to capitalist encroachment was accentuated by Highland geographical and social conditions; while the rival and growing system had the strength only of theoretical authoritarian support (and that not always wholehearted). In fact, then, within our area eviction and consolidation were confined to the land taken over by sheepfarmers, a conversion which itself added to the crowding on the lower arable ground. A less outright policy of consolidation was, it is true, sometimes mooted: it was to create the holdings that would give each landholding family an adequate livelihood solely from full-time cultivation of the farm and without use of hired labour. Even this implied eviction and would have had to bear down much peasant opposition. However, in the south and east, in Argyllshire, Perthshire, and parts of Invernessshire, such a peasant system slowly grew; but this was in a land system more relaxed than that of the north-west: the land here had never been so crowded, population was not increasing to the same extent, labour was more willing to move to work permanently in the Lowlands.¹ The root facts, in the north-west, were that consolidation even of moderate sort, to build up fully independent peasant holdings, could be achieved only by brutal clearance. Not only was the land as it stood overcrowded, but also people clung desperately to the slight independence of their tiny holdings; no work was available locally to seep up labour cast adrift from the land; population was increasing rapidly; the spread of sheep-farming was congesting the remaining arable; and, while local capital was lacking, arable farming in the Highlands was not sufficiently profitable to attract outside capital and men (as did sheep-farming).

All this might have been sufficient in itself to damp the reformer's ardour and to reduce any landlord to acceptance of the old smallholding system. But also there were more positive enticements to confuse policy. The possibilities of industrial development were a preoccupation not altogether delusive and not without genuine hope of profit; and the encouragement and arrangement of subsidiary industries tended to obliterate the interest in land reform, but in ways that were themselves pertinent to the organization of farming. In the wide and continuous discussion of industrial potentiality that filled so much of the later part of the eighteenth century, nothing is so striking to the modern student as the fact that the industrial backwardness of the Highlands was not yet accepted as inevitable or even likely. Land-

¹ See above, p. 38.

lords were particularly interested in this discussion because in industrial expansion they might look for some relief to their pressing land problems; labour surplus to the needs of the soil would be absorbed in purely industrial employment. The orthodox aim was the separation of the industrial from the agricultural labour force, and some experiments were made in the nearer Highlands in setting up villages in which an industrial working class would prosper in symbiosis with a productive countryside. But this was not to be the directing idea in the north-west; here it was that of the peasant remaining on his land and working at subsidiary industry to add to his earnings and increase the rentable capacity of the estate. Thus could a large population be prosperously employed, and with advantage to the landlord; and so does the large and growing population—even a population growing at the expense of agricultural efficiency—creep back as the respectable aim of policy. At the extreme, land becomes the instrument for accommodating as large an industrial population as possible, not a productive agent to be used with careful economy. Most notoriously effective in this way was the kelp industry, an industry which produced the maximum of industrial temptation and diversionary interest for the landlords. A seasonal occupation, requiring little skill and no equipment, it could be combined with the working of land in traditional ways. To allow the kelpers land was an advantage to the landlord (who was also industrial employer), for thus they could grow their own subsistence and at the same time pay some money rent from the sale of cattle. And from the kelping itself the landlord stood to gain in two ways: because of wage-receipts,¹ he increased the rent he could draw from the tenant, but, much more important, there were very large entrepreneurial gains to be made from the sale of kelp made by estate labour. As kelp prices rose—without corresponding increase in costs—towards the peak of 1810-11, so did financial self-interest become the more compulsive. For a handful of kelp magnates rents came to be but a small proportion of their total gains (which might run between £10,000 and £20,000).² A much greater number of proprietors of land—perhaps the majority of those with seaboard estates—were in it in a smaller way, and the same motives operated, if less powerfully. Possibly a majority, then, of landlords—and particularly those with the largest estates—were swung by self-interest to the policy of crowding their

¹ These wages, of course, represented costs to the landlord as industrial entrepreneur, but, even so regarded, their return as increased rent meant that the employer was selling a product he had obtained virtually without cost. And even if wages be reckoned as a full cost there was still a margin of about £15 on each ton when at the peak kelp was being sold at about £20 per ton; the greatest kelp landlords would sell each over 1,000 tons in a year.

² About half a dozen landlords were dealing with over 500 tons a year, the greatest with about 1,500.

land and of subdividing rather than consolidating their holdings. Not only the demography but also the agrarian layout of the north-west was to be permanently, perhaps decisively, affected by the rapid growth of this industry. Preoccupation with fishing may have had something of a similar effect, if in a more diffused and gentle way. Even though the eventual aim might be to produce specialized communities of fishers, the first step was to lay out the holdings that would support them till the industry became fully viable. Designedly they were smallholdings, and they had permanently to be accepted as standard agricultural units, for not only would consolidation of holdings, once laid, be difficult, but also the faltering fluctuations of fishing as an industry prevented any specialized industrial growth.

The force of this conjunction—of the general approbation of an increasing population, of lingering patriarchal feeling, of positive industrial advantage in a large smallholding population, and of the social conservatism of the peasantry—was to commit the landlords to the support of the existing smallholding system. Agrarian reform and agricultural improvement were weak ideas to set against the decisive combination of social facts and financial interests. Thus, the drift of opinion and interest worked into policy in three main ways. First, the number of official holdings was not only maintained but increased; rent-rolls of 1850 when compared with the population figures of a century before leave little doubt that in most cases there must have been at least twice as many full and recognized holdings at the later date.¹ They could have come into existence only with deliberate landlord encouragement. But they were not necessarily carved out of existing holdings. Study of the fragmentary evidence of size of holding in 1750 set against the fuller knowledge of the holdings of the larger population of 1850 suggests that the arable area as well as the population must have been extended,² and we read explicitly on occasions of the laying out of entirely new settlements. There may have been creations of new holdings going on fairly continuously—we do not know—but the main occasion and opportunity for the laying of new holdings would be the rearrangement following the break-up of the runrig farms; sometimes at this point of estate development the whole existing cottar and subtenant population would be offered full holdings.³ Secondly, on this occasion of the overturn of old arrangements, not too much attention

¹ This estimate is based on the population figures in *Dr Webster's Enumeration* (1755) and the average family is assumed to consist of five members; in addition it is taken—as is suggested by all available records—that less than half the population of that date would have the full status of membership of joint farms (whether or not the farms were held directly from the landlord, or indirectly through a tacksman).—Numbers of holdings in 1850 as given in Sir John M'Neill, *op. cit.*, Appendix A.

² See below, p. 44, n. 1.

³ As, apparently, on the Gairloch Estate.

was paid to the status of the tenants of the old farms. Maximum accommodation for the tenantry could be achieved only by shaving down all holdings to a standard, a reasonable minimum. Thus, though there may be doubt whether the average size of the holding changed as between 1750 and 1850,¹ there can be none that many of the peasants formerly of greater consequence than the average were shorn of their exceptional status; conditions among the peasantry became more equal—as far as formal size of holding went—than they had been. The usual pattern within the new crofting townships was to be that of the array of rigidly stereotyped holdings, not of a differentiated system giving opportunity to men of all grades. In fact, levelling was at first deliberate, though later in the nineteenth century, when opinion had turned against such a system, it was to be further enforced by lack of peasant capital. Thirdly, the control of landlords over subdivision and subtenancy, a continuing process, was extremely lax, at least until 1820. The preoccupation of administrators and landlords with the existence of a large class of subtenants or cottars becomes strongest in the third decade of the nineteenth century. But the class itself was no new thing; it had probably increased in absolute if not in relative numbers since the eighteenth century, and since many of the cottar holdings were obliterated when the farms were transformed there must have been fairly continuous re-creation of subtenancies.

After 1815 landlords' interests, in tune with the underlying economic situation, began decisively to shift. Overpopulation rather than a declining population became the bogey of the country, and nowhere more so than in the Highlands. For there the retreat of industry left an overcrowded² land for which the tenantry, with the fall in agricultural prices, was unable to pay rents at the existing level. Arrears mounted, the incomes of the landlords dwindled even as kelp profits disappeared; and finally recurrent famines created need for direct aid by the landlords, a need all the greater for the very numbers involved. The only solution, it was argued, was so to clear the land that more viable holdings might be laid and that there would be no cottar population, unproductive on the land, uncertainly dependent on subsidiary earnings, and constantly in need of aid from the proprietors. Attempts were made, then, to control and limit subtenancy, but the existing cottar classes could scarcely be spirited away without a brutal determination; and

¹ Patchily, in particular in the 'fishing' villages of Wester Ross, land conditions were worse about 1850 than they had been anywhere in the eighteenth century. But the standard croft holdings of the nineteenth century were in arable area (cattle stocks had diminished) certainly no smaller than the average joint tenancies of the runrig farms.

² That is, "overcrowded," both in the sense that the land could not provide full subsistence (or adequate money income) and in the sense that a smaller population might have produced as much (or more) to give the higher output per head necessary for full viability.

any attempt at creating larger holdings failed not only because of land scarcity but also because there were few peasants with the capital to stock larger holdings.¹ And all the time, at least until 1841, the increase of population went on. Landlords were caught, then, by the errors of their own policies of the later eighteenth century, and congestion and the minute subdivision of the land had to be accepted as facts.

The third of our heads—the separation of occupations, and in particular the separation of the agricultural from the industrial population—finds equally mixed motives and policies equally wavering. The need for this separation was one of the progressive dogmas of the time; yet, as we know, the period was to see the closer tangling of agricultural with other pursuits. The reason for this drift of social facts away from authoritative prescription emerges in part from the confusions of land policy. The major industries of the north-west—kelping and fishing—were such as could best be pursued by men with land; in spite of much theoretical argument for the contrary policy, estates were deliberately laid out to support a part-time industrial labour force. And even when there was no industrial preoccupation the effect of increase of population and fragmentation of land was very much the same; where men had inadequate land on which to live and to occupy the whole family energies, at least some of its members would go out to work, either of financial necessity or of choice, in other fields.

But if the continued mixing of occupations was partly the result of the whole trend of population growth and land arrangement, there were also other factors that would rivet these habits more completely and permanently on Highland society. For while the opportunity to undertake subsidiary occupations was created by physical redundancy of labour, the impulse to do varied work had its roots in monetary need. Incomes had risen till 1815, but rents also had been so screwed up that, even in the inflationary phase, the price of holding land was often to earn labourer's wages. And after 1815 the compulsion to add to basic agricultural income became so much the stronger. The manner of ordinary living was coming to depend somewhat more on purchased goods and less on home manufactures—even if the shift towards the money economy was only on the margins—and agricultural implements, such as the iron plough, were becoming much more objects of specialized workmanship and of imported materials. Individual purchases of

¹ Stocking was largely a matter of building up cattle stocks, which were conventionally larger on the larger arable holdings; but there seems no reason why, given the land, peasants should not have worked larger arable holdings for subsistence (provided the increase did not necessitate the use of the plough rather than the *cas-chrom*). The difficulty, then, was to get any increase of rent from a system of larger holdings.

meal were probably not year by year greater, in proportion to population, than they had been in the eighteenth century, but in the thirties the potato crop on which so much now depended began to show itself a precarious stay and in the years of famine the need for imported meal would be far beyond the ability of the tenants to meet the bill. But the central relationship was that between rents and agricultural prices. The fall in the price of cattle (by about 50 per cent) left the small tenant with an agricultural income totally inadequate to meeting his obligations in rent; and at the same time kelp income was partially cut off.¹ This situation had three consequences. First, the accumulation of arrears sunk the great bulk of the tenantry more or less permanently in debt. They continued to hold their land—debt was so universal that there were none in better pass to take the place of evicted tenants—but under onerous conditions of what amounted to labour service and at the cost of losing control of whatever money income might filter to them. Secondly, tenants were forced to sell their cattle till stocks fell well below the level permitted by local regulation (which was used as the standard in setting rents). The chances of recovery were then the worse, and income from diminished stocks fell further. Thirdly, and most importantly for the present argument, tenants were forced to add to their money income as best they could by outside labour. Such labour, with the decline of kelping and the continued uncertain fluctuation of fishing, generally involved long-distance, if seasonal, migration, an old Highland practice. The traditional direction of movement had been south-eastwards to aid in the Lowland harvest, and some continued to move to this work. But a great new employment field had appeared in the fishing communities of the east coast, in Caithness, along the Moray Firth, and in Aberdeenshire. Here for six weeks around midsummer the local fishermen with their heavy craft, so much better equipped than were the boats of the west coast, would take on numbers of wage-hands; while ashore there was work to be had in carting, gutting, and packing. Altogether several thousands of Highlanders, mainly from the north-western area, moved east in the season. From some parishes as many as, on the average, one member from each family would go; and with these migrants bringing back up to £6 in their pockets, the rewards of

¹ On the smaller estates of the mainland and inner isles kelping was stopped completely and the peasant lost what had never been a predominant part of his income; also not all had been accustomed to earn in this way. In the outer isles, the whole population was engaged, and many in such a way that they earned more from kelping than from farming; in such estates kelping was often kept on as a means of getting something from a tenantry which could not pay in money for the land. Wages did not drop much, but output tailed off, and in any case kelp earnings were all seized by the landlords. In effect the peasantry were earning the use of some land for subsistence cultivation by labour services.

seasonal labour were often, for the crofting family, as great as the monetary rewards of husbandry. It was this, more than anything else, that kept the smallholding system alive.¹ A steady and dependable stream of income did filter through an economy which was threatening, if not to fall into outright dependence on charity, at least to strangle in barter conditions; an unsteady supply of subsistence was derived from a land paid for on nominal labour terms, or sometimes given in exchange for labour in kelping or on the estate—a condition in itself limiting to endeavour, but also precarious in depending partly on purchase of necessities (in the Lowlands) from a money income always unreliable and stretched, whether in the hands of landlord or of tenant. Anything that made the money income steadier would significantly stabilize the economy. If such labouring opportunities helped to rescue the smallholding society, they also perpetuated and strengthened the tradition of seeking work away from the holding.

This article set out to explain a set of economic facts, to explain the organization adopted by a particular group in exploiting the resources of its area, and the argument has been conducted almost solely in economic terms—the play of the market, of existing structures of organization, and of technical potential. Yet simple economic argument will seldom explain even the simplest of economic adaptations. Men in their daily work respond to the depths of their individual and social natures and not merely to the opportunities of resources, techniques, and markets. And nowhere, perhaps, more than among a people whose response is rooted in tradition and whose daily economic life is shot with emotional, and even religious, expression. The explanation of the peculiarities of Highland economic behaviour must lie partly—how much is debatable—in the depths of group temperament; the desperate attachment to land, technical conservatism, the desire to wander and yet to keep an old home, expression in varied activity—these are more than passing obstructions to economic rationality. Yet, if the argument of the previous pages is correct, extra-economic purpose was powerfully aided by certain of the facts of market, technique, and demography; these, the economic facts, must surely be an important part of the whole explanation.

¹ Whether this money went in rent or in direct purchase, it created the funds that would support the steady purchase of the means of subsistence (which would often be provided by the landlords). The extra money might not break the barter system (i.e. of labour, or fish, exchanged for grain) but it made subsistence more secure.

The Agricultural Activities of John Wilkinson, Ironmaster

By W. H. CHALONER

IT is not generally known that besides being a large-scale industrialist, John Wilkinson (1728-1808), the celebrated ironmaster, was also one of the "spirited proprietors" who appear so frequently in agricultural history during the latter half of the eighteenth century. His youthful background was semi-rural, but his career as a large-scale landowner does not appear to have begun until the War of American Independence (1776-83), when it became difficult to satisfy public and private demands for cannon. Consequently his profits as an ironmaster accumulated rapidly, and some of them were invested in agricultural improvement. About 1777-8 he bought the bleak hill of Castlehead, near Grange-over-Sands in north Lancashire, then surrounded by a peaty marsh, and the adjacent Wilson House estate, with the double purpose of building a country residence on the former site, and "with a view of making iron from the peat with which the country so much abounded" on the latter.¹ The peat-smelting of iron, although technically successful, was however not an economic proposition, and his thoughts turned "to consider what other uses could be made of so extensive a tract, in particular whether it could not be made capable of cultivation."

The general nature of the tract Wilkinson undertook to improve was extremely discouraging. According to Sir John Sinclair, Bt, M.P., President of the Board of Agri-

culture, who honoured Wilkinson with a visit to Castlehead in 1805, it would have been called in Scotland a "flow moss." On the average about five feet of the first stratum consisted of a soft, spongy kind of peat, which made very poor fuel. Below this, however, the black peat was deep (15 feet and over) and of excellent quality. After these two layers the bottom was "a fine strong blue clay," capable of being used as a top dressing after being burnt in small heaps with peat, but otherwise "unfriendly to vegetation until it has been long exposed to, and ameliorated by the atmosphere."²

Wilkinson's first attempts to improve about four or five acres of this waste marsh, on which animals could only be pastured in frosty weather, began in 1778 and were unsuccessful. The surface was breast-ploughed and then burnt. But the drainage trenches were cut too far apart and the "proper management" of the sod-kilns in which lime for spreading on the moss could be produced "was not then understood."³ Later Wilkinson tried a more complex system of drainage trenches which proved more successful.⁴ Special spades and ploughs were used, and the great ironmaster's inventive brain even produced a special 10-inch circular patten for the hind-feet of the horses used in the work of reclamation, so that they could be employed even in the soft parts of the moss.⁵ "Before this invention," remarked Sir John Sinclair, "the ploughs were wrought by the strength

¹ *Communications to the Board of Agriculture*, v, Part 1, 1806, p. 2; John Wilkinson to James Watt, 6 May 1776 (Boulton and Watt Coll., Birmingham Public Library).

² *Communications*, p. 2.

³ *Communications*, p. 3. Sir John Barrow (1764-1848), who visited the Castlehead area about 1781-2, states that Wilkinson had met with success "mostly and simply by driving in stakes to obstruct the tide both in its flow and ebb."—*An Autobiographical Memoir*, 1847, p. 229.

⁴ *Communications*, pp. 3-5. Wilkinson also narrowed and altered the courses of some brooks in the Castlehead area, "by which the flux of the tide, in the space of about eight years, has raised the lands near six feet."—J. Holt, *General View of the Agriculture of the County of Lancaster*, 2nd ed., 1795, p. 88.

⁵ *Communications*, pp. 4-5 (plate: "Mr. Wilkinson's Horse Patten").

of men till the moss had consolidated." By 1805, after an elaborate rotation of crops and a considerable and costly spreading of clay, sand, or mould on the surface, the reclaimed moss had produced hay, turnips, oats, winter rye, barley, and potatoes, the latter being "of a quality peculiarly excellent."¹ It is typical of the man that he threw himself wholeheartedly into this new sphere of activity, for in 1787 he was the only person who took the trouble to send the Royal Society of Arts samples of Chinese hemp fibre in "a state fit for the purpose of manufactures" after that Society had distributed the seeds of the plant to a large number of persons for experimental growth.²

The extent of land Wilkinson reclaimed was variously estimated at 500 Lancashire acres and 1,000 statute acres.³ In 1778 the moss was with difficulty let to local farmers at a penny per acre; by 1805 those portions of the moss which Wilkinson had only recently improved were worth between 30s. and 40s. an acre per annum, while land which he had reclaimed in the 1780's produced an annual rent of between £3 and £4 per acre.⁴ Nevertheless critics said "that Mr Wilkinson might have bought, at a cheaper rate, the best land in Lancashire." Sir John Sinclair commented: "Perhaps so. But Mr Wilkinson must derive much higher satisfaction from the plan he has

pursued. By so doing, he has furnished employment to numbers of industrious people;—he has raised great quantities of food for man, where nothing, but for his exertions, would have been produced . . . and . . . he is justly entitled to be ranked among the best friends to the agricultural interests of the country."⁵

In 1791 Wilkinson was busy finishing off a big programme of tree-planting at Castlehead which had extended over a number of years.⁶ In 1796 the landowners of Cartmel parish obtained an Act (36 Geo. III, cap. 64) for enclosing commons, waste lands, and mosses in the constituent townships of the parish, a process which lasted until the final award in 1810. Both John Wilkinson (Castlehead was in Allithwaite Upper township) and his brother William, who then had a house at Flookburgh, had interests in the enclosure. They were in fact the third (£1,880) and fifth (£1,415) largest recipients respectively of the Cartmel common land divided out by the Commissioners appointed under the act.⁷ According to Stockdale, on the 12th of October 1798 William Wilkinson bought 28 acres for £685 "behind and upon Newton Fell" in Upper Allithwaite township at a public auction, while three days later, John, not to be outdone, requested the commissioners "that he might have an allotment

¹ *Communications*, p. 6. Wilkinson also grew chicory at Castlehead, presumably for horse fodder.—Holt, *op. cit.*, p. 72.

² *Trans. Royal Society of Arts*, v, 1787, pp. 171–2. It is not clear whether this hemp was grown at Brosley in Shropshire or on one of his other estates. Wilkinson's report on the product was unfavourable.

³ *Communications*, p. 7; Holt, *op. cit.*, p. 105. The Lancashire acre varied. One, based on 7½ yards to the rod, was equal to 1.86 statute acres; another, based on a 7-yard rod, was equal to 1.62 acres.

⁴ *Communications*, pp. 3, 7. The great rise in the value of the land during the early 1790's is shown by the fact that in 1795 John Holt had noted: "Mr Wilkinson's improved moss land was, before draining, worth from 7 to 10s. per acre, is now worth from 4l. to 5l. per acre of the large measure."—*op. cit.*, p. 47 n.

⁵ *Communications*, p. 8. Wilkinson's methods were later applied to Trafford Moss in south Lancashire (Holt, *op. cit.*, p. 105). His schemes altered the landscape of the Furness wastes: ". . . before the drainage, the windows of the third story of Mr Wilkinson's house just appeared from a certain point; but from that place, at present, the windows on the first floor are plainly seen . . . the fall of the moss is about four feet and a half."—Holt, *op. cit.*, p. 106 n.

⁶ Draft letter of 10 Oct. 1791, John Wilkinson to Dr Priestley.—Warrington Public Library, Priestley–Wilkinson Correspondence.

⁷ For an account of the enclosure, see J. Stockdale, *Annales Caermoelesenses*, 1872, pp. 326–84. Stockdale had access to the Commissioners' minute books, and one of them, covering the period from 25 July 1796 to 3 July 1803, has recently been deposited in the Lancashire County Record Office, County Hall, Preston.

at or upon Wilson Hills, as it would be an advantage to his estate." Besides the 51 acres allotted to him at Wilson Hills John came into possession of over 40 acres at Blawith and Castlehead Moss in Broughton township, while William received allotments at Holker Bank and Winder Moor in Lower Holker township.¹ The Commissioners' award under the Act shows that the two brothers received other allotments by virtue of their status as local landowners; it is interesting to note that William Wilkinson bought out a number of small proprietors.²

Not content with these local acquisitions, "Mr Wilkinson of Castlehead, a gentleman of fortune, patriotism, and universal knowledge," became interested during 1786 in a vaster design put forward by John Jenkinson of Yealand. Jenkinson's plan was for "recovering from the dominion of Neptune that extensive tract called Lancaster and Milthorp (i.e. *Milnthorpe*) Sands" by diverting the Kent and other lesser rivers.³ After a survey of the area, which seemed to him to present few obstacles to the execution of the plan, Wilkinson proposed the opening of a subscription list and offered to lead it with £50,000 if the neighbouring landowners would raise the remaining £100,000 between them. But even though his estimate of £150,000 for reclaiming over 32,000 acres was considered to be unduly pessimistic by "many well-informed gentlemen," the plan never materialized, being "defeated, by a difference of opinion amongst individuals, claims of the lords of manors, &c."⁴

It was not only at Castlehead that Wilkinson undertook agricultural improvements. In

1792 he bought the Brymbo Hall estate, and later added to it a number of smaller estates and farms in the bleak township of Brymbo in Denbighshire, north Wales. On his death in 1808 the whole concentration amounted to about 872 acres.⁵ The original soil was naturally poor, "being a hungry clay on a substratum of yellow rammel or coal schist."⁶ By good tillage and heavy manuring with lime (10 tons to the acre) Wilkinson so improved crop-yields that the township's corn-tithes increased by £40 per annum in value. "A crowned head had assisted him in making his compost manures. Offa, King of Mercia, had employed men to bring together the soil; and Mr Wilkinson went to the expense of lime, to be mixed with it. Large cavities, of the shape of inverted cones, were cut at convenient distances, in Offa's dyke, which runs across Brymbo farm. The cavities were filled up with limestone and coal and then burnt. . ."⁷

At Brymbo, too, he experimented with powdered "sweet coal," i.e. coal with a very low sulphur content, as a top-dressing for grasslands. As compared with land manured with a compost of soil and lime, the area so treated produced the best and earliest grass.⁸

His lime-making activities in north Wales were not, however, confined to the township of Brymbo. At some date before 1798 he had secured a lease for forty-two years of land containing limestone adjacent to Lord Derby's estate at Hope in Flintshire. Here he had erected large lime-kilns, of which he wrote: ". . . my present lime work being so near coal of my own . . . enables me to sell it on easy terms to the country and to meet any competition whatever."⁹

¹ Stockdale, *op. cit.*, pp. 334, 340-1.

² Award of 8 February 1810 (Lancashire County Record Office, Preston), pp. 76, 100, 105, 431 ff., 434, 455.

³ Holt, *op. cit.*, pp. 88-94; *Gentleman's Magazine*, LVI, 1786, pt. ii, p. 1140.

⁴ Holt, *op. cit.*, pp. 90, 88.

⁵ For details of these, see A. N. Palmer: 'John Wilkinson and the Old Bersham Ironworks', *Trans. Hon. Soc. of Cymmrodorion* (Session 1897-8), 1899, p. 40.

⁶ Davies, *Agriculture of North Wales*, 1810, pp. 281-2. Of Wilkinson's Brymbo estate about 150 acres were originally "wild heath, till then abounding only in springs and furze." Palmer noted that the Waen Farm (76½ acres) was "enclosed from the common."—*op. cit.*, p. 40.

⁷ Davies, *op. cit.*, p. 282.

⁸ *Ibid.*, pp. 297-8.

⁹ Wilkinson to Mr Alty, Knowsley, Lancs, 9 May 1798 (Lancs County Record Office, DDK 447/9). When Wilkinson was granted a 7-year mining lease of land at Hope by Lord Derby in 1798, it was agreed

Wilkinson's last will and testament provides some evidence that his investments in agriculture extended to South Staffordshire. "... The late William Johnson's cash account with me is not settled, and the same cannot be adjusted without reference to the cashbook and diary of the said William Johnson... it is supposed they contain the transaction of my farm at Bradley blended with an adjoining one... held by William Johnson... and the produce of both farms were (*sic*) received for by said William Johnson."¹

Attention has often been called to Wilkinson's role as a pioneer in the use of agricultural machinery. In 1798 the six counties of north Wales contained only two threshing machines. One of these, "of a cumbersome and expensive construction," was employed by Wilkinson on his Brymbo estate. Even more remarkable was the fact that his

machine was driven by steam power. The use of agricultural machinery was stimulated by the high wage rates typical of war-time conditions, and by 1810 improved threshing machines had become "too common to be enumerated" in north Wales.²

The general impression derived from a study of Wilkinson's farming and reclamation activities is therefore of large-scale, long-term 'ploughing' of industrial and mining profits into agriculture on marginal lands at a time when a rapidly expanding population and Government expenditure in connection with a series of wars (1776-83, 1793-1802, 1803-15) resulted in a rising price-level, a buoyant economy, and, towards the end, a considerable degree of inflation. Wilkinson was perhaps fortunate in that he did not live to see the depression in agriculture during the years immediately after 1815.

that he was not to burn any of the limestone brought out of the lead ore diggings: "he must be bound that he will not root and mangle too much of the rocks to the disadvantage of his Lordship... the old tenants... complain heavily that if Mr. Wilkinson will take all the rocks they will be entirely deprived of their living."—Edward Jones, Hope, Flintshire, to Mr Alty, Knowsley, Lancs, 3 July 1798, Lancs County Record Office, DDK 447/8/3 and 447/8/5.

¹ Document A, date-lined Bradley, 26 July 1804, subjoined to will dated 29 Nov. 1806, General Register Office, Somerset House, London. William Johnson's widow, Mrs Mander, was to be compelled by Wilkinson's executors to produce the accounts.

² Davies, *op. cit.*, pp. 121-2.

NOTES AND COMMENTS (*continued from page 30*)

numbers. Down to 1870-1875 all the hills and mountains of Great Britain had been tenanted as 'hill rights' or common 'hill run', often mainly for the production of three- to four-year-old wether sheep which were sold fat off the hill at that age. They did not cost the farmer much except during the first winter, and he had three to four years' wool off them. But between 1870 and 1875 there sprang up a universal desire amongst the landed gentry to 'produce a shoot' on their moors and mountains, stimulated by the example of Edward, Prince of Wales, afterwards Edward VII, who was passionately fond of shooting and stalking. The advent of new types of effective sporting guns (both shot and rifle

type) encouraged a desire for big 'bags' of grouse from the moors and of stags on the Highland mountains. Everybody wanted to take a 'shoot', and to let this land was much more profitable than giving it free for sheep to tenant farmers. In consequence, the landlords took away the moors and the mountains and turned them into vast grouse moors, and in Scotland into deer forests. Very often no sheep were allowed at all. Sometimes, as occurs to this day on all Derbyshire grouse moors, the sheep are stinted in numbers, i.e. every farmer must have his sheep counted out on to the moor through a sort of stone 'trap door' by the Head Keeper on a given date. And

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List of Books and Articles on Agrarian History issued since September 1955¹

Compiled by JOAN THIRSK

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¹ The date of publication is 1956 unless otherwise stated. The compiler wishes to thank Mr George Green for help with this bibliography.

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NOTES AND COMMENTS (continued from page 51)

on a given date no sheep must remain outside on the moor. This has caused a great reduction in sheep numbers in many areas since 1870. At the same time, the great demand for a big shoot and a big 'bag' of game, without which no squire up to 1910 was happy or con-

sidered a fine fellow, probably caused farmers to take an added interest in their low ground root crops and to increase their productivity. For partridges live in root crops, and the bigger the yield the more pleased would be the shooting landlord or shooting tenant.

Book Reviews

L. F. SALZMAN (ed.), *Ministers' Accounts of the Manor of Petworth, 1347-53*. Sussex Record Society, Barbican House, Lewes, 1955. xxxiv+100 pp.

The annual accounts presented by reeves and bailiffs of manors are perhaps the most valuable source for the history of English rural economy during the period for which they are extant: that is, from the thirteenth century to the sixteenth. They supply particulars of the demesne husbandry with a fullness unsurpassed by any documents of the early 'modern' period. A beginner unacquainted with the structure of these accounts and the formulae used in accounting would find in the volume under notice an excellent approach to the subject. Five rolls of account for Petworth, translated into English, are printed here with a valuable introduction by the editor. These accounts are of particular interest because they cover the period of the Black Death. Moreover, they deal with a manor in lay hands, not one of those ecclesiastical properties which have so largely engaged the attention of historians. Mr Salzman calculates that the total death roll at Petworth at the height of the plague must have been near 300, an astounding figure, as he justly remarks, for a single manor and parish. How soon were the vacant holdings filled and the lord's receipts brought up to their earlier level? This is a question which cannot be answered from the material before us. A study of other manors suggests that recovery may have been more rapid than we might expect after so heavy a death-rate.

The husbandry of the Petworth demesne, as revealed in these accounts, has several points of interest. No wheat was grown, and very little barley. Some 45 acres carried rye, but 75 per cent of the arable was under oats, mostly "small oats," though a few acres of "large oats" were also grown. Mr Salzman is at a loss to explain this term. The bailiffs' accounts for the earldom of Devon, however, show that the large black oat was already, in

1287, being regularly grown alongside the older and smaller variety, which, in Devon at any rate, seems to have been identical with that known to botanists as *avena nuda*.

H. P. R. FINBERG

AXEL STEENBERG, *In Crackling Flames*. Arbog for Jysk Arkæologisk Selskab, 1955, pp. 65-130 (in Danish with English summary).

The place of 'burning' techniques in primitive agriculture is of interest to the historian, the archaeologist, and the natural scientist. In this paper Dr Steensberg has collected together many examples of burning in connection with cultivation from all parts of the world. He points out that the aims of burning are as numerous as the methods employed. A varied selection of burning techniques and the type of cultivation following them is described, and illustrated by photographs and diagrams; and written accounts of burning techniques as old as the late Iron Age are discussed.

Steensberg's appreciation of the problems presenting themselves to the cultivators, and the way in which they have adapted the burning technique, is well shown in the following passage. "In Esthonia burning was most suitably practised on areas of good loose soil with a high humus content, and where there was not too much grass in the undergrowth. Where it was desired that the trees should shoot up quickly again, care had to be taken not to destroy the roots. Too severe burning would also prevent the growth of grass, and if too large an area was thoroughly burnt off, the trees were prevented from sowing their seed and the wood thereby from regenerating. There was therefore a risk of the area becoming heathland. The same was true if the topsoil was burnt to death."

The theory that grain cultivation arose in the Middle East is proposed, and it is shown how the use of burning techniques could have led to this type of cultivation. The theory

is to some extent supported by the findings of botanists working on the systematics of the cereal grasses.

Steensberg makes no attempt in this paper to trace the origins of these burning techniques beyond the limits of written record; but he points out that this enquiry already has been taken up by archaeologists and botanists.

The paper includes a comprehensive bibliography, and forms a valuable contribution to the study of burning techniques, gathering together as it does a large volume of information in a readable and accessible form.

J. W. FRANKS

Materialy po istorii zemledeliya SSSR.

Akademiya nauk SSSR. Sbornik I, 1952, 631 pp. Sbornik II, 1956, 748 pp. 25 rubles 25 kopeks, and 30 rubles 35 kopeks respectively.

These are the first two collections of *Materials on the History of the Agriculture of the USSR*, a series which is intended to form a basis for a great general work covering the history of agriculture in the area which is now the USSR from the earliest times to the present day. This task is being undertaken by the Institute of History with the collaboration of other institutes of the USSR Academy of Sciences. The area to be dealt with, extending from the Baltic to the Pacific, from northern tundra to Central Asian deserts, accommodates a vast range of agricultural activity: semi-nomadic reindeer herding, dairy farming, mechanized grain-growing on an immense scale, cotton-growing, tea planting, and the cultivation of subtropical fruits. The time-scale is equally huge: from some of the earliest known cereals in Turkestan to the introduction of the tung tree in the 1920's.

The first volume, edited by Professor B. D. Grekov, deals with agriculture in the pre-feudal and feudal periods of Russian history, from perhaps 3000 B.C. to the first half of the nineteenth century A.D. For the most part, therefore, this volume has to be based on

archaeological material, since written sources on Russian agriculture only become at all abundant from the second half of the eighteenth century. The volume opens with a survey of the systems of farming which existed, mainly in southern European Russia and in parts of Central Asia, from the advent of agriculture to the first millennium A.D. Certain aspects of this survey are dealt with in more detail by articles on Scythian agriculture, that of the northern Black Sea coast during the existence of the classical Greek colonies, and that of the eastern Slavs in the period down to the fall of Kiev Rus' (about A.D. 1200). A group of articles on farming in Siberia in the seventeenth and eighteenth centuries, that is from the period of extensive Russian colonization, rely almost entirely on written sources.

The first volume also deals with sixteenth-seventeenth-century agriculture in Belorussia, Lithuania, and the Ukraine, and the emergence of some increase in the marketing of grain in the eighteenth century. At this time the efforts to overcome Russia's backwardness, developed especially under Peter the Great, involved an increase in the non-agricultural population and so created some further internal demand for grain. At the same time, in some areas, such as parts of Poland and Volhynia, where it was economically advantageous, some grain went for export, though most of it continued to be consumed locally; for instance, well over half the grain obtained by the gentry was consumed in the form of spirits. The opinions on agricultural policy of eighteenth-century thinkers and writers, such as the physiocrat Volynskii, Tatishchev, who supported the gentry's viewpoint, the mercantilist Pososhkov, and others, are also touched on; the revolutionary developments in other European farming, in fact, found some reflection in Russia, where however serfdom meant that innovations in policy took different forms and had different results from those in western Europe. The publication in this volume of documents about a novel threshing machine invented in 1822 shows that, nevertheless,

individual Russians were not behind in inventiveness.

The second volume, edited by Professor P. M. Zhukovskii after Grekov's death, deals mainly with the history of certain crops in the USSR and obviously owes a great deal to the members of the All-Union Institute of Crops (*VIR*). Professor M. M. Yakubtsiner contributes a lengthy article (the equivalent of about 50,000 words) on wheat in various regions of the USSR. An article by V. S. Lekhnovich of similar length (although the editor excluded four chapters and cut the rest) deals with the potato from its first gradual introduction into Russia mainly through the Baltic seaboard, and its intentional development by the authorities in the 1760's, down to the present. Other crops whose history in the USSR is dealt with are barley, flax, clover, tomatoes, cotton, sub-tropical plants, and tea. The question of the origin of crops in East Siberia also receives attention and one article is devoted to the development of viticulture in seventeenth-century Russia due to the demands of the court.

In both volumes there are gaps which will no doubt be at least partially filled by future issues. Thus, in the foreword to Volume I Professor Grekov mentioned that agriculture in the periods of "feudal dismemberment" (thirteenth and fourteenth centuries) and of the "formation of the centralized Russian state" (fifteenth and sixteenth centuries), as well as that of the various nationalities of the USSR, needed to be dealt with. In the foreword to Volume II Professor Zhukovskii mentions that articles on such important crops as rye, oats, and beet will appear in the next volume and that more attention will be given to the Soviet period of the history of crops. By disclosing such gaps in our knowledge, however, this series is doing a useful service and will help to focus attention where further research is needed.

In a short review of such varied matter it is not possible to make a detailed criticism, but, in general, the *Materials* so far published are uneven in quality, and are less useful to the

historian than they might be. Neither volume has an index. This is a common fault in Soviet books, but in this case it is particularly regrettable owing to the great variety of subject-matter. Moreover, an index would probably have helped to eliminate some duplication of effort by the authors and have enabled some points of difference to be made explicit. The maps are clear; many of the drawings give real pleasure, but few of them indicate the scale. The photographs also for the most part fail to indicate the scale and are so badly reproduced that they add nothing to one's knowledge, but detract from the appearance of an otherwise well-produced book. The system of reporting pre-revolutionary harvest figures in *poods* per *desyatina* and post-revolutionary figures in *centners* per hectare hinders immediate comparison. These all seem to be technical matters which could quite easily be dealt with. But, in addition, the authors themselves have evidently not been clear whether to supply materials or to write finished essays on their particular subject.

The great wealth and variety of material in these two volumes well illustrate the immensity of the task which Soviet historians have undertaken. It is a promising beginning despite certain faults, but a clearer editorial policy might make future volumes of even greater use and interest.

R. E. F. SMITH

C. S. MARTIN, *Irrigation and Closer Settlement in the Shepparton District, 1836-1906*. Melbourne University Press, 1955. 94 pp. 12s. 6d.

This little study is a posthumous edition of the work of a young research student who was killed in a motor accident in 1946 at the age of twenty-six. The affectionate recollections of his editor and of his university are to be commended. But the book has glaring defects.

Martin was the son of a judge, and the grandson of Swinburne, a prominent nineteenth-century political leader who played an active part in promoting irrigation agriculture in Victoria. He was a history scholar

of Melbourne University, and according to his biographer, a prizewinner in economics *at school*, but he shows no evidence of having studied the subject since. Out of his lack of knowledge of economics, and his desire to do credit to his grandfather, he has produced a book which, while it gives quite an interesting account of the political events associated with the development of irrigation agriculture in Victoria, completely misses the main point. This is that irrigation agriculture in Victoria and elsewhere in Australia, except for very modest projects based on small-scale pumping, is and always has been utterly uneconomic. The large irrigation projects which are now being discussed for Australia are uneconomic to quite a fantastic degree. Irrigation has succeeded in other countries, where the river flows are fed by snow-covered mountain ranges, and where there is a lack of farm land endowed with natural rainfall. In Australia neither of these conditions holds. Australian farmers will not pay water rents that will cover even the maintenance cost, let alone the capital cost of irrigation, for the simple reason that there is plenty of good rainfall land elsewhere. Every irrigation project therefore has had to be continuously sub-

sidized by the taxpayers. This was true even in the nineteenth century, as this book clearly shows.

However, besides seeking to do honour to his grandfather, Martin is concerned with the still more prominent name in Australian history, Deakin. Deakin was mainly responsible for getting irrigation started in Victoria, and every Australian historian treats his actions with unquestioned deference.

The whole study is a sad object-lesson in that destruction of the critical sense which appears to arise from studying economics at school, when a student's mind cannot possibly be mature enough to grasp the reasoning involved, but he nevertheless comes away with a dangerous conviction that he understands economics.

It is however not the author but the Melbourne University Press who are responsible for the statement on the dust cover that this chronic drain of economic resources, which could have been so much better used in the development of other parts of Australia, constitutes "the intelligent use of natural resources."

COLIN CLARK

Letter to the Editor

MR BERESFORD AND MR GOULD

SIR,—Readers might assume from Mr Cooper's letter (IV, p. 121) that the argument of my book rests heavily on Dr Bowden's index of wool prices: they would be surprised to turn to my book and find that only twelve lines (p. 183) are concerned with this index, and that my argument for the profitability of wool at the time of depopulation rests on contemporary statements rather than on modern price-indices whose inadequacies (pp. 177, 183, 184) I bemoaned quite as loudly as Mr Cooper.

Dr Bowden's own thesis (Leeds, 1952) answers some of the questions about the effect of the local cloth industries on the sixteenth-century wool supply which Mr

Cooper poses, and Dr K. J. Allison's recent thesis (Leeds, 1956) will tell him more about wool and animal prices in the region from which the Norwich and Norfolk markets were supplied.

Mr Gould has had to wait some time for my comments on his *Comment* (III, pp. 107-13), but his critique deserves a more constructive context than a further instalment in the "I didn't say what you said I said" vein, and I hope to produce a general survey of the attitude of the State to enclosure during the seventeenth century in which I can touch on Mr Gould's suggestions.

Yours truly,

MAURICE BERESFORD

The University, Leeds.

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No. 264

DECEMBER 1956

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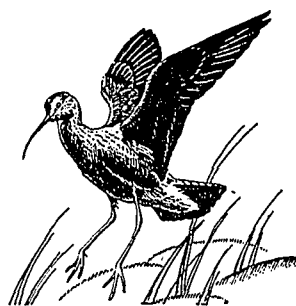
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The British Plough: Some Stages in its Development
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Vol. v Part II

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Some recent Danish Experiments in Neolithic Agriculture

By AXEL STEENBERG

MORE than two hundred years ago the idea was advanced that pre-historic agriculture started by man's cutting down the primeval forest and burning most of the trees and branches in order to sow his corn-seeds in the ashes. The father of this theory was the Finnish agricultural chemist P. A. Gadd, who wrote in the year 1753 his *Ovålduga tankar om jordens svedande och kyttande*. Later on his idea was developed and made more generally understandable, amongst others by Professor Gudmund Hatt. And when the Danish botanist Johannes Iversen in the late thirties found a layer of charcoal in a Seeland bog, he explained it as the result of the neolithic farmer's first reclamation of arable land. It may perhaps be a question if this very first charcoal layer came from a neolithic settler's burning of the wood or not. But Iversen's great knowledge of botany and his development of the technique of pollen-analysis soon taught him to discern in the pollen diagrams the actual layers that were due to different periods of clearance.

At these turning points in the diagrams a sudden decline of pollen from oaks, lime, elm, and ash was followed by a sharp rise in grasses and herbaceous plants, soon also of birch and hazel. At the same time pollen of cereals and weeds appeared for the first time, and plantain especially became extremely common. All this goes to show a typical development such as one might expect after clearance, cereal cultivation, and extensive cattle grazing. Details seemed to show that the clearance was combined with burning.

Burning of woodland and scrub was practised of course long before agriculture started. Apparently it was known already in Interglacial times. And in a recent paper on Slash-and-Burning (Kuml, 1955) I showed that primitive hunters and plant-gathering peoples made use of the crackling flames in order to improve their berry-grounds, to produce better grass for wild animals, or to kill gnats and other insects. In Mongolia the nomads also burned off grasslands in order to improve the vegetation for their herds. Maybe the cultivation of grain started in Western Iran on the border line between the highland steppes and the sloping and wooded mountains, as I have suggested, because seeds of the wild ancestors of barley and wheat were accidentally blown into the burned-off areas of the hunters, and were found to grow abundantly.

In my opinion the term 'Slash-and-Burn' is a good general term for all these modes of improvement. Therefore I do not agree with Professor Ekwall when, in *Man*, 1955, he proposes to use the term "swidden" for the burning and cultivation of wooded land. This term has a special meaning in the Scandinavian languages. It means to clear and burn repeatedly in a sort of rotation. And when prehistoric farmers began to till the soil the wooded areas were so immense that repetition of burning on the same piece of land would hardly be needed in a man's life-time. On the other hand I am not convinced that prehistoric farmers needed to move their sites very often. To judge from modern parallels too much stress has been laid upon the periodic moving of the villages of the early agriculturists.

Much can be learned from the study of Slash-and-Burn agriculture in modern times. But could neolithic man really have cleared large areas of the thick primeval forest with his clumsy flint axes? And what would be the effects of clearance in a North European deciduous wood? We know that mixed oak forests and beech forests were cleared by fire in northern Germany as late as the early eighteenth century. But no living person has seen the results of it. Therefore, at the suggestion of Dr Johannes Iversen, a team of ecologists and archaeologists, led by him, decided to put these questions to the test of field experiment. The others were Dr Troels-Smith, Svend Jørgensen, and myself from the Danish National Museum. We obtained the needed funds from the Carlsberg Foundation and a permission from the forest authorities to clear about two acres of wooded land in the Draved forest in south Jutland. This forest is a mixed oak forest like that of neolithic times, and this was the reason why it was chosen. However, the forest proved to have one drawback. It is situated on a plain surrounded by moors and bogs, and accordingly the height of the water table is rather elevated. In contradiction to this the clearance of neolithic man as well as those of modern Slash-and-Burn agriculturists have usually been placed on sloping grounds.

In order to control the test, only a part of the area was to be burnt, while another part was only cleared. Svend Jørgensen and Dr Troels-Smith took charge of the axe tests. They obtained a number of original neolithic flint axe blades from the National Museum, and a model for the wooden haft was available in the form of the well-known Sigerslev hafted axe, excavated from a Seeland bog. The first tests were made in February 1952 in a temperature of 3 to 4 centigrades. At the second cut one axe was totally broken. Two minutes later the biggest blade was cracked transversally. And after three or four minutes the edge of the third axe was spoilt. The last and smallest axe had the handle split at a too violent stroke. The lesson was: (1) that flint axes have to be treated carefully in frosty weather; (2) that if the haft was not

to be split, it must not hold the blade too tightly, but must leave room for a little sideways play when struck; and (3) that the usual tree-chopping technique, in which one puts one's shoulders and weight into long, powerful blows, would not do. The lumber-jacks, unable to change their habits, damaged several axes. The archaeologists soon discovered that the proper way to use the flint axe was to chip at the tree with short, quick strokes, using mainly the elbow and wrist. Troels-Smith worked with an axe blade which had not been sharpened since neolithic time, and he finished the clearing operation without spoiling it.

When the two archaeologists reached the top of their form they were able in co-operation to fell oak trees more than a foot in diameter within half an hour. Small trees they felled by cutting all around the trunk. But on heavier ones they had to use the slower method of hewing two notches, one at each side, and one a little more elevated than the other in order to control the direction of the fall. In all forest clearance for burning the trunks must fall in the same direction; furthermore, this direction in Draved forest would be north-south, because thus the wood would dry more quickly. The biggest trees were not cut down but killed only by cutting rings through the sapwood.

It was interesting that Troels-Smith, during excavations in a Swiss lake-dwelling, had found trees cut in the same way as in Draved by hewing a notch at each side, and the splints of wood proved to have been flaked out parallel to the trunk by cutting grooves above and beneath until the two grooves met each other near the centre of the trunk. And when Professor Forbes of Amsterdam read in the newspapers about the test of tree-felling at the Museum of English Rural Life in Reading during Dr Iversen's stay in England (1954), he wrote to me and related how he had observed the Borneo Bataks cutting trees in a trial with some Chinese coolies in order to amuse a new Dutch governor. The Bataks used stone axes, the coolies American steel axes. The coolies gained the victory, and what is more interesting, Professor Forbes described their technique of cutting as identical with that of Troels-Smith and Svend Jørgensen when clearing wood in Draved. The experiment of Draved also proved that the beech tree is far the most difficult to fell. But this tree was extremely rare in the forests of neolithic times.

The burning was directed by Professor Kustaa Viljuna of Helsinki in Finland, who is an expert on primitive burning techniques. He is a farmer's son and has worked by Slashing-and-Burning himself. But Iversen, Troels-Smith, and I have attended Finnish burnings of coniferous areas. However, in a deciduous wood the great question is to have the twigs and branches sufficiently dried. If they were cut down the year before, you have to lift

them out of grass and other herbs, which have overgrown them during autumn and spring. The first time, in 1953, the test partially failed because the wood was not dry enough, and not even by using a modern flame-sprayer could we burn it. This instrument produced a flame and could be useful in a coniferous area. But here we needed a great starting heat; later on this could more or less dry out the wood behind the flames, if it should happen to be not quite as dry as it ought to be.

Next year, 1954, the burning was successful. The ignition took place along a 30-feet wide belt by means of torches of birch bark attached to stakes. When the belt was well cleared we pushed the still burning logs forward with long poles in order to set fire to the adjacent area. In this manner we burned off the entangled branches of trees, belt by belt. The fire was controlled and conducted day and night in order to achieve an even and thorough burning of the ground. And in three or four days the job was finished.

Immediately after the burning we were going to sow. Archaeological finds of charred corn and impressions of grain in excavated pottery have attested that in Denmark neolithic man made use of three sorts of wheat: *triticum monococcum* (or Einkorn, also called Small Spelt), *triticum dicoccum* or Emmer, and *triticum compactum* or Club Wheat—and the nodding six-rowed naked barley, *hordeum vulgare*. Most of these primitive cereals are still cultivated at experimental stations and can easily be acquired. Only the *compactum* wheat caused some trouble until at last I got it from the Rinn experimental station in the Austrian Tirol.

The next question was how the grain should be sown? No digging sticks from the neolithic period have been found. And some fine spades, which were found last summer in a south-Jutland bog by Professor Schwabedissen of Kiel, could not be of any use to us. They are well dated to the early neolithic age, but they are universal tools with symmetrical blades, not especially adapted to digging cultivation. They may have been used for clay digging as well. Nearly all peoples who in modern times use the Slash-and-Burning technique use the digging stick. Even in the Alpine regions, where wheat and barley were sown in very small fields, the women put the grains into holes made by the digging stick.

Therefore we started our sowing using a digging stick. Later on I experimented in making drills with the stick, and also in sowing broadcast and afterwards scratching the grain into the ground with a wooden rake. When using the digging stick, I made 50–70 2–4 cm. deep holes per square metre, that is to say about 15 cm. distance between the holes, and in the case of drilling the distance between the rows was about the same. We learned from this experiment: (1) that the grain is better protected against birds

when put into holes; (2) that it came up more equally distributed when put into holes; (3) that *triticum monococcum* grain is difficult to cover when sown broadcast because of its great surface in proportion to its weight, especially when a great multitude of charcoal is spread upon the ground; (4) that the grain sown in holes and drills had an advantage in the beginning, but just before harvesting no real difference was to be seen between grain sown in holes and that which was broadcast (perhaps the ripening was a little delayed in the case of broadcast seed, which was due to the later sprouting); (5) weeding as well as harvesting is a little easier when the grain has been sown in holes, because the corn stalks are then growing in bundles.

On the 22nd of April 1953, when we did our sowing, the soil was wet and inconvenient for the grain. The summer was rather dry, but the harvest-time wet. A great many ears of corn were broken off just before or during the ripening process; birds and mice had eaten them. Therefore it was difficult to estimate the real output of the harvest. The next year, when we burned a larger area, the sowing was even later because of late spring, the 25th of May to the 9th of June. This year the soil was in a condition for sowing that would please every farmer. And the sprouting developed quite perfectly. By the 27th of June the first seed sown had reached 50 cm. height and the latest 15-25 cm. By the 2nd of August the first seed sown was a little more than one metre high. But the summer of 1954 was one of the wettest Denmark has had in this century, and the harvest was delayed until September. When I harvested the first plot on the 9th of September, the stalks had already been broken off 10 cm. beneath the spikes, even if the corn was hardly quite ripened. And I was harvesting in plain water with rubber boots on my feet.

Estimated per hectare the quantity of seed sown was rather large. In 1860 the normal barley seed per hectare in Jutland was about 130-135 kg. In Draved, 1953, the seed of *hordeum vulgare* was 155 kg. in holes, in 1954 204-310 kg. broadcast, and 50 kg. in holes. And in 1955 the seed of six-row barley was 310 kg. broadcast. From these figures it will easily be seen that you will *save at least half the amount of seed by putting it into holes*. In 1953 the yield of *hordeum vulgare* was only 90 kg. per hectare, less than had been sown, but this poor result was due to the fact that nearly all ears had broken and fallen off before harvesting. In 1954 the harvest was about three times the seed sown, even if the same factor had been acting, breaking down the ears just before harvest. In 1955 the harvest of six-row barley was less than the seed sown. However, this year no new areas had been burned; the seed was sown in the same field as in 1954, i.e. it was the second harvest of a burned area.

The breaking off of the ears must have been due to some local factor, per-

haps to the high water table in Draved, which causes some disease in the stalks. We know from Scania in Sweden that the harvest of rye in olden times was often 16–24 times the seed sown after burning, in comparison with 2–5 times in the normally tilled village fields. According to the luxurious growth of the stalks in Draved we should have expected a yield of the same quantity, if these local factors had not spoiled the harvest.

Small areas were sown in unburned woodland close to the burned areas, in order to compare the two methods of cultivation. These small corn-plots—or “reiter,” as we called them, using a Norwegian term—were hoed by a wooden hoe, and afterwards the seed was either sown in holes or broadcast. In both cases the sprouting was insufficient, and the few stalks growing up suffered severely from lack of natural nutrition in the soil.

What are the factors which cause the difference in growth of the seed in soil treated with fire and soil only tilled by a wooden hoe? Different opinions have been advanced on this point. Earlier it was a general conviction that the ashes of burnt twigs and branches—mainly potash—produced an effective nutriment for the vegetation for a year or two, and afterwards the area had to regenerate for twenty years or more. The Swedish Professor L. G. Romel has spoken of a special *assart effect*, which can be obtained by cutting down all the trees, even without burning. He tells us that Finnish assarters knew a hundred years ago that it was not the ashes that fed their crops so well, it was something produced by an acidifying or “souring” of roots or trees newly felled. Thanks to this assart effect even the supposed “inactive,” tough “mor” (i.e. acid humus) of old and poorly growing northern spruce-woods quickly releases ammonia in great quantity once the so called “mor” has been severed from the old spruce. Samples of such “mor” stored in a laboratory had up to 30 per cent of its total nitrogen available after a year and a half of storage. In comparison the best Danish beech mould would have less than one-half of this percentage. According to Romel this assart effect is believed to have a good deal in common with green manuring. He thinks it has done away with the acid “mor” in the Danish beech forests during the last hundred years, because the Danish foresters cut areas of the woods down totally instead of felling single trees here and there.

Another interesting fact is that after the burning the lack of nitrates favours a vegetation of nitrogen-plants such as broom, alder, and others. This effect is specially notable. And in further India alder was actually planted, as the ashes from this tree were considered particularly valuable. Generally speaking, it was important not to burn the soil “to death,” destroying all the bacterial cultures and the lower animal life. On the other hand the flames had to be kept down to the ground surface. It was a question

of not allowing excessive heat. But the intensity of the action of the fire depended to a high degree on the object of the burning and on the type of soil and vegetation of the site. In France marl was burnt and in England clay, as the fire was thought to release mineral fertilizing substances. Finnish sources state that it was most desirable to "kytta" on clay subsoil. In Esthonia burning should preferably take place above good loose soil with a high humus content, but there should not be too much grass in the undergrowth. Where, as in Siegen, Germany, the trees were desired to shoot up quickly again, the roots must not be destroyed. Too severe burning would also prevent the growth of grass, and if too large an area were thoroughly burnt off, the trees were prevented from sowing their seed and the wood thereby from regenerating. Therefore there was a risk that the area might become a heath-land. The same was true if the topsoil was burned to death.

Quite recently the agricultural chemist Sigurd Larsen told me that he had been experimenting on the effects of heat in relation to soil fertility in modern farming. In constantly tilled and fertilized soils, such as plant-nurseries, the effect of heating may be especially of a sterilizing nature. Of course the competition of weeds will also be less for a short time. And this was striking the first year after burning wood in Draved. Two other factors may be of great importance in Slash-and-Burn culture: (1) the emancipation of nutrients of the soil, and (2) an alteration of the reaction of the soil in a more alkalic direction.

In relation to the first point it has been proved by several experiments that when the soil has been heated, the amount of dissoluble manganese increases for a short time. Sigurd Larsen has been more interested in the phosphate content. The content of inorganic phosphate in the soil seems to be stable under a heating up to 100 centigrades, but if you heat the soil to higher degrees it seems that the reception of phosphate by the vegetation increases notably. However, exhaustion of the soil will soon follow.

In relation to the second point, the alteration of the soil reaction, the treatment should be more effective the more acid the natural soil condition is, because wood-ashes are especially rich in potash (calcium-carbonate). According to this, virgin forest should be the most suitable for Slash-and-Burn cultivation, better at least than a modern Danish beech forest. But in some cases the effect may be the opposite of what was intended. Oats, for example, grow best by a relatively low and a relatively high basic reaction. They have two optima of reaction. Other plants may require different conditions. But the potash will soon be washed out, and this factor, in addition to the exhaustion of the soil for phosphate, may be the chief explanation of the very quick impoverishment of Slash-and-Burn areas.

In Draved the growth of the crops was very rich the first year after burning the wood, and the rather acid forest soil may be one of the reasons for this. However, the same factor may have stimulated diseases which caused the spikes to break off and fall to the ground just before harvest. And whatever the beneficial factors were which caused the luxuriant growth of the cereals just after the burning, they were short-lived. In the second year the burned area produced much smaller crops.

Now, three years after the burning, Dr Iversen is watching the developments of the early recovery of natural plant growth. The burnt and the unburnt areas are developing quite differently. In the area cleared of trees but unburnt, events are following an expected course. The ground vegetation consists mainly of the same species which grew there before the wood was cleared away, though the open sunlight stimulates their growth. And ferns, sedges, and grasses flourish more than before. On the other hand, the burnt ground has suffered quite a revolution. Ferns are coming back here too, but most of the old vegetation, having shallower roots, was killed by the fire. Instead we have quite a garden of new plants. Plantain has made its appearance, as was learnt formerly from the pollen diagrams. But spores of mosses too, wind-blown, have found their way into the clearing, and Iversen has tried to find out if mosses were increasing also in the neolithic period. It seems that there really was a sharp rise in general moss growth immediately after the clearances reflected in the pollen diagrams.

In Draved we have pastured goats and calves on some parts of unburnt area as well as on the burnt. But it is too early to say anything definite about the results of the experiments, which are still going on, after the burning and sowing. Quite provisionally I have tried to draw some conclusions from the experiments in Draved forest. Deliberately I have done it rather vaguely, because much work has still to be done before the results can be published.

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The British Plough: Some Stages in its Development

By F. G. PAYNE

THE plough has a long history in Britain. That is evident when we contemplate the surviving traces of our ancient field systems, some of them going back as far as the Bronze Age. Of the ploughs that tilled those early fields we know very little. Until fairly recently the early ploughs of northern Europe in general were very imperfectly known. A good deal of new evidence was discovered during and shortly after the last war and most of this was included in Professor Glob's *Ard and Plough in Prehistoric Scandinavia*, published in 1951.

This work of Professor Glob's is of the greatest value in interpreting the remains of our early British implements which, although scanty, show clearly enough that some of the same types of ploughs were found on both sides of the North Sea. The Danish evidence, which is particularly rich, shows that there were two, and possibly three, types of plough in use in Denmark in Late Bronze Age and Early Iron Age times. The best example of one of these types is the implement found at Donneruplund in 1944 (Fig. 1a), consisting of four main parts: beam, stilt, ploughshare, and 'fore-share'.

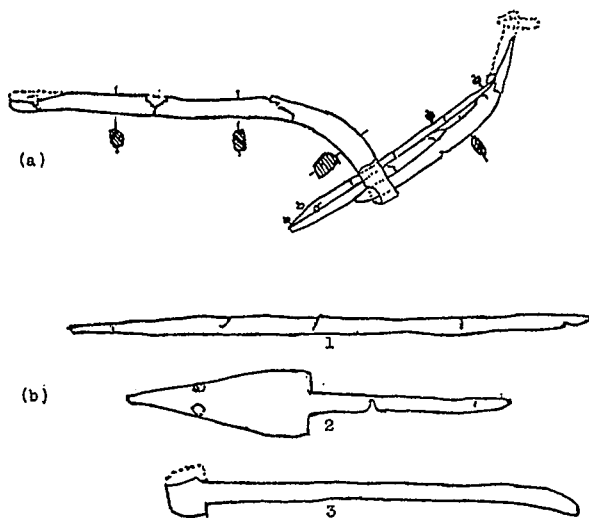


FIG. I

(a) Plough from Donneruplund. (b) 1. Fore-share; 2. Ploughshare; 3. Stilt.

After Glob: *Acta Archaeologica* XVI.

This is the only reasonably complete example so far discovered. It proves that the well-known specimen found at Døstrup in 1884 was incomplete, that it had lost a very important part, the ploughshare. It is important to realize this because the Døstrup specimen has given students a false idea of the capabilities of this type. The size of the mortise in the beam foot itself should have raised doubts about its completeness. Common sense, too, should have suggested that no one could have been so silly as to fashion such a plough merely to drag a thin pointed stick through the earth.

This pointed stick, or 'fore-share' (Fig. Ib, 1) as it is convenient to call it, had its own important function to perform. Clamped between two pegs let into the upper surface of the ploughshare as in the Donnerupland example (Fig. Ib, 2), or between ridges as on the upper surface of the Trollerup share (Fig. II), it protected these valuable parts. Projecting and cutting before the share point, it would take a good deal of the wear.

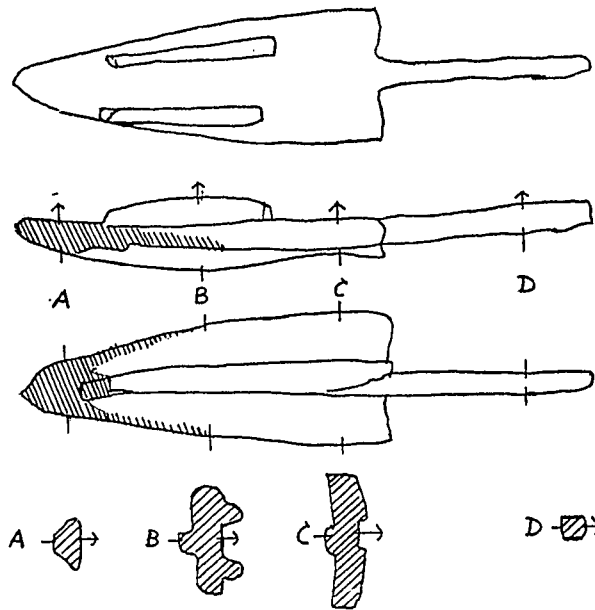


FIG. II

Ploughshare from Trollerup.

After Glob: Ard and Plough.

There are two further points about the Donnerupland plough that should be emphasized. First, the sides of the ploughshare, being unprotected by the fore-share, exhibit signs of considerable wear. This wear is much greater on the right-hand side, indicating that when at work the plough was tilted to the right. In consequence, the large ploughshare would turn some of the soil to

the one side, acting in fact something like a mould-board. The second point is that the position of this implement in the bog where it was found indicated a date in the beginning of the Early Iron Age or the end of the Late Bronze Age.

I have dealt with this Danish plough in some detail because there is evidence that ploughs of the same type were once used in Britain also. The first piece of evidence is a plough-beam found about the year 1870 in a peat bog near Lochmaben in Dumfriesshire (Fig. III). The importance of the discovery

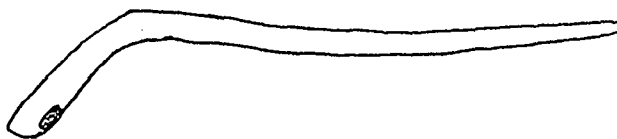


FIG. III

Plough-beam from Lochmaben.

By permission of the Burg Museum, Dumfries.

was not appreciated at the time; indeed it was not identified for what it is until after its arrival at Dumfries Museum a few years ago. Although badly warped, the plough-beam is complete. It has its draught-hole for attachment to the ox-yoke and also the large mortise in the beam foot through which ploughshare, fore-share, and stilt would be wedged. Owing to the circumstances of its discovery it is not possible to date this specimen, but its deposition in a peat bog suggests that, like the Danish examples, it was a ritual offering and therefore early. The second British find, also from southern Scotland, is a one-piece plough-head and stilt. This was found by Mrs C. M. Piggott in 1953 beneath a crannog in Milton Loch, Kirkcudbrightshire. The crannog itself is said to date from the second century A.D. The plough-head is similar to that of the incomplete Døstrup plough referred to above; similar in that it is in one piece with the stilt, and in that it has a long groove cut down the middle of its upper surface. Into that groove there would have fitted a ridge or tongue projecting from the underside of the large ploughshare which in both the Milton Loch and the Døstrup implement is missing. Fig. II illustrates the kind of share. The lowest view shows the central ridge along the underside which helped to secure the share to the plough-head. The top view shows the upper surface with parallel ridges to receive a fore-share.

These plough parts from Lochmaben and Milton Loch show that at least one type of continental plough of the prehistoric period was in use in Britain. There is as yet no definite evidence that a second type dealt with by Glob, namely the so-called crook ard, occurred here also. It is, however, worth while considering for a moment the fact that these earliest ploughs of north-

ern Europe are of types that nowadays belong to southern Europe and the Mediterranean region. They have neither coulter nor mould-boards and appear to be suited to the methods of tillage usual in warm dry climates. Indeed, it would seem that these early northern implements provide evidence in support of the botanists and others who tell us that the climate in the Bronze Age in north-western Europe was dry and warm. They are of the type used where climatic conditions render it necessary for the ploughman to pulverize and stir the soil in order to minimize evaporation of water. Cross-ploughing was traditionally associated with this kind of tillage. It is therefore of interest to note that traces of cross-ploughing, datable to the Early Bronze Age and perhaps before, have been found in northern Europe.¹

It is, I believe, generally accepted that the climate of northern Europe deteriorated during the close of the Bronze Age and the Early Iron Age. Our climate changed to what it is today, rather cold and wet and comparatively sunless. Doubtless the change was a very gradual one. But however gradual the change, ultimately it must have had an effect on the technique of ploughing and working the soil. There is evidence that some time during the latter part of the Early Iron Age British farmers realized that a new ploughing technique was necessary. The evidence is, of course, the coulter which made its appearance in Britain then. The coulter may, perhaps, be taken as a sign that a dry-farming technique had come to an end. Its use quite definitely suggests the working of soil with too much moisture in it and too little sunshine playing upon it, so that the ploughman was obliged to cut his soil into slices that could be turned up to the sun and air and drained and worked. The coulter has no function other than to facilitate the cutting of such furrow-slices. How to turn the cut slices over properly was the next problem. We know that this was ultimately solved by fixing a plank, a mould-board, to the side of the plough. One cannot say exactly when this happened, but stages in the development of both mould-board and coulter can, I think, be perceived in the surviving Iron Age and Romano-British material.

To take the coulter first, the pointed stick or fore-share that we noticed on those Early Iron Age Danish ploughs, cutting a little in advance of the main share, contains the germ of the idea of the coulter. What appears to be the earliest example of an iron coulter recorded in northern Europe was found at the Iron Age fort of Bigbury in Kent. Before very long, in the coulters of the Romano-British period, this part had achieved almost its final form.²

As I have said, it is not known when the mould-board for turning the cut furrow-slices was devised. It would appear that such a simple and self-evident improvement could not have taken long to suggest itself, particularly

¹ Glob, *Ard and Plough*, p. 123.

² *Archaeological Journal*, civ, 1948, Fig. 3.

when we remember the uneven wear on the wide wooden ploughshares of the Danish Iron Age plough caused by holding the implements aslant. Indeed, it has been claimed by some Danish archaeologists that the developed mould-board was known in Denmark in the Iron Age. The evidence for this consists of parts of three ploughs, these too recovered from bogs in Jutland. One of them has been dated by pollen analysis to an early point in the Sub-Atlantic period; but this dating has been contested.

There are two points to which I wish to refer. First, the soles of these three plough fragments are protected on the land-side by a series of wearing stones of granite, quartzite, and flint driven into holes bored in the wood. These stones exhibit characteristic marks of wear. Now, wearing stones of this kind have been found in some numbers in Yorkshire, Lincolnshire, and southern Scotland. They suggest that yet another early type of plough, and one fitted with a mould-board, was in use here. Unfortunately none of these stones has been found in a datable context.

There is, however, other evidence that the fixed mould-board was in use in Britain in Romano-British times. Some years ago I referred to the fact that some British coulter shares show that they were designed for ploughs which turned their furrows consistently to the same side.¹ That this furrow-turning was effected by means of a fixed mould-board need no longer be doubted. I am indebted to Mr A. Aberg for drawing my attention to an asymmetrical winged ploughshare of the Roman period, now in the Folkestone Museum. Such a share can only have been used with a fixed mould-board. Then again, in October 1956, in carrying out an emergency excavation on behalf of the Ministry of Works at the Dinorben hill fort, Abergele, Denbighshire, my colleague, Dr H. N. Savory, found another asymmetrical winged share in a layer containing numerous objects of late Roman and sub-Roman character. This Dinorben share is unusual in that its wing is on the left-hand side (Fig. IV). These two winged shares, which seem to be the earliest so far discovered, confirm in the most satisfying way the evidence deducible from some of the coulters that the fixed mould-board had arrived in the Romano-British period.

I do not suggest that, having been devised, the mould-board plough displaced older types completely. The evidence appears to show that that did not happen. What it does suggest is that during the Iron Age and Romano-British period whatever type of plough, old or new, a farmer used, he followed a new ploughing technique.

I have dwelt at some length on these early ploughs for two reasons. First, they testify to the nature of Bronze Age agricultural technique in northern

¹ *Ibid.*, p. 96.

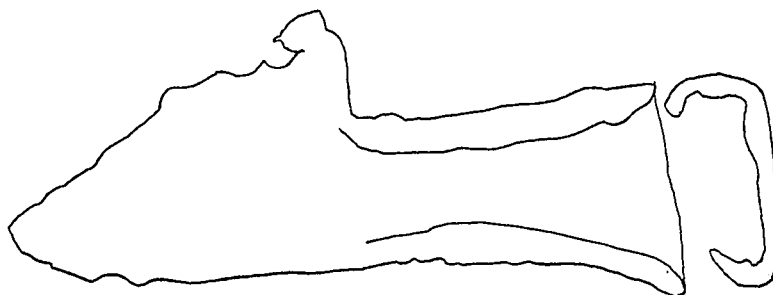


FIG. IV

Ploughshare from Dinorben hill fort.

By permission of the National Museum of Wales.

Europe, and, secondly, they exhibit clear evidence of a change in that technique during the Iron Age. They also confirm the botanical evidence for the deterioration of the climate during the Iron Age. Agricultural methods and implements must take account of the climate. It was no accident that the period during which the coulter, the mould-board, and the asymmetrical ploughshare developed is also the one in which the scythe was devised. The scythe was designed to cut grass expeditiously. For a worsening climate increased, or perhaps introduced, the problem of wintering essential livestock and the attendant tasks of haymaking and storing fodder.

Evidence for the development of British ploughs during the Dark Ages and the Middle Ages is scanty. This is less serious, however, now that we have the testimony of the early asymmetrical shares to confirm the other evidence for the use of the fixed mould-board during the Romano-British period. Indeed, little of importance remained to be done to the plough until long after the close of the Middle Ages. There is, in stray finds, in documents, in pictures, evidence of elaboration and improvement in detail. We also find the persistence after many centuries of a symmetrical type of Roman period ploughshare. Such is the share found at Thetford a few years ago and at present in the Castle Museum, Norwich. The share, dated by its excavator at about 900, was at the time thought to be Saxon. I understand that it is now considered to have been the property of Danish immigrants. Whatever its provenance, there are some questions that may safely be asked. Is it indicative of the use, or continued use, in eastern England of a one-way plough with movable mould-board? In other words, has it a place in the story that ends with the turn-wrest ploughs of Kent and Sussex? Or is it a precursor of the wingless 'pike' share, used if and when needed on the normal mould-board plough down to the early nineteenth century?

It was not until the eighteenth century that the next big change in plough

design occurred. The change was not so important as that which began in the Iron Age, for it was not occasioned by a change of climate. It was the less radical change from teams of four, six, or eight slow oxen and clumsy heavy ploughs to the lively two-horse team and lighter plough. But once again, and in spite of the immeasurably greater technical efficiency that eighteen or nineteen hundred years had brought, it took a long time—roughly from 1730 to 1830—for the change to become general. Even then, there were some fertile districts in Kent, Sussex, Gloucestershire, Monmouth, and Glamorgan that clung to ox teams or ancient types of ploughs until late in the nineteenth or early in the present century.

The success of the old traditional ploughs appears to have been bound up with the use of these large teams, particularly those of oxen. Although very powerful, these latter normally moved very slowly, so slowly that the ploughman could keep his plough steady at its right depth and his furrow-slice turning properly. However awkwardly the plough was constructed, whatever tendency it had to run light or dig deeply or let the furrow-slice flop back into the furrow, the ploughman had complete freedom and time to correct it. This, of course, meant severe labour for him. The direction of the team was left to the ox-driver. The ploughman saw to it that a furrow was turned: the ox-driver helped to ensure that it was a straightish one. In the Celtic countries, in order to ensure a slow, steady pace and co-operation with the ploughman, the driver walked backwards in front of the team. He kept his eye on what the plough was doing, he kept his team moving steadily by singing to them. To stop the team he merely stopped singing. During the long period when such teams were communal, the working ploughmen might be supplemented by the owners of the various oxen. In Wales this was ordained by law. After Wales lost its legal system the custom continued as a neighbourly practice. The point I wish to make is, that with several helpers in the field, the ploughman could be helped if either plough or soil were awkward. The help might be given by some one walking alongside and depressing or lifting the plough-beam with a stick. Indeed one might even ride upon the implement to keep it at its depth. There are references to such practices in all parts of these islands.

Worked in the old way, it seems that the traditional local ploughs turned their furrows satisfactorily, until people began to tamper with the plough-teams that for so long had been associated with them. Then the local ploughs came in for a great deal of criticism. Arthur Young was bitter about the Hertfordshire wheel plough, so ill-constructed, he said, that it would not move a yard in its course without the help of the ploughman.¹ Of course it would

¹ *General View of the Agriculture of Hertfordshire*, pp. 36-7.

not: it never had. Like its sister ploughs all over Britain, it demanded that the ploughman should be, unremittingly, the ploughman, and not the team-driver as well. But the eighteenth century wanted to cut down costs, to get rid of the large slow teams and the extra labour. The idea was that the ploughman and two horses should do the job and do it more quickly. It was not, perhaps, a new idea, but it was now invested with a new urgency.

It is not possible to state concisely, and truthfully, what happened to the traditional ox teams between the sixteenth century and the eighteenth. The course of events might differ in neighbouring districts. In some places nothing at all happened. In a few others oxen were almost out of favour already, although the team driver was kept. If a general statement is possible, one may say that the tendency was towards a small team, and that a team of horses. But so far as one can discover, over almost the whole of Britain little was done to adapt the ploughs to being drawn by those smaller but livelier and faster horse teams.

Part of the reason for this may have been that the traditional ploughs were not so uniformly bad as late eighteenth-century enthusiasts for light horse ploughs have suggested. Indeed, there could be so much variety among ploughs of the *same* type that wholesale condemnation of them must have appeared unreal to many who used them. As an example of this one might instance a type once widely used in western Britain, which the present writer has illustrated elsewhere.¹ In general design this type remained unaltered down to the beginning of the nineteenth century, although it could vary in size and detail from one parish to another. This implement as used in a north Cardiganshire parish was illustrated and described about 1750 by Lewis Morris, the antiquary and poet. Morris says that the team consisted of two horses before two oxen, and that in this particular parish the plough was the lightest he had ever seen. Later in the century, the writer of the 1794 county *Report* condemns the ploughs of this particular district as being too heavy!

Although the team had been speeded up by the admission of horses, the plough as depicted by Morris in 1750 is obviously unimproved. The mould-board is merely the lower part of the right-hand stilt widened a little and extended to the foot of the sheath. Such a mould-board could be made to turn the furrow-slice properly if the ploughman exerted himself and had a competent driver controlling a slow team, but not, I think, otherwise. The writer of the county *Report* of 1794 condemns the work done by this implement. In Pembrokeshire the plough was of similar construction. The same alteration had been made to the plough team, and the ploughing incurred the same criticism from the same reporter.

¹ *Antiquity*, XXI, pp. 151-5; *Yr Aradr Gymreig*, pp. 101-15, Figs. 10, 13, and Pl. VII-XII.

In Breconshire this same plough was much used until the end of the eighteenth century. Here, however, there were two things in its favour. First, it was usually drawn by the traditional team. Secondly, it was usually fitted with a better mould-board, so that even with a team of horses it worked satisfactorily. In Glamorgan the same plough similarly improved could be found in the early nineteenth century. There it was usually but not always drawn by the traditional ox team, which survived longer in Glamorgan than anywhere else in Wales. There was no suggestion anywhere that Glamorgan ploughing was defective. The same type of implement, with mould-board improved as in Brecon and Glamorgan, remained in use in Cornwall and Devon for about the same length of time. In these counties it seems to have worked satisfactorily with large teams of either oxen or horses.

In all places where this type of plough persisted the ploughman had to work hard if he was to plough well. The implement had to be held so that it moved through the soil obliquely. The ploughman had neither the time nor the energy to manage the team as well. Indeed, from such evidence as I have seen, it would appear that the factor that made for success with the ancient types was always the large team, which, demanding its own driver, left the ploughman free to wrestle with his plough. Where the team had been altered, or where a child had taken the place of an experienced driver (and this often occurred), the old ploughs were no longer satisfactory without improvement. But improvement, as we have seen, did occur sometimes.

It is probable that detailed study of most ancient types would lead to similar conclusions and would explain why the opinions of one period concerning them are so greatly at variance with those of another. Consider, for example, the Hertfordshire wheel plough. Here is an implement that was commended by Blith in the seventeenth century and by Tull and Hale in the early eighteenth. But Arthur Young in 1804, in a period when it was usually drawn by horses, does not commend it. Under certain conditions, says he, it "wanted a stone of 50 or 60 pounds weight in its body, to keep it steady." It is a heavy, ill-formed, ill-going implement, he says. "It will not move in its work one yard without the ploughman; a proof of its miserable construction." As for the ploughing done with it, "worse work can scarcely be imagined." Similar criticisms are expressed in other county *Reports*: Nottingham, Berkshire, Cambridgeshire, Surrey, Somerset, and so on. Indeed, the similarity of the criticisms is striking: one feels that the surveyors had officially been told what to say and how to say it. There are, however, amusing divergencies of opinion. Some of the surveyors, many of them in fact, advised the adoption of the Rotherham plough, a light implement invented in Yorkshire and patented in 1730. It was capable of being drawn by a pair of horses, and could

be managed without a driver. Yet the *Report* on the West Riding, the home of this particular plough, has nothing very good to say about it. Neither has the *Report* for Durham where this implement was favoured. It is, of course, a fact of agricultural history by now that the champions of the Rotherham were right.

Now all the old types of plough, swing, foot, or wheel, had one constructional feature in common—the chief members of the frame, beam, sole, tail, sheath, formed a rectangle. It was largely the friction set up by the long sole of the old types that made a powerful team necessary. The revolutionary thing that the two inventors of the Rotherham did was to get rid of this long sole entirely. This was done by bringing the left-hand plough-tail forward to the base of the sheath, thereby making a triangular framed plough that occasioned much less friction when being drawn through the soil. Not only was the new type of frame much lighter, it was also much stronger. Also, the old sole or share-beam that had held the ploughshare having disappeared, the ploughshare had now to be fixed on the base of the sheath. In this new position the share could be made to merge into the line of the mould-board, thus further decreasing the friction. But all this did not happen at once. Nevertheless one has only to handle one of the old rectangular-framed ploughs and then take hold of the tails of a Rotherham type swing plough to realize how important was the modification of the frame introduced by Stanyforth and Foljambe at Rotherham in 1730. The immediate benefit conferred upon its user was the ability to handle it with ease. Potentially it was much greater than that; for the first time it made the ideal of a plough that could be drawn by two horses, managed by one man, and work all types of soil, certain of realization. It would seem right, therefore, to consider the Rotherham as the greatest improvement in plough design since late Iron Age or Romano-British times. Nevertheless, it was to take a long time and the improving genius of men like the Scotsman James Small before its full potentialities were realized.

Although the Rotherham was patented in 1730, I think it is true to say that it was getting on for 1820 before most districts could have ploughs of this type that would work under local conditions better than the local types. Even then some heavy clay districts would have nothing to do with them. Furthermore, by the time that most local plough-wrights had adapted the Rotherham to local conditions, the new iron ploughs of the nineteenth century had arrived.

It was a tribute to the soundness of the Rotherham design that the early iron ploughs were closely modelled on it, or on Small's adaptation of it. Fairly soon, however, and inevitably the products of the large implement

firms began to accord more with the nature of the new material. There were, of course, still vast areas of Britain where ploughs continued to be made locally. In many of these in the 1830's and 40's the blacksmith took over the decaying trade of the plough-wright. He often took over in a very real sense, copying in iron and frequently in some detail the local wooden Rotherham. One example that comes to my mind is a Pontsely No. 7 which is now in the Welsh Folk Museum collection. It was made by Josiah Evans, a well-known smith of north Pembrokeshire. On this plough the right-hand stilt still occupies the situation and follows the method of attachment of the comparable stilt on the old wooden ploughs. It is joined to the back of the mould-board as if one of its functions were still to hold the mould-board out against the furrow-slice. The ploughshare, which is of Rotherham type with long side-cap, is of wrought iron in the old tradition. Ransome's brilliant work on cast-iron shares did not mean much to districts like Pontsely; a cast-iron share might last half a day on some of the stony slopes then in cultivation, or it might not. The wooden ancestry of this implement is plainly to be seen although it is made throughout of the more durable material. Durable is the right word, I think, for I found this plough still working in 1937.

This is not an isolated instance of a local, blacksmith-made plough of mid-nineteenth-century type holding its own down to the beginning of the second world war. It was a common occurrence in the hill country. Just as the Rotherham failed to oust the old long ploughs from the clays of Gloucestershire and parts of South Wales, so did the shining and shapely products of the great firms of eastern England fail to dislodge the work of local smiths from some of the hills of the west and north. Alas, by today they are used no more. Not because they were in any way deficient; but because the fields that they subdued and civilized have either gone out of cultivation or have reverted to the waste to become artillery ranges or to be part of the endless, lifeless domain of the Forestry Commission.

NOTES ON CONTRIBUTORS

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The Rabbit in England

By ELSPETH M. VEALE

IN view of the two letters which appeared recently in these columns readers may be interested in the following conclusions about the introduction to England of the rabbit. In the course of a study of the medieval fur trade, which has extended over several years, I have collected references to rabbits in the twelfth and thirteenth centuries, and these make possible a more detailed account of the introduction of the animal to England than has hitherto been given.¹ Dr Colin Matheson, in the article in *Antiquity* to which Mr Owen referred in the September number of this REVIEW, was primarily concerned with the distribution of the animal in Wales.² He concluded that the rabbits were well established in the small islands, such as those in the Bristol Channel, and in coastal areas on the mainland from at least the late thirteenth century, but that even as recently as 1813 there were comparatively few in the interior. He explained this by suggesting that the rabbits' original haunts were the sandy soils near the sea coast which favoured their burrowing, and that the animal could more securely establish itself on islands that were too small to support the larger beasts of prey, its natural enemies, which were so numerous in the Middle Ages. The evidence relating to England suggests that the pattern of distribution as described by Dr Matheson for Wales was not unlike that in England. It seems probable that the rabbit became established in the late twelfth century on the small islands off the English coast; that in the middle years of the thirteenth century coney-garths were being more widely set up on the mainland, but that even late in the century rabbits were to be found only on certain estates. By the early fourteenth century, although owners of warrens still valued them highly and frequently haled poachers before the law, rabbits seem to have been more numerous, and the earliest trace of what was later to become a profitable export trade in their skins can be found in the export of 200 skins from Hull in 1305.³

The two earliest references to rabbits in England that I have found are already known to readers of this correspondence. They come from the late

¹ G. E. H. Barrett-Hamilton, M. A. C. Hinton, *History of British Mammals*, 1912, pp. 180-96; J. Ritchie, *The Influence of Man on Animal Life in Scotland*, 1920, pp. 247-54; *Cambridge Economic History of Europe*, I, p. 168; Thorold Rogers, *History of Agriculture and Prices in England*, I, pp. 340-1. See also letters in *The Times* in April and May 1936.

² C. Matheson, 'The Rabbit and the Hare in Wales', *Antiquity*, xv, 1941, pp. 371-81.

³ P.R.O., Exchequer K. R. Customs Accounts, E122:55:19. See also *Cal. Pat. Rolls*, 1334-8, p. 435.

twelfth and very early thirteenth century, and both instances concern rabbits on islands.¹ In 1176 there were rabbits in the Scilly Isles, where Richard de Wyka granted to the abbey of Tavistock his tithe *de cuniculis*, "which for some time I had unlawfully withheld, believing that tithes were not payable on things of this sort."² At some time between 1183 and 1219 the tenant of Lundy Island was entitled to take fifty rabbits a year from certain *chovis* (coves?) on the island.³ Evidence also survives as to the existence of rabbits in the early thirteenth century on the Isle of Wight, where in 1225 there was a *custod' cuniculorum* in the manor of Bowcombe, Carisbrook, then held by the earls of Devon.⁴ It is an interesting and significant fact that there are thirteenth-century references to the payment of tithes in rabbits on each of these three islands, and so far no other references to such tithes have come to light for the early period.⁵ Other evidence from the early thirteenth century does not permit of very certain interpretation. The earliest rabbit bones so far discovered in England may date from the late twelfth century or the first two decades of the thirteenth. These were found in the midden at Rayleigh Castle, Essex, and identified by Martin A. C. Hinton, Keeper of Zoology at

¹ Two other possible twelfth-century references have been found: (1) A word listed as *coneleia* in the *Medieval Latin Word List* under *cunicularium* and dated 1199 proves to be a misreading of Coveleia, in the Forest of Shotover: i.e. Cowley, Oxon.—*Rot. Chart.*, I, p. 2b. Cf. *Cal. Charter Rolls*, I, p. 5. (2) A grant by a Walter de Vautort of Drake's Island (St Nicholas Island), Plymouth, *cum cuniculis*, to Plympton Priory. This was dated "about 1135" by H. G. Hurrell, 'Fourth Report on Mammals', *Trans. Devonshire Assoc.*, LXXXV, 1953, p. 228. There seems to be no evidence at all to support this dating. Information about the grant is derived from a statement by Leland, who gave no date for it and who has been correctly quoted by later historians of Plympton Priory and of Plymouth: J. Leland, *Itinerary in England and Wales*, ed. L. Toulmin Smith, I, p. 215; W. Dugdale, *Monasticon*, VI, p. 51; R. N. Worth, *History of Plymouth*, 1890, p. 23; C. W. Bracken, *History of Plymouth*, 1934, p. 16. Nor has it proved possible to identify Leland's Walterus de Valletorta. The Rev. W. M. M. Picken, an expert on the feudal history of Devon and Cornwall, knows of no one of this name among the Vautort lords of Trematon or among those who were lords of the Maker-Sutton-Tamerton member of the Trematon honour. Mr Finberg has very kindly allowed me to use this information, collected by him in the course of a correspondence initiated by Dr Matheson.

² H. P. R. Finberg, 'Some Early Tavistock Charters', *Eng. Hist. Review*, LXII, 1947, p. 365.

³ Exeter City Archives, Misc. Deeds, D.614. A translation of this deed was printed by J. R. Chanter, 'History of Lundy Island', *Trans. Devonshire Assoc.*, IV, 1870-1, p. 574. It is accurate except in one respect: the number of rabbits should be 50, not 100, information which I owe to the kindness of Professor Carus-Wilson. The deed is undated, but limits can be fixed from internal evidence: E. St John Brooks, 'The Family of Marisco', *Journal Royal Soc. Antiquaries of Ireland*, LXI, 1931, p. 32, notes 45, 46.

⁴ P.R.O., Exchequer, Foreign Roll 8 Henry III, E364: I, f. 2d. I am indebted to Mr Finberg for suggesting this source to me.

⁵ *Cal. Liberate Rolls*, 1240-5, p. 228; *Cal. Inquisitions Misc.*, I, p. 538, no. 1994. According to Selden, tithes were payable on beasts of the forest, but he gives no instances of the payment of tithes in rabbits: J. Selden, *Historie of Tithes*, 1618, pp. 445, 298-368, 414-48.

the British Museum (Natural History).¹ The castle, built soon after the Conquest, was part of the escheat of Henry of Essex and was in royal hands from 1163 to 1215, when John granted the honour to Hubert de Burgh.² It seems probable that the castle itself fell into disrepair some time during the first quarter of the thirteenth century, and was no longer occupied after about 1220. The building was repaired in 1183-4 but it was not mentioned in the grant of 1215; by 1230 Hubert was building himself a new castle at Hadleigh close by, and by 1277 cattle were grazing on the site of the castle at Rayleigh.³ Possibly the rabbits once eaten there had come from the islands just off the Essex coast, such as Foulness or smaller ones like Wallasey, which were manors in the Honour of Rayleigh.⁴ In 1221 6,000 rabbit skins were mentioned in a Devon plea.⁵ They may have been English skins as it seems probable that rabbits were established on the mainland in the south-western counties at an early date, but they may equally well have been of foreign origin as Spanish rabbit skins were regularly imported to England in the thirteenth century, and the large quantities involved lead me to prefer this alternative. There were, too, many grants of warren made at this time. But only seldom, unfortunately, do grants of warren of any period specify which animals were to be reserved to the owner. Certain charters and cases of trespass reveal that the hare and fox were the chief beasts of the warren, at least in the twelfth and early thirteenth centuries.⁶ No case of trespass involving the rabbit has been traced before 1268, in which year Richard, earl of Cornwall and king of Almain, complained that his coney warren at Isleworth, Middlesex, had been broken into.⁷ Only where a coneygarth is specifically mentioned may the existence of rabbits be assumed with certainty. The earliest reference found in the British Isles to rights in *warennis et cunigariis* appears in a charter granting lands in Connaught to Hugh de Lacy in 1204.⁸ The actual existence of a coneygarth in England on the mainland has not been

¹ E. B. Francis, 'Rayleigh Castle', *Trans. Essex Arch. Soc.*, new series, XII, 1913, p. 184; M. A. C. Hinton, 'On the Remains of Vertebrate Animals found in the Middens of Rayleigh Castle', *Essex Naturalist*, XVII, 1912-13, pp. 16-21. See also M. Hinton's letter to *The Times*, 28 May 1936.

² *Rot. Litt. Pat.*, I, p. 153.

³ E. B. Francis, *op. cit.*, pp. 150-2; *Cal. Pat. Rolls*, 1225-32, p. 417.

⁴ F. M. Powicke, *King Henry III and the Lord Edward*, p. 766, note 2.

⁵ *Curia Regis Rolls*, x, p. 249.

⁶ G. J. Turner, *Select Pleas of the Forest*, Selden Society, XIII, pp. cxxiii-cxxix; *Cal. Charter Rolls*, I, pp. 74, 108, 129, 130, 142, 169, 423.

⁷ *Cal. Pat. Rolls*, 1266-72, p. 285.

⁸ *Rot. Chartarum*, I, p. 139. This does not necessarily imply that Hugh had at that time a coneygarth on his Connaught lands, for the wording of a charter was often common form.

confirmed until 1241, when the king ordered hay to be carted from his *cuningera* at Guildford.¹

It is possible, however, to be certain that there were rabbits on the mainland from 1235 onwards. In that year the king presented as a gift *decem cuninos vivos* from his park at Guildford, and in 1242 he sent men there to catch thirty or forty rabbits *secundum quod invenerint prefatam cuneram fertilem*.² These low figures suggest a fairly recently established colony, and Henry III does not appear to have had any other coneygarths at this time. Scattered throughout the Liberate Rolls from 1226 onwards are the orders he sent out for the supply of venison, boars, fish, swans, peacocks, hens, eggs, and hares for his various feasts.³ Yet not until preparing for his feast at Christmas 1240 did he order a supply of rabbits. Although orders for provisions were then sent to the sheriffs of eleven southern and eastern counties, the bailiffs of three towns, the keepers of the bishopric of Winchester, then vacant, and one of the king's escheators, rabbits were included in only three cases: 100 were to be supplied from the lands of the bishopric of Winchester, 200 from those of the earl of Warenne, and 200 by the king's escheator.⁴ In 1241 the sheriffs of Hampshire, Sussex, Surrey, and Kent were to produce 100, 50, 100, and 500 respectively.⁵ In 1243 180 rabbits were required from the estates of the bishop of Winchester, 100 coming from the Isle of Wight, and 300 from those of the archbishop of Canterbury; 300 were to come from the lands of the bishop of Chichester in 1244 and 200 in 1245.⁶ Similar orders were going to the sheriffs of Essex, Hertfordshire, and Middlesex in 1248, and to those of Buckinghamshire and Bedfordshire in 1249.⁷ The coneygarth belonging to the manor of Kempston, Bedfordshire, held by the earl of Chester, is referred to as early as 1254.⁸

The possibility that the critical period in the spread of the rabbit on the mainland was from about 1230 to 1250 is strengthened by some interesting evidence about the stocking of warrens. In 1241 the keepers of the bishopric of Winchester were ordered to take 100 rabbits within the bishopric where it could most conveniently be done and take them alive to Sugwas, the manor of the bishop of Hereford, for his use.⁹ In the same year the keepers of the lands of the bishopric of London supplied the king's uncle, Peter of Savoy, with eighty live rabbits from Clacton, Essex, for his warren at Cheshunt,¹⁰ and

¹ *Close Rolls*, 1237-42, p. 381.

² *Close Rolls*, 1234-7, p. 217; *ibid.*, 1237-42, p. 390.

³ e.g. *Cal. Liberate Rolls*, 1225-40, pp. 8, 9, 191-3, 247-8, 262, 354, 358-9, 390-1, 431, 435.

⁴ *Ibid.*, 1240-5, pp. 11-12.

⁵ *Ibid.*, pp. 95-6.

⁶ *Ibid.*, pp. 196, 197, 280, 289.

⁷ *Ibid.*, 1245-51, pp. 201, 251.

⁸ *Cal. of Documents relating to Scotland*, 1, p. 369, no. 1958.

⁹ *Cal. Liberate Rolls*, 1240-5, p. 54. ¹⁰ *Ibid.*, p. 89.

by 1244 the king himself had begun to stock his park at Windsor. The sheriff of Surrey sent some rabbits from Guildford; the keepers of the bishopric of Chichester and the earl of Derby produced others, those coming from the earl's warrens being apparently sent all the way from Stamford.¹ The earl of Aumale sent some to the royal park at Nottingham at the same time, and these seem to have come from Lincolnshire, unless they had been dispatched across the Humber from the coneygarth on the Holderness estates.² This particular delicacy must in fact soon have become a favourite dish on the tables of the great, and it is interesting to put the query who was responsible. Can it be that a man like Peter des Roches, bishop of Winchester, accustomed to eating rabbits in his native Poitou, encouraged their establishment on the English mainland? The rabbit may by the thirteenth century have penetrated far into France from its original home in Spain. In classical times it had spread to the islands of the western Mediterranean and during the first century B.C. it was a newcomer to Italy.³ Although, writing towards the end of the thirteenth century, Peter de Crescentiis of Bologna, in his *Opus Ruralium Commodorum*, considered that its distribution was limited to Spain, Lombardy, and Provence, there seems little reason to doubt that the animal was more generally known in France and that it was from France that it eventually reached England.⁴

Rabbits were very expensive during the late thirteenth and fourteenth centuries, a sufficient indication of their relative scarcity. They must then have been limited to certain localities, and owners guarded their warrens with jealous care.⁵ Rabbits cost four or five times as much as chickens and must have been considered a luxury. In 1270 on a Cambridge estate rabbits were worth 5d. each, and even a century later for a feast held at Merton College, Oxford, in 1395, rabbits were bought at 6d. and 8d. a couple and transported, at the cost of $\frac{1}{2}$ d. each, from Bushey to Oxford.⁶ Their spread seems, however, to have been encouraged, although even as early as 1254-7 the burgesses of Dunster, Somerset, had recognized their destructive habits.⁷ By the fifteenth century they were more plentiful, although considerable variations in price suggest that even then they were not easily obtainable every-

¹ *Ibid.*, pp. 251, 255.

² *Ibid.*, p. 255; *Close Rolls*, 1259-61, p. 97. This coneygarth was included in a list of the earl's lands made in 1260.

³ *Cambridge Economic History of Europe*, I, p. 168; Barrett-Hamilton and Hinton, *op. cit.*, pp. 178-84.

⁴ P. de Crescentiis, *Opus Ruralium Commodorum*, 1471, f. 170 d.

⁵ e.g. *Cal. Pat. Rolls*, 1327-30, pp. 157, 208, 209, 335, 429, 568.

⁶ Thorold Rogers, *op. cit.*, II, pp. 558, 559, 644, 646.

⁷ Ballard and Tait, *British Borough Charters*, 1216-1307, p. 107.

where. While rabbit skins on Lundy Island were valued in 1275 at 5½d. a dozen, they were being bought elsewhere at prices averaging 1s. 1½d. a dozen in 1310, 1312, and 1313.¹ The countess of Warwick was buying them at 1s. 4d. a dozen in 1405, but throughout the middle years of the fifteenth century the cellarer at Syon Abbey was selling them regularly at 4d. a dozen.² Thorold Rogers suggested that the comparatively small rise in the price of rabbits after 1540 might be explained by their increasing numbers: average prices rose from 5d. to only 7¾d. a couple.³ By 1555 the great Swiss naturalist Conrad Gesner could write: "There are few countries wherein coneys do not breed, but the most plenty of all is in England."⁴ Then rabbit skins were a not insignificant item in our export trade, and Richard Hakluyt pointed out that the export of black coney skins might well be increased, "for that we abound in the commoditie and may spare it."⁵ No doubt many a farmer would still echo his views today.

¹ *Cal. Inquisitions Misc.*, I, p. 298, no. 979; Thorold Rogers, *op. cit.*, I, p. 583.

² *Ibid.*, III, p. 545; IV, p. 582; Syon Abbey, Ministers' Accounts, Cellarers' Accounts, 1447-60, 1511-23. I owe this information to the abstracts made for the Beveridge Price History.

³ Rogers, *op. cit.*, IV, pp. 345, 346-55.

⁴ C. Gesner, *Historia Animalium*, translated by E. Topsell, London, 1607, p. 110.

⁵ R. Hakluyt, *The Principal Navigations of the English People*, III, p. 273.

Notes and Comments

THE BRITISH AGRICULTURAL HISTORY SOCIETY

The fifth Conference and Annual General Meeting of the Society was held at Wills Hall, the University of Bristol, on Thursday the 11th and Friday the 12th of April 1957. Some thirty-five members of the Society attended. The Thursday evening was devoted to two papers on the Berkeley Estates which members visited the next day. Dr H. Hilton, Lecturer in History, the University of Birmingham, spoke on the Berkeley estates in the medieval period and Mr Francis Peter, former agent at Berkeley, gave their more recent history. On the Friday morning there was a paper by Dr Dawe, Provincial Agricultural Economist, University of Bristol, on the recent agricultural history of the Bristol

Province. He was followed by Dr Axel Steensberg, Keeper of the Danish Folk Museum and Lecturer in Cultural History, University of Copenhagen, who read a paper on his recent experiments in neolithic agriculture and also showed a film of the work. The Society was privileged to welcome Dr Steensberg as its guest for the meeting. In the afternoon the members of the Conference visited Berkeley Castle where they were conducted round by Mr Peter and Mr H. J. Baldwin, the present agent.

In the unavoidable absence of the President and the Chairman of the Executive Committee the Chair at the Annual General Meeting was taken by the Treasurer, Professor Edgar Thomas. The retiring officers

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Some Notes on Shepherds' Staves

By L. F. SALZMAN

IT is probable that most people if asked to draw a picture of a medieval shepherd might be rather hazy about details of his costume, but would have no hesitation in equipping him with the typical shepherd's crook, associated with Dresden shepherdesses and found in most Folk Museums. I have examined many scores of representations of shepherds in illuminated manuscripts, paintings, and carvings and have so far found only three, or possibly four, English and one French instances of such crooks before about 1475: to these instances I shall return later.

Shepherds were not common subjects for classical artists, and the few examples that I have found seem to carry nothing more functional than a plain stick. In Christian art they occur frequently in scenes of the Nativity either greeted by the angel in the fields or in adoration at the crib; David, and more rarely Abel, are portrayed as shepherds; and there are occasional pastoral scenes. Two books which contain a number of relevant illustrations are *Les Noël's de France* by Maurice Vloberg (Grenoble, 1934), and *Noël! Noël!* by Henri Ghéon (Flammarion, 1935).

In Byzantine art, and generally before about 1200, the shepherd carries either a plain long staff or a club. Examples of the plain staff may be seen in a Reichenau MS. of the beginning of the eleventh century (Boeckler, *Deutsche Buchmalerei Vorgotischer Zeit*, pl. 36), and in a French MS. slightly later in that century (Vloberg, p. 181). In the well-known group of shepherds on the porch of Chartres Cathedral (c. 1200) the shepherd playing on the pipes carries a twisted club. An earlier twelfth-century German MS. shows a shepherd with a club (Boeckler, pl. 57) and a contemporary German ivory carving in the Victoria and Albert Museum (*V. & A. Christmas Picture Book*, 4) has three shepherds, each with a club, presumably more for

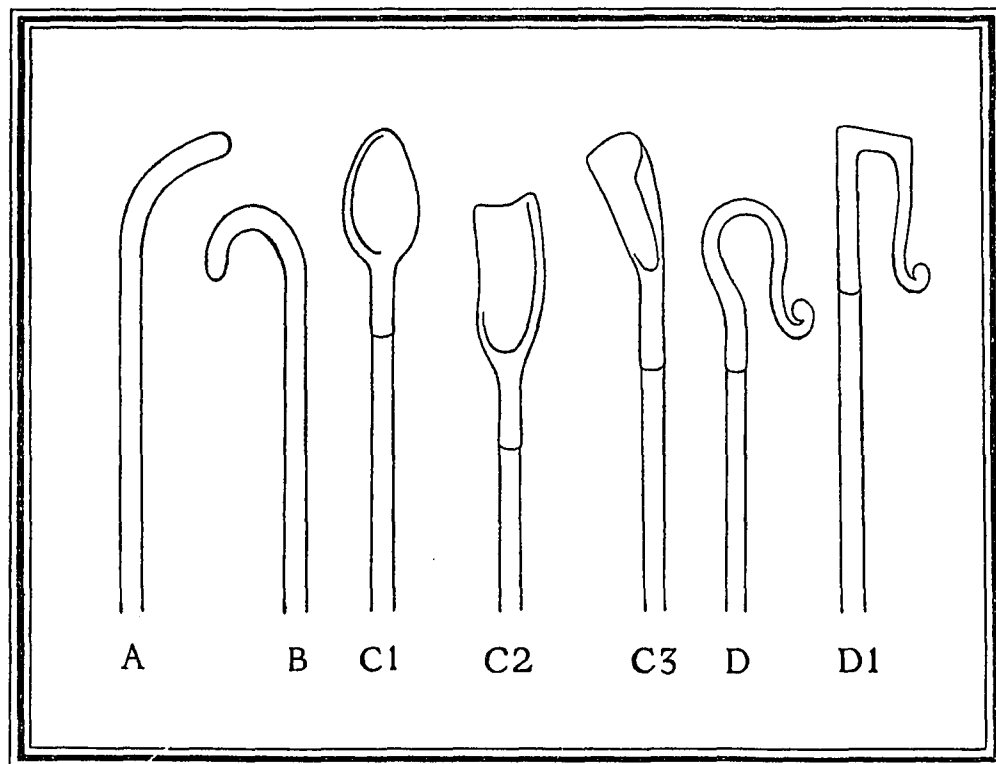
defence than for control of the sheep. The *Hortus Deliciarum* of Herrad von Landsberg, c. 1175, has an interesting variation, the thinner upper end of the club being curved into a sort of embryo crook (pl. 23, 24); this is too small to be functional as a crook and is possibly for attachment to the belt.

The formless club developed into the type (A) which I call the 'hockey-stick', which is the commonest variety between 1200 and 1400. The earliest definite example of this which I know is in two scenes from the life of David in an English MS. of c. 1150 (*Bibliographica*, iv, pl. 1). David is similarly equipped in a series of scenes (pl. 161-76) in *Old Testament Illustrations* (Roxburghe Club) from a MS. of c. 1250 in the Pierpont Morgan Collection, and again in a MS. of c. 1295 (Couderc, *MSS. du Moyen Age*, pl. 34). Other thirteenth-century examples occur in one of the windows of Chartres Cathedral and in the mural painting at Cocking Church, Sussex (Johnstone, *Creative Art in Britain*, 87). My use of the term 'hockey-stick' is justified by a remarkable illustration (pl. 7) in *Queen Mary's Psalter*, of c. 1300. Here Cain and Abel are both shown, unscripturally, as herds; each carries a stick of this type and Abel is holding up a ball, while the accompanying inscription says that they play in their leisure with their 'crosses' and balls (*De crozces et de pelotes se entre iuent a festes*). Another miniature in the same MS. (pl. 162) shows the shepherds of the Nativity with a variant of the type, shortened so as more to resemble a golf club (cf. Ghéon, 17 and 24). This type occurs also in an early fifteenth-century French MS. in the Bodleian (Douce 102; reproduced as a Christmas card). On the other hand the type is occasionally developed into the open crook (B) resembling the handle of a walking-stick. This is not common, but there is one example in the

Antiphoner of Beaupré, c. 1290 (*100 MSS. of Henry Yates Thompson*, vi., 21), and another in a MS. of the late fifteenth century in the British Museum (Egerton MS. 2045, fol. 82).

The hockey-stick type continued into the early fifteenth century (e.g. G. H. de Loo, *Heures de Milan*, pl. 6), and is even found in an

Amiens (Vloberg, p. 38). This type is shown in a German marble carving of 1638 (*V. & A. A Second Christmas Picture Book*, pl. 9) and as late as 1701 in an illustration to Hoogstraten's *Phaedrus* (Amsterdam). From about 1425 the straight scoop holds the field. It would be tedious to list examples, but reference may be made to the Nativity scene



eighteenth-century ivory carving of a shepherd from Goa (Portuguese) in the Victoria and Albert Museum. But from about 1325 almost every shepherd is shown carrying the *houlette*—there appears to be no English word for it. This is a long straight staff with an iron spud at one end, which may take the shape of a spoon (C1), a straight scoop (C2), or a scoop set at an angle (C3). The three shapes were contemporary and merged into one another. On the whole the earliest examples tend to the spoon (e.g. Stettler, *Swiss Stained Glass*, pl. vi: c. 1360), which often has much the appearance of a spear—as in the sixteenth-century choir stalls at

in the Grimani Breviary (c. 1480) and two in Winkler, *Die Flämische Buchmalerei* (pl. 51 and 75). The angle-spud occurs as early as c. 1340 in the Hours of Jeanne, Queen of Navarre (*100 MSS. of Henry Yates Thompson*, i, 20) and is found down to the sixteenth century, a good example being in the lovely Nativity at Autun (Joan Evans, *Art in Mediaeval France*, pl. 100). This last, seen in profile, suggests a golf 'iron'; and indeed the shepherds are shown in a fifteenth-century MS. as playing a primitive type of golf with their *houlettes* (Vloberg, p. 135).

The purpose of these spuds long puzzled me, and I could only assume that they were

for digging up roots that were either good or bad for the sheep. But on referring the matter to my friend Herr Koppold of Munich, he told me that he had not seen the shepherd's crook in use in Bavaria, but that the shepherd walks behind his flock and, if a sheep begins to stray, he digs up a divot with his spud and throws it outside the sheep to drive it back to the flock. This is borne out by Littré's *Dictionnaire*: "HOULETTE—Bâton que porte le berger, et au bout duquel est une plaque de fer en forme de gouttière, qui sert pour lancer des mottes de terre aux moutons qui s'écartent et de la sorte les faire revenir." Herr Koppold also called my attention to a passage in Pepys's Diary, where he records how in July 1667 he met a shepherd on Epsom Down "and I tried to cast stones with his horne crooke."

The Epsom shepherd's crook would have been of the type shown in the illustrations to "The Shepherd's Calendar" of 1579 (reproduced in Green's *Hist. of the English People*, pp. 849-54). This retained the spud at one end but had at the other end the fully developed 'leg-crook' (D). This type of double-purpose staff is very prominent in a series of French Books of Hours printed about 1498 (*Bibliographica*, XII, 462-8): it also appears in a contemporary tapestry (Elek, *French Tapestry*, pl. 26). A variant with a crook of rectangular design (D1) is found on some Tournai tapestries of pastoral scenes in the South Kensington Museum (one reproduced in *Masterpieces in the V. & A.*, pl. 95; cf. Elek, pl. 53).

Curiously enough, the leg-crook, although so rarely illustrated before about 1500, was known much earlier in England. On two misericords, the carved brackets under stall seats, one in Gloucester Cathedral and the other in the chapel of Winchester College, a shepherd is shown carrying such a crook; both are of the second half of the fourteenth century. Also dating from about 1350 is the probably English MS. (Egerton MS. 1894) reproduced by M. James, *Illustrations of Genesis* (Roxburghe Club), in which is shown (pl. 13) a shepherd standing beside his hut—

a movable hut on wheels—and holding such a crook. To about the same date belongs a possible fourth English example. This is a Nativity from the series of paintings formerly in St Stephen's Chapel at Westminster. In this one of the shepherds has a similar crook; unfortunately the picture is only known from a copy and one cannot be quite certain that it is accurate; it is noteworthy that another of the shepherds has the hockey-stick type. So far as France is concerned, the only early example that I have found is in a MS. of c. 1410—the *Livre de Marveilles*, illustrating the voyages of Marco Polo and other eastern travellers. Here (vol. I, pl. 53) King Dor is shown guarding the herds—sheep, swine, and cattle—of Prester John and holding a staff with the fully developed crook, and without a spud. In the same MS. a view, theoretically in Persia, shows a shepherd with a spoon-staff (vol. II, pl. 198), which is also carried by one in a Nativity scene (pl. 243).

At present I have failed to find any example of the leg-crook east of the Rhine. In each of the Academy Summer Exhibitions of Dutch and of Flemish Art there were five or six shepherd pictures, but in none was there a crook. Even in the Van Dyck portrait of Lord George Stuart, where the catalogue described him as "in Arcadian costume, holding a crook," what he holds is the straight *houlette*. In Italy at all periods, so far as I can ascertain, shepherds always carry a simple straight staff: a very good example is the Lombard wood carving, sixteenth century, of the Nativity in *V. & A. Second Christmas Book*, pl. 14. The only definite instance of even an *houlette* that I have found in an alleged Italian painting is in one "attributed to Tibaldi" (c. 1550) in the Ashmolean Museum (no. 431).

Of documentary evidence I have none. Although I have read a great many medieval and later farming accounts and inventories, I have never met a reference to the shepherd's staff or crook; nor do writers such as Walter of Henley mention it. It is a subject which appears to have attracted no attention; but I

hope that these notes which I have put together may induce some one to go more fully into it.

There remains the relation between the shepherd's functional staff and the 'pastoral

staff' used by prelates of the Church. But if I started to stray in that direction the editor of the AGRICULTURAL HISTORY REVIEW would justifiably cast a divot, or half-brick, to turn me back to the flock.

Letters to the Editor

ARTHUR YOUNG

SIR,—Can any of your readers help me find the manuscript of Arthur Young's Autobiography?

Yours faithfully,

R. BEACH THOMAS

*Gustard Wood,
Wheathampstead, Herts.*

SHOOTING ON HILL PASTURES

SIR,—Your correspondent, Sir Hugh Rhys-Rankin, has to some extent put the cart before the horse. In Scotland, the fallacy has long been upheld (and still is) that the interests of shooting ousted the sheep and with them many humans, leading to another bout of the well-known 'clearances'. In fact the slump in the sheep (and cattle) prices was already reducing the sheepflocks and causing some of the shepherds to emigrate, or to return to their Border homeland where the ideal conditions have always made sheep-rearing a more economical proposition than in the Highlands. (Incidentally, it is a fact not mentioned, so far as I know, by any Scottish agrarian historian that there has never been an indigenous tradition of shepherding in the Highlands of Scotland, according to the standards developed by the Border shepherds.) When the slump came these skilled men gradually left. Doubtless they were glad to do so, for the Highlanders did not like them; in many areas their coming had been a symbol of an earlier 'clearance'. The sheep that remained were left to the Highlanders' primitive methods of shepherding, based upon the ancient tending of a small number of mixed stock constantly

under the eye of some member of the community. This state of affairs is directly responsible for the appallingly low quality of sheep and shepherds today in the less favoured areas of the Western Highlands and Hebrides. To return to the main point, however; the sheep were already going out at the time when a new class, suitably armed to perform in an ancient and respectable sport, were appearing in large numbers upon the scene. In many cases the opportunity was grasped to convert land that was no longer profitable into 'moor' or 'forest'. The conversion gave rise to further, though local and minor, social upheavals, which in turn gave rise, among those not able to see the whole thing in historical perspective, to the belief that shooting drove the sheep off the hill. The main point that I wish to make is that the change was inevitable. The conditions were ripe inasmuch as the firearms and the people to use them were both being 'made' in large numbers, and the modern scientific methods of sheep husbandry, which might yet have enabled the hill-sheep to hold its own in the face of some opposition, had not been developed. There are other reasons which cannot be gone into here; only in recent years, when social and legislative changes have become potent factors, could the outcome be different. The cause, therefore, of the drop in sheep numbers "since 1870" was not the shooting interests alone, but a coincidence of factors arising from the social and economic changes of the time.

Yours, etc.,

R. A. KENNEDY

Work in Progress

Compiled by JOAN THIRSK

The following list does not lay claim to completeness. It has been compiled from the particulars given in response to a letter circulated to universities, local history societies, and local record offices. It is hoped to publish similar lists from time to time, and the compiler will therefore be glad to receive any information concerning changes of subject and omissions from this list.

ABERG, F. A., *Museum of English Rural Life*, 7 Shinfield Road, Reading, Berkshire.

Roman agriculture and settlement in the Hampshire area.

ADAMS, R. H., *c/o Isle of Wight River Board, Engineer's Dept., County Hall Annexe, High Street, Newport, Isle of Wight.*

Bibliography of land drainage, irrigation, reclamation of marsh, fen, and tidal lands, and warping in Great Britain and Ireland.

AGATE, R. G., 12 Wilton Grove, Wimbledon, S.W.19.

The Surrey evidence bearing on the causes, nature, and consequences of the rioting and disturbances in certain agricultural areas in the winter of 1830-1.

AGERSKOW, Miss MARGARET, *Department of Geography, Leeds University.*

The reclamation of Knaresborough Forest (Leeds M.A. thesis).

ALLISON, KEITH J., *Leeds University.*

Sheep farming and Norfolk agriculture, 1450-1700.

ATTWOOD, E. A., *Department of Agricultural Economics, University College of Wales, Aberystwyth.*

The rate of change in the structure of British agriculture, 1870-1914.

BARLEY, M. W., *Department of Extra-mural Studies, Nottingham University.*

Rural housing.

BARNES, F. A., *Department of Geography, Nottingham University.*

A historical and regional geography of Anglesey (London Ph.D. thesis).

The Economic Geography of the Milk Industry of England and Wales after 1860.

BARRETT, JOHN, *Clarence Lodge, Hampton Court, Surrey.*

Food and its adulteration in the nineteenth century (London Ph.D. thesis).

BATLEY, Mrs L., *Department of Latin, Sheffield University.*

Eighteenth-century manorial history of Sheffield, Rotherham, and district.

BEAUMONT, Miss OLGA, *Reading University.*

Seventeenth-century probate inventories for certain west Midland areas.

BEAVINGTON, F., 39 Snow Hill, Maulden, Bedford.

A general study of market gardening in eastern and central Bedfordshire.

BERESFORD, MAURICE W., *Department of Economics and Commerce, Leeds University.*

Pre-Parliamentary enclosure, 1597-1750.

BIRCH, J. W., *Department of Geography, Bristol University.*

The economic geography of the Isle of Man, with reference to the stages in its development since 1800.

BOAL, F. W., *Department of Geography, The Queen's University, Belfast.*

The 1847 Crop Returns in Northern Ireland.

Land Use and Rural Settlement in co. Down.

BONHAM-CARTER, VICTOR, *Broomball, East Anstey, Tiverton, Devon.*

The history of the Dartington Hall Estate, Totnes, Devon, since 1925.

BOUCH, Canon C. M. L., *Clifton Rectory, near Penrith, Cumberland* (in collaboration with JONES, Professor G. P.).

A general social and economic history of the Lake Counties from Tudor times to the nineteenth century.

BUCHANAN, R. H., *Department of Geography, The Queen's University, Belfast.*

Changes in agriculture and settlement in co. Down during the eighteenth and nineteenth centuries.

The 1801 Crop Returns in Northern Ireland.

BUCHANAN, R. H., and PROUDFOOT, V. B., *Department of Geography, The Queen's University, Belfast.*

The history and present status of Conacre in Ireland.

BUCHANAN, R. H., and JOHNSON, J. H., and PROUDFOOT, V. B.

An archaeological investigation into the development of the pattern of Irish settlement from the first millennium A.D. to the eighteenth century.

BUNTING, BRIAN, 9 *Aldam Road, Totley Rise, Sheffield.*

Danish agriculture: a revaluation.

BURKE, T., *Department of Geography, Birmingham University.*

A geographical study of population changes in County Cork since c. 1750.

BURLEY, K. H., *London School of Economics and Political Science, London, W.C. 2.*

Economic and social history of Essex under the later Stuarts (London Ph.D. thesis).

CAIRD, J. B., *Department of Geography, Glasgow University.*

The development of settlement in selected regions of the Highlands and Islands of Scotland.

CHAPMAN, Mrs VERA, *see* RODGERS, W. B.

CHEW, Miss H., *Department of Geography, Liverpool University.*

Agricultural changes in England and Wales during the last two decades.

COATES, BRYAN E., *Department of Geography, Leeds University.*

A study of the contribution made by parks to the evolution of the landscape of Yorkshire (Leeds M.A. thesis).

COLLINS, Miss JOAN, *Department of Geography, Birkbeck College, London.*

Some aspects of rural settlement in Berkshire.

COPPOCK, J. T., *Department of Geography, University College, London.*

Some aspects of the agricultural geography of the Chilterns, 1866-1951.

Changes in farm size in Buckinghamshire, 1865-1941.

DAVIES, Mrs C. S., *Durness, Robin Lane, Sutton, Macclesfield, Cheshire.*

The history of the manor of Withington, Manchester. Enclosure of the open fields and common.

DIGBY, ALAN, *Department of Geography, Leeds University.*

The evolution of land use and settlement in Upper Ribblesdale since late medieval times (M.A. thesis).

DODD, J. PHILIP, *Hampton Loade, Alveley, Bridgnorth, Shropshire.*

Agriculture of the West Midlands in the nineteenth century.

Agriculture during the Napoleonic Wars in Yorkshire, Lancashire, and the Midlands.

Shropshire agriculture in the nineteenth century.

- DOUCH, ROBERT, *Institute of Education, Southampton University*.
Some aspects of the history of agriculture in the Isle of Portland, Dorset.
Bibliography of the local history of Hampshire and the Isle of Wight.
- DURY, G., *Department of Geography, Birkbeck College, London*.
Agriculture and land use in the Channel Islands in the late eighteenth century.
- ELLIOTT, G. G., *Department of Geography, Liverpool University*.
The development of the agrarian landscape in Cumberland, 1600-1800.
- EMERY, FRANK, *Department of Geography, University College of Swansea*.
West Glamorgan farming, c. 1580-1620.
Agrarian change in Gower, 1500 onwards.
"Georgical" work in this country, 1650-1750.
- EVANS, Professor E. ESTYN, *Department of Geography, The Queen's University, Belfast*.
The import of improved agricultural implements and techniques from England to Ireland.
- EYRE, S. R., *Department of Geography, Leeds University*.
The limits of improved land and common pasture in N. Derbyshire from medieval times.
- FARMER, D. L., *Exeter College, Oxford*.
An examination of price fluctuations in certain articles in the twelfth, thirteenth, and early fourteenth centuries.
The Duchy of Cornwall estates in 1337.
Anglo-Saxon charter boundaries.
- FARRA, Miss M., *Department of Geography, Bedford College, London*.
The reclamation of the North Yorkshire moors.
- FLETCHER, T. W., *Department of Agricultural Economics, Manchester University*.
The agriculture of Lancashire, 1750-1850.
The Great Depression, 1875-1900.
- FORSTER, GORDON C. F., *School of History, Leeds University*.
The progress of enclosure in Yorkshire, 1500-1850.
County administration in seventeenth-century Yorkshire.
- FOX, Mrs H. M., 13 Park Road, Beckenham, Kent.
Anglo-Saxon agriculture (Cambridge Ph.D. thesis).
- FREEMAN, T. W., *Department of Geography, Manchester University*.
Pre-famine Ireland: a study in historical geography.
- FULLER, MARGARET D., *Museum of English Rural Life, 7 Shinfield Road, Reading, Berkshire*.
West of England friendly societies in the eighteenth and nineteenth centuries with particular reference to their insignia.
- FUSSELL, G. E., 55 York Road, Sudbury, Suffolk.
The influence of the Low Countries on English farming.
- GILES, B. D., *Department of Geography, Birmingham University*.
Land-use studies for certain Worcestershire parishes, based on enclosure-map and tithe-map evidence.
- GOULD, JOHN, *Department of Adult Education, Leicester University*.
The influence of fluctuations of harvest yields on the level of economic activity in the sixteenth to eighteenth centuries.
- GRANT, Mrs B. F., 78 Twyford Avenue, London, W.3.
History of Wensleydale, Yorkshire.

- GREEN, GEORGE, *School of Agriculture, University of Nottingham, Sutton Bonington, near Loughborough, Leicestershire.*
Leicestershire villages in settlement, expansion, and decay.
- GREENFIELD, Miss M., *S.W. Essex Technical College, Walthamstow, London, E.17.*
Geographical development (including land utilization) of Essex coastal towns (London Ph.D. thesis).
- GRIEVE, Miss H. E. P., *Essex Record Office, County Hall, Chelmsford.*
Essex (1953) Flood Report including full treatment of its agricultural aspects with introductory historical background.
- HABAKKUK, Professor H. J., *All Souls College, Oxford.*
English aristocracy and gentry in the seventeenth and eighteenth centuries.
- HALLAM, H. E., 41 *Arthur Street, Loughborough, Leicestershire.*
The medieval fenland.
- HALLAM, Mrs S. J., 41 *Arthur Street, Loughborough, Leicestershire.*
The Romano-British fenland.
- HANKINSON, F., *Department of Geography, Birkbeck College, London.*
Agricultural geography of south-west Kent.
- HARRIS, A., *Department of Geography, Hull University.*
Agricultural history, with particular reference to changes in land use, of the East Riding of Yorkshire, 1550-1850.
A comparative study of the Vale of Pickering and the North Yorkshire moors.
- HAVINDEN, MICHAEL, *Magdalen College, Oxford.*
Oxfordshire farming in the seventeenth century.
- HENDERSON, H. C. K., *Department of Geography, Birkbeck College, London.*
The 1801 crop returns.
- HIGGS, JOHN W. Y., *Museum of English Rural Life, 7 Shinfield Road, Reading, Berkshire.*
Farm implements and equipment.
- HILTON, RODNEY, *School of History, Birmingham University.*
Agrarian conditions in the later Middle Ages, with special attention to the West Midlands.
- HOLMES, J. H., c/o *Essex Record Office, County Hall, Chelmsford.*
Rural poverty in Essex and the increase of population, 1750-1830.
- HOPKINS, M. W., *Department of Geography, Birkbeck College, London.*
The Lea Valley glasshouse industry.
- HOPKINS, P. G. H., *Tutor-Organizer, Joint Committee for Adult Education, Southampton University.*
The rise and fall of water-meadow irrigation in Britain.
- HUGHES, MARK, *Balliol College, Oxford.*
Landownership in Durham, 1790-1850.
- HUNT, T. J., *Orchard End, Pyrland, Taunton, Somerset.*
History of the manor of Taunton in the thirteenth century, chiefly from the Pipe Rolls of the Bishopric of Winchester.
- JASPAN, M. A., *Exeter College, Oxford.*
Family and rural community in North Devon—a study in rural depopulation and social mobility (Oxford D. Phil.).
- JENKINS, J. G., *Museum of English Rural Life, 7 Shinfield Road, Reading, Berkshire.*
The evolution and regional characteristics of the four-wheeled wagon.

- JOHN, A. H., *London School of Economics and Political Science, London, W.C. 2.*
The prices of animal products in England, 1700-1850.
- JOHNSON, J. H., *Department of Geography, University College, London.*
The historical geography of County Londonderry in the nineteenth century.
See also under BUCHANAN, R. H., JOHNSON, J. H., and PROUDFOOT, V. B.
- JOHNSON, S. A., *Department of Geography, Liverpool University.*
Enclosure and the agrarian landscape in Lindsey.
- JONES, Miss E. I. M., *Department of Geography, Bedford College, London.*
The reclamation of the Bagshot Heaths.
- JONES, Professor G. P., *Department of Economics, Sheffield University.*
The population of Cumberland and Westmorland, sixteenth to eighteenth centuries.
See also BOUCH, Canon C. M. L.
- JONES, GLANVILLE R. J., *Department of Geography, Leeds University.*
Land settlement, tenure, and colonization in the Colwyn-Clwyd district of North Wales.
- JONES, T. I. JEFFREYS, *Coleg Harlech, Llys Branwen, Harlech, Merioneth.*
Index to a Calendar of Welsh Laws, 1715-1901.
Agriculture in Glamorgan in the sixteenth century.
Agrarian history of Wales, 1700-1900, with special reference to the enclosure movement.
- KENYON, G. H., *Iron Pear Tree Farm, Kirdford, near Billingshurst, Sussex.*
Farming from c. 1600 on the Weald Clay of Sussex.
- KERNTHALER, E. A., 84 *Bramley Way, Ashted, Surrey.*
Farm rents and the size of properties in Surrey (Ph.D. thesis).
- KERRIDGE, ERIC, *Deva, Hooton Road, Willaston, Wirral, Cheshire.*
English agrarian history in the sixteenth, seventeenth, and eighteenth centuries.
- KIDDLE, D. F. A., *Department of Geography, Birkbeck College, London.*
The changing landscape of north-west Middlesex.
- KINVIG, Professor R. H., *Department of Geography, Sheffield University.*
Agricultural geography of the West Midlands.
- KIRK, M., *Department of Geography, Leeds University.*
The social and economic structure of Sutton-on-Forest (N. Yorks.) in the sixteenth and seventeenth centuries.
- KOERNER, R. M., *Department of Geography, Sheffield University.*
Recent changes in land-use in the South Yorkshire coalfield.
- LANGTON, Miss E., *Department of Geography, Bedford College, London.*
Reclamation of the heath and common of the Cromer moraine.
- LAWTON, R., *Department of Geography, Liverpool University.*
Population changes and population migrations in nineteenth-century England.
- LONG, W. HARWOOD, *Department of Agriculture, Leeds University.*
Yorkshire farming in the sixteenth and seventeenth centuries.
- LONGMAN, J. FORD, *Department of Geography, Birkbeck College, London.*
Studies in the settlement geography of Hertfordshire.
- MACKENZIE, H. R., *Department of Geography, Aberdeen University.*
Geographical aspects of transport in northern Scotland.
- MACPHERSON, ARCHIBALD, *Department of Geography, Edinburgh University.*
Land utilization in the Dee valley.

- MARTIN, J. M., *School of History, Birmingham University*.
Changes in landownership, land utilization, and agricultural income in the West Midlands, 1785-1825 (M.A. thesis).
- MATHIAS, PETER, *Queen's College, Cambridge*.
The brewing industry in the eighteenth century: barley, hops, and malt.
- MCCORD, NORMAN, *Department of Modern History, King's College, Newcastle upon Tyne*.
The activities and organization of the Anti-Corn Law League, 1838-46.
- MCGREGOR, O. R., *Department of Social Studies, Bedford College, London*.
History of modern British agriculture and rural society, 1800 to the present day.
English land tenure and agricultural progress, 1832-83.
Finance of land drainage in the nineteenth century.
- McHUGH, B. J., *Department of Geography, The Queen's University, Belfast*.
Land Use and Rural Settlement in co. Tyrone and co. Fermanagh.
- McKAY, J. A., *Department of Geography, Birkbeck College, London*.
The population geography of Banffshire.
- MEAD, W. R., *Department of Geography, University College, London*.
Hedgerows and field boundaries.
- METCALFE, B. M., *Department of Geography, Leeds University*.
The reclamation and development of Hatfield Chase.
- MILLS, DENNIS R., *Department of Geography, Manchester University*.
Land Use and Settlement in Kesteven, c. 1700-c. 1850 (Nottingham M.A. thesis).
- MILLS, F. D., *Department of Agricultural Economics, Reading University*.
National Union of Agricultural Workers—a Study of Trade Union Organization in British Agriculture.
- MINCHINTON, WALTER, *Department of History, University College of Swansea*.
The 1795 and 1800 crop returns for Wales.
- MINGAY, GORDON, *London School of Economics and Political Science, London, W.C. 2*.
Landownership and agrarian trends in the eighteenth century, based on the Duke of Kingston's estates.
- MINTON, Miss J. G., *Fairbourne, Rose Valley, Brentwood, Essex*.
The Petre family lands in the Wid basin of Essex and adjacent areas, 1539-1939 (London M.Sc. thesis).
- MONTEITH, Mrs D., *62 High Street, Saffron Walden, Essex*.
Settlement and field patterns in N.W. Essex, eleventh to twentieth centuries (London M.A. thesis).
- MOORE, D. C., *Trinity College, Cambridge*.
The position of the English farmer in its economic, social, and political aspects, c. 1850-75.
- NEWLYN, Miss ANNE, *Department of Agricultural Economics, Reading University*.
The village and manor of Coleshill, Berkshire, 1500-1700.
- OLDFIELD, F., *Department of Geography, Liverpool University*.
Physical evolution and reclamation of Mossland.
- OLIVER, J., *Department of Geography, University College of Swansea*.
Climate and farming in Anglesey in the first part of the eighteenth century.
- OSCHINSKY, DOROTHEA, *Department of History, Liverpool University*.
Didactic literature on estate management and farming in the Middle Ages.

- PAWSON, Professor H. C., *University School of Agriculture, Durham University*.
The history of the Cockle Park Experiment.
- PELHAM, R. A., *The Court House, West Meon, Hampshire*.
Agricultural geography of the fourteenth and eighteenth centuries.
- PERKIN, H. J., *Department of History, Manchester University*.
Land reform movements in nineteenth-century Britain.
- PETTIT, PHILIP, *Magdalen College, Oxford*.
Oxfordshire farming in the seventeenth century.
- PLUMMER, B. A. G., *Department of Geography, University College of Swansea*.
An investigation into human influences on marsh development in the Burry estuary, South Wales.
- POSTAN, Professor M. M., *Peterhouse, Cambridge*.
The agrarian economy in the Middle Ages.
- PRINCE, H. C., *Department of Geography, University College, London*.
Parkland in the Chilterns, 1600-1900.
- PROUDFOOT, V. B., *see* BUCHANAN, R. H.
- RAEBURN, JOHN R., *London School of Economics and Political Science, London, W.C. 2*.
Responses of British agriculture to price and cost changes since 1870.
- REVILL, S., 85 *Bedale Road, Nottingham*.
Fourteenth-century court roll of Mansfield, Notts.
- REYNOLDS, B., *Institute of Historical Research, Senate House, London, W.C. 1*.
The late medieval geography of Dorset (London M.A. thesis).
- RHYS-RANKIN, Capt. Sir HUGH, *Green Lane, Bryngwyn, via Kington, Herefordshire*.
Welsh cattle droving during the turnpike era from west and central Wales to England.
- RILEY, K. C., *Department of Geography, Birkbeck College, London*.
Settlement patterns and population distribution in Shropshire.
- RODGERS, W. B., *and* CHAPMAN, Mrs VERA, *and others, Department of Geography, Manchester University*.
Development of farming during the nineteenth century in the parish of Lymm, Cheshire.
- ROTHWELL, Professor H., *Southampton University*.
The Estates of St Swithun's Priory, Winchester.
- ROWE, JOHN, *Department of Modern History, Liverpool University*.
Cornish agricultural history in the nineteenth century.
- RUTHERFORD, S., *Department of Geography, Birkbeck College, London*.
Agricultural geography of north-west Kent.
- RYDER, M. L., *Fernville, 68 Ash Road, Headingley, Leeds 6*.
The origin, domestication, and history of sheep.
- SENIOR, M. W., *Department of Geography, Leeds University*.
The development of the land utilization pattern in Assynt parish and in Barra.
- SHAW, DAVID H., 28 *Brantwood Road, Luton, Bedfordshire*.
Surviving dialect in six villages in south Bedfordshire.
- SHEPPARD, Miss J. A., *Department of Geography, Queen Mary College, London*.
The draining of the marshlands of East Yorkshire.
Rural settlement in East Yorkshire.
- SHORTER, A. H., *Department of Geography, University of Exeter*.
Field patterns in England.

- SIMPSON, E. S., *Department of Geography, Liverpool University*.
The nineteenth-century agrarian history of the Cheshire dairying region.
Agrarian development in the Wem district of North Shropshire.
- SKINNER, J. G., *Department of Geography, Birkbeck College, London*.
Essex agriculture in the nineteenth century.
- SMEE, Miss D. K., *Department of Geography, Bedford College, London*.
Soil and slope, and ridge and furrow in a Northamptonshire parish.
- STITT, F. B., *Staffordshire County Record Office, County Offices, Stafford*.
Some medieval accounts of Lenton Priory.
- STURMAN, Mother MARY WINIFRIDE, *St Angela's Ursuline Convent, Forest Gate, London, E.7*.
Administration of the Barking Abbey estates (London Ph.D. thesis).
- SWALES, T. H., *The Jolly Farmers, Yaxham Road, Dereham, Norfolk*.
The agrarian development of Norfolk, c. 1530-c. 1660 (Sheffield Ph.D. thesis).
- SYLVESTER, Miss DOROTHY, *Department of Geography, Manchester University*.
The open fields of Cheshire.
The rural landscape of the Welsh Borderland.
- THIRSK, Mrs JOAN, *Department of English Local History, Leicester University*.
The agrarian history of England in the sixteenth century.
- THOMAS, E., 46 *Washington Road, Maldon, Essex*.
The operation of the Poor Law, and labour migration in Essex, Berkshire, and Oxfordshire.
- THOMPSON, F. M. L., *Department of History, University College, London*.
Nineteenth-century English landed estates.
Wiltshire agriculture, 1870-1955.
- THORPE, Miss SYBIL, *St Hilda's College, Oxford*.
Leicestershire monastic lands.
- TIMMS, J. W., *St Catherine's Society, Oxford*.
Hodge and the parson: a study of the farm worker and the clergy in the West of England, 1850-1914.
- VOLLANS, Miss ELEANOR C., *Department of Geography, Bedford College, London*.
Agriculture in the Chilterns in the late Middle Ages.
- VOSE, E. K., *School of History, Birmingham University*.
The administration and economic development of the estates of Worcester Priory (Birmingham Ph.D. thesis).
- WALKER, Miss F. R., *Department of Agricultural Economics, Manchester University*.
Home-produced and imported supplies of food since 1820.
- WATERS, G. H. C., *Department of Geography, Reading University*.
Strip lynchets in the Highland zone of Britain, especially in the Yorkshire Pennines.
- WESTCOTT, Miss MARGARET R., *Department of History, Exeter University*.
The estates of the Courtenay family in the fifteenth and early sixteenth centuries (Exeter M.A. thesis).
- WHITTINGTON, G. W., *Department of Geography, Reading University*.
Strip lynchets in the Lowland zone of England, especially in the south of England.
- WILSON, C. P. H., *Peddar's Way, East Wretham, Thetford, Norfolk*.
A short history of the peach, and a treatise on its cultivation as a bush tree in the orchard and garden, together with an anthology.

WITNEY, D., *Department of Economics, The Edinburgh and East of Scotland College of Agriculture, Edinburgh.*

Scotland's agricultural economy, 1857-1957.

WRAY, Miss J. H., *School of History, Birmingham University.*

The Warwickshire Hundred Rolls of 1279 (Birmingham M.A. thesis).

YOUNG, G., *Department of Geography, Liverpool University.*

Enclosure and the changing agrarian landscape in Lancashire.

NOTES AND COMMENTS (*continued from page 90*)

were re-elected and Dr R. H. Hilton, Mr W. E. Minchinton, and Mr F. G. Payne were returned unopposed to the Executive Committee in place of Mr G. E. Fussell, Capt. E. N. Griffith, and Mr Alexander Hay who had retired.

In presenting the report of the Executive Committee the Treasurer said that the membership of the Society stood at four hundred and sixty-four against four hundred and ten the previous year but he pointed out that although the financial position was not unsatisfactory more members still were needed as publishing costs continued to rise.

In presenting the Treasurer's Report Professor Thomas pointed out that the

Society's books showed a loss of £57 18s. 6d. for the year ending 31 January 1957 and that the balance at that date was £168 13s. 1d.

At a meeting of the Executive Committee held later in the day Mr George Ordish was elected Chairman.

FUTURE CONFERENCES

The One-Day joint Conference with the Association of Agriculture will be held at the Institute of Education, University of London, on Saturday, 7 December 1957.

The Annual General Meeting and Conference for 1958 will be held at the West Riding Institute of Agriculture, Askham Bryan, York, on Thursday, 11 and Friday, 12 April 1958.

Book Reviews

E. A. KOSMINSKY, *Studies in the Agrarian History of England in the Thirteenth Century*. Basil Blackwell, 1956. xxviii+370 pp. 37s. 6d.

This is not a new book, but a new edition of the *Studies* that Professor Kosminsky published in Russian ten years ago. It is presented now with a preface in which the author replies briefly to Professor Postan's criticisms of the first edition, and an editorial introduction which seeks to introduce to English readers not the author, who is well known, but "the background of the Soviet medievalists." This background is peopled by the figures of Marx, Lenin, and Stalin. None of these was as well acquainted as Professor Kosminsky is with medieval England, but all three command his respect as exponents of human affairs. This fact, which may automatically recommend the book to some English readers, will probably dismay many more.

As a marxist Professor Kosminsky is concerned with the conflicts within English society in the thirteenth century, and particularly with the struggle to exact or withhold "feudal rent"—the fruits of that part of a peasant's labour which was not devoted either directly or indirectly to keeping him alive. As "the traditional organization for the appropriation of feudal rent is . . . the manor," the non-marxist might be forgiven for regarding the book as primarily an account of the manor in its diversity. There is striking evidence of that diversity here, for some of the forms in which the manor appears have only the name in common. No one is better equipped than Professor Kosminsky to revise this nomenclature, borrowed by the historian from the lawyer, but it has not yet been revised, and he is forced here into the procrustean habits that its use entails.

Most of the evidence for this study comes from the Hundred Rolls, which cover a territory—the south-east Midlands and Cambridgeshire—in which are many of the great estates from which the classical theory of the

manor has been derived. It is also, as Professor Kosminsky shows, an area in which anomalies abound, as they commonly do when theories are applied to the accidents of human life. In the past the great estates have attracted much attention because their administration created a mass of documents, many of which have survived to inform the historian. The small estate, usually managed in the owner's head, is likely to escape the notice of the modern as of the medieval theorist. As the Hundred Rolls set out to describe all free holdings, large and small, they are potentially valuable as a corrective to the evidence surviving in private archives, and Professor Kosminsky has studied them intensively. After a useful description of their origin and contents, he proceeds to a lengthy, quasi-statistical analysis of the holdings that they describe. This analysis is ingenious and impressive, but its value is open to question. The author is at pains to point out the shortcomings, both inherent and acquired, of his material. He adduces other evidence to compensate for these deficiencies, from such sources as inquisitions post mortem and ministers' accounts, but these he also shows to be unreliable in a number of ways. Having raised these objections, he then treats his figures as though after all they were suitable for statistical manipulation. It is true that some of the conclusions are of a very general kind, and hardly need statistical demonstration. It is not surprising, for example, to learn that villein tenements are small on the smaller manors, and that the cottar is most prominent on the smallest estates. The villein needed a tenement large enough to keep his family alive, if he himself was to be free to work on the demesne. There must always have been an acreage below which the usefulness of a manorial demesne would be impaired if a full allocation of land were made to villein tenants. This fact is not plainly alluded to until p. 314. But points of this kind can be made without elaborate statistical

analysis; discussions of incidence, distribution, and so forth cannot be divorced from strictly accountable evidence, and such evidence seems to me to be lacking here.

This kind of criticism might be extended to the rest of the book, valuable as some of its contents are. If the reader cannot accept its dialectical method, he is bound to grudge the time that is spent in developing the argument. There is a good deal here that is interesting, but also much that is arid. There are twelve pages in which the peasant's budget is discussed, and other writers' conclusions reviewed. Most of the time the individual is overshadowed when classes are discussed; here for a moment he emerges, and a sorry figure he cuts: "the main body of the English peasantry . . . were . . . a middle peasantry crushed by feudal exploitation" (p. 240). But it may be noted that Professor Kosminsky, in reconstructing a typical budget, is unable to take account of a family's earnings in rural industry, which must quite often have helped to keep body and soul together. In general, indeed, his comments on industry are rather vague. On the other hand, some of those on trade are too precise: who else would say (p. 322) "The number of towns . . . at the time of Domesday amounted to 80"? And the remark on p. 326 that "it is quite clear that the sea trade passed exclusively through King's Lynn, Sandwich, Hull, and London" either does not mean what it says or is mistaken.

It can no longer be said with confidence that the free peasantry of the Danelaw was "a direct result of the Danish military colonization," but this is a reminder of the difficulties attending the publication of such a book as this. The difficulties of translation are also in evidence. Here we have such alien and bizarre expressions as (p. 208) "Critique of Theory of I. I. Granat," and (p. 301) "The Two Aspects of the Labour of the Cottar." These are prominent as headings, and there are other oddities in the text. Where reading of this kind is not compulsory it is unlikely to be read at all.

GEOFFREY MARTIN

CHRISTOPHER TRENT, *The Changing Face of England*. London, Phoenix House, 1956. 244 pp. 21s.

This book is "intended to help readers trace in the open air the influences which have changed the face of our country," and by this yardstick it must be judged. It would be no service to the reader whom Mr Trent obviously has in mind, the serious and observant amateur, to recommend this book, particularly since Dr Hoskins's *Making of the English Landscape* covered exactly the same ground a year ago. That book had clarity of style, novelty of local illustration, and an experienced awareness of the needs of adults who are keen to explore the historical landscape. What of Mr Trent?

He has the virtues of zeal, sincerity, and energy. His style may not irritate all readers, so let that pass. Novelty? this is confined to forty new photographs by the author, the fruit of his own journeys, and the best part of the book. Other illustrations are less happy: the aerial view of the open fields of Crimscombe, well known since its use by the Orwins in 1938, is said to show fields "Celtic or earlier." The open-field map which matches the photograph exactly could have been seen at the Warwick County Record Office. A "contemporary print" (p. 156) purports to show an early nineteenth-century landscape near Princes Risborough. But the print is no guide at all to the landscape of its day. The artist puts in a house or two to suggest a village and a hedge or two for the countryside. On this scale (the two Risboroughs an inch apart, in real life three-quarters of a mile) the artist had neither the intention nor the ability to show the real divisions of the landscape.

Efficient and persuasive exposition? The failure of the book to help its readers is most dismal in the final chapter, "Exploring Your Own District." Anyone who thinks this review stony-hearted should read these eleven pages or the trite eight-page chapter, "A Glimpse of the Future." Large parts of the rest of the book fail to assist the reader simply because of the absence of map illus-

trations or of references to maps. Unless a reader has been where Mr Trent has been, the citation of places and views is meaningless.

What if Mr Trent's readers want to follow up the matter? The bibliography is odd. Domesday Book is at the head as "a principal source-book," but both adjective and noun must be employed in some unusual sense? The reading advised has some startling omissions and some highly individual inclusions. Who would have thought that Arthur Bryant's *Age of Elegance* would have been in and yet no recommendation of the Orwins, Sir Cyril Fox, or Darby's *Domesday Geography* (citing only three absentees)? or that an author who (from pp. 156-60) seems to have read Dr Hoskins should omit to recommend him? or that it was necessary to mention two volumes of *The Oxford History of England* as "standard works but not specially illustrative of the Changing Face (*sic*)"? or that Miss Elizabeth Levett's *Studies* should be sought in a catalogue under Arthur?

A conflation of other people's works ("I am indebted probably to a far greater degree than I realize") is only worth while if it enlivens the reader by some superior vision or a more effective assembly of detail. What of detail? The word "feudal" is misused throughout; the Cottage Act (31 Eliz. cap. 7) is misunderstood (it was to prevent the mushroom growth of shelters for the poor and not the close-building of village houses, as a simple reading of the Act would have shown); the Statute of Merton did not leave the issue of "sufficient pasture" to lords of manors, but—as abundant printed records show—to local juries; wheat was exported as a surplus long before the "early part of the nineteenth century;" in short, Mr Trent is too near the state of an amateur himself to be able to help others, and if he is to have anything new or helpful to say it will only be after he has had some acquaintance with record offices, the publications of local record societies, manuscript estate-plans, and printed county- and town-maps. Of all these the reader is left

ignorant. In default, it must always be a case of the *Guide* leading the guide.

M. W. BERESFORD

H. C. DARBY, *The Draining of the Fens*. Cambridge University Press, Second Edition, 1956. 314 pp. 35s.

The new edition of this book differs little from the first edition. There are a few fresh entries in the bibliography and a brief summary of post-war developments in the last chapter. The new edition is slimmer and more comely than the 1940 edition.

The need for a comprehensive history of the Drainage of the Fenland is great, but Professor Darby's book does not satisfy it. He has given us a mere catalogue of events without any real explanation of their causes. Brute facts are of no interest in themselves, but only for the answers which they allow historians to give to certain important problems. In a book which is one of a series devoted to studies in economic history the reader naturally expects to find reference to problems in which economic historians are interested. What *was* the drainage of the fens and when did it happen? Who were the drainers and why did the fenlanders so hate them? Was the ancient sewers' organization really working as badly as the propagandists declared? What land was flooded and for how long? How does the drainage of the fens relate to the agrarian problems of the day? What part did the process play in the animosities which led to the Civil War? Such questions, and many more, the historian of the Fenland must try to answer, and until research has settled the answers to at least some of them no general summary of the history of fenland drainage is possible.

The history of fen drainage will be the fruit of many years' painful labour upon the extensive documentation which survives. There are, for example, the copious sewers' records of the Spalding, Boston, and Spilsby Courts of Sewers, in the Lincolnshire Archives Office and the County Hall, Boston, the Cambridgeshire sewers' records at Wisbech Museum, the archives of the Spalding

Gentlemen's Society, the Banks Papers, and multitudinous parochial and manorial records, besides the great collections in the Public Record Office and the British Museum.

Two other points call for notice. First, the Bedford Level is not the Fenland, but only about two-fifths of the Fenland. Any book which ignores modern drainage works in Lincolnshire is bound to give an inadequate account of fen drainage. The *Draining of the Fens* devotes only 56 out of 261 pages of narrative to the Lincolnshire Fenland. The bias is clearly seen in the last, amended, chapter, where Professor Darby considers drainage schemes of the future. He devotes all his space to the schemes of the Great Ouse Catchment Board and does not tell his readers that the other catchment boards also have schemes and that the latest drainage work completed since 1947 is the Coronation Channel at Spalding and the widening of the Welland.

Secondly, the writer perpetuates the myth that the Fenland lay waste until the seventeenth century. The great period of fen drainage was the twelfth and early thirteenth centuries, when the fenlanders enclosed nearly 200 square miles of siltland and fen-edges and converted it into arable and meadow. Closer attention to recent work on the Fenland, especially to that of Dr Joan Thirsk, would have led to complete revision of the first two chapters of this book. Such a revised version would not have settled the economic history of the sixteenth-century Fenland for good, but it could have shown what problems there are to solve.

H. E. HALLAM

E. DUNSDORFS, *The Australian Wheat-Growing Industry, 1788-1948*. Melbourne University Press, 1956. xii+546 pp. £2 15s. 6d. Part I of this large book contains a historical account of the development of wheat production and trade in Australia from the arrival of the first convicts, with their attendant Governor, warders, and army families, to the problems of the immediate post-war

years. In Part II, Dr Dunsdorfs expounds with the help of all available statistics the relationships between the various trends shown over these 150 years: market prices and area under wheat, changes in yield, changes in costs of producing wheat, rural population and wheat production, the importance of wheat-growing in the national economy. The two parts taken together contain everything that the economic historian could want to know on this subject. When so much has been provided, it may seem ungenerous to ask for more, but one reader at least would gladly have sacrificed all the logarithmic charts (a pernicious invention of the statisticians) for a series of black-and-white maps showing soil types, rainfall, temperature, even State boundaries and railways. The geographical setting of Dr Dunsdorfs's story seems inadequately staged. And secondly, Dr Dunsdorfs is in places inclined to rear a mighty statistical edifice on what appear to be shaky foundations, and especially so when he gaily establishes "the" cost of wheat production, or the total of profits and losses obtained from wheat production, in the whole of Australia. The fact that his table on p. 425 proves conclusively that from 1914 to 1941 wheat growers had lost over £200 millions in growing wheat confirms my suspicions of agricultural accounts as supplied by farmers to Royal Commissions or laboriously assembled by economic historians.

EDITH H. WHETHAM

W. M. WILLIAMS, *The Sociology of an English Village: Gosforth*. Routledge and Kegan Paul, 1956. x+242 pp. 25s.

Rural sociology has been almost wholly neglected in this country, except by the novelists of the soil. Mr Williams, a trained social anthropologist, sets out to remedy this neglect to some degree by making an intensive study of one rural parish and the changes that have taken place over the last fifty to one hundred years within its boundaries.

How does one select a single parish for study in this way? Mr Williams chose north-western England as his region (for reasons

that are not revealed), and within that region west Cumberland; and within the region he found that Gosforth was the parish which satisfied his other criteria. It was a reasonable size in population; it was sufficiently remote from the acids of modernity, which have tended to dissolve so much of rural England into a rather nondescript mass; it has a long history; and it contains both a village and a wide area of scattered farms.

The civil parish of Gosforth covers eleven square miles on the western fringe of the Lakeland Fells, and is about two miles from the coast at its nearest point. Nearly two-thirds of the population live in the village, and the remainder in dispersed farms and cottages. Over two-thirds of the householders were born in the parish or within ten miles of it: there are several people in Gosforth whose families have lived there for four centuries or longer, so that "many cultural features of considerable antiquity have survived until the present day."

After more than two centuries of relative stability, the population of Gosforth began to rise about 1810, reached a maximum about 1870, and has since declined steadily to about half the size it was eighty years ago. The village itself has increased in size since 1870; the decline is seen in the dispersed farmhouses and cottages, many of which are now used only for barns and byres, while others are just heaps of rubble on the ground. This in itself is a profoundly important cultural change.

Mr Williams's ten chapters are concerned with the economy of the parish, the Family, Kinship, and Social Classes; with that good old sociological standby—"Some Aspects of the Life Cycle"—with Neighbours, Community, Religion, and with 'Gosforth and the Outside World'. There are eight appendices on various subjects, all worthy of study, and many pages of valuable and entertaining notes on the sources and the text. *The Sociology of an English Village* has already been widely reviewed and praised as a notable contribution to rural sociology in England. It can be read with profit by all who are interested in the English village and

what has happened to it over the last hundred years. One wishes there were many more studies equally good for other distinctive regions of this country.

Mr Williams was only just in time at Gosforth. The Atomic Energy Commission is already on the doorstep. "All in all, every development that has taken place in parish affairs in recent years has emphasized and reflected an urban way of life in various ways. Against this the traditional way of life is static and can offer nothing to replace the loss in community feeling which is a result of these developments. The social structure, an inheritance from the past, was not designed for a world where every individual is conceived of as a highly mobile unit, and does not seem capable of adaptation to suit this concept. If the present change continues to its logical conclusion, then the sociologist of fifty years hence may well find it difficult to distinguish Gosforth from any other rural parish in England."

I am not competent to discuss Mr Williams's book as a sociologist, but much that he says is valuable to the historian and it is on these aspects that I should like to offer a few comments in this review. So much of sociology as written seems to me, speaking as an amateur enquirer seeking enlightenment, to consist of windy abstractions: a great deal of what everybody knows already, and lengthy discussions of the trivial and the obvious. Most sociological textbooks could profitably be reduced to one-third their present length. Few of them attempt any discussion in depth: that is, over a considerable stretch of time. Surely the historical method is indispensable to the real sociologist. Without it his conclusions are bound to be jejune and superficial.

Mr Williams stands out as a sociologist of sense. He has used the parish records and other local sources extensively and so given "an historical background to the sociological analysis." This alone would make his study notable. The study of the pattern of land-ownership and occupation, for example, draws upon the glebe terrier of 1778, the

enclosure award of 1815, and certain literary sources (there is apparently no tithe award). The chapters on the Family and on Kinship make use of the parish registers, which begin in 1571; and the cartulary of St Bees is drawn upon repeatedly.

I venture to suggest, however, that his chapters on the Family and on Kinship would have gained greatly if he had also used some of the central records in the Public Record Office. The fuller hearth-tax assessments of the period 1662-74, for instance, are invaluable for showing the structure and ramifications of rural families especially, the existence of extraordinary groups of the same family name, and very often the wide economic range covered by a single family name in the same generation. In one large Midland village in 1670, the 161 households in the hearth-tax assessment represented eighty-two different family names; but within the framework of this commonplace observation one finds two families with no fewer than eight branches in the village (in one instance all the branches had been thrown out within the preceding ninety years), and three other families with six branches each. Many other families had three, four, and five branches in the village. A Leicestershire woman once said to me that when she got married, some forty years ago, she immediately became related, through her husband, to every other family in the village.

Mr Williams could have made even better use of the parish register than he has done. For most parishes this reveals whole dynasties of peasant families, intermarrying closely on their own economic levels, so that the degree of inter-relationship in the seventeenth-century village, for instance, is nearly incalculable. These are facts of high importance to the historian as well as the sociologist, for in this enormous blood-brotherhood lay the greatest strength of the peasant community in the face of external economic and social change.

A systematic examination of the parish registers, the wills, and the tax assessments for Gosforth in the second half of the seven-

teenth century would have produced a wonderful picture of the kinship of a rural parish at that date, while life was still relatively static (or was it? what degree of family mobility was there even then?). Over a longer period a similar study of the sources would have yielded, for all the imperfections of some of the documents, some valuable material on the longevity of families in the chosen parish. What proportion, for instance, lasted a hundred years at Gosforth? How many lasted for two hundred years, and so on? What kind of peasant stayed the longest—the bigger man, the middling man, or the smallholder; the freeholder, or the copyholder? Was there greater mobility in some centuries than in others? How and when did the 'dispossessed' arise as a class in a remote rural society? Is it connected with the growth of population on a relatively fixed supply of land? All these questions, and many others, seem to me to be fundamental to sociology as well as to history, although Mr Williams might reasonably object that some of them go farther back than he was prepared to go in this book. But I cannot see, for example, that he has used the census schedules for 1841 and 1851, which are preserved in the Public Record Office, to construct a picture of kinship in his parish a hundred years ago, a picture which might well have been very revealing as to the extent of change even in this remote parish during the past century.

A sociologist trained in the use of historical sources could produce a first-class study of an English parish, or small town for that matter, for the period between the early sixteenth century and the present day. Such a study might well tie up at its edges with the examination of house-types over the same period, which one is glad to know that Mr Williams has already done for Gosforth, and will shortly publish elsewhere. For example, did the older generation retire into a 'parlour' in the farmhouse when their working days were over, or were they housed in a separate cottage? What is the meaning of the 'double farmhouses' one comes across in Dorset and possibly elsewhere also?

There exists a considerable territory on the frontier between history and sociology which few have yet touched, let alone explored, with the notable exception of Professor Homans in his seminal work on *The English Villager in the Thirteenth Century*, and now Mr Williams in a more limited way in the book under review. It is one of the merits of his excellent and stimulating book, so full of good meat and ranging over such a wide field of social life, that it should raise so many other important questions. *The Sociology of an English Village* is a pioneer study, as others have remarked. It makes a limited, though valuable, use of historical sources; but it points the way to an even richer study based upon the local historical records of the past 450 years.

W. G. HOSKINS

ESMÉ WINGFIELD-STRATFORD, *The Squire and his Relations*. Cassell. xii + 424 pp., illus. £2 2s.

A new book by Esmé Wingfield-Stratford must always be looked forward to with lively anticipation by those who have read his earlier works. He is gifted with a persuasive style though it is occasionally marred by such lapses as "thought up" and a rather too frequent use of the phrase "stay the course." His learning is exhaustive, and he has a freshness of outlook that is always stimulating, and rarely a dull acceptance of traditional views. We must always be thankful for such writers, even if we do not agree with all their conclusions.

The present book is, as its title indicates, a history of the squirearchy as well as its apologia. It traces the rise and decline of the landed gentry in the local and national government of the country, and defines the period of its effective control over and leadership in rural England, from Tudor to Victorian times. It even anticipates a resumption of authority and direction by a new race of squires in modern times, which seems an unlikely event in these days of official decisions and advice.

There is much in the book that is challenging, and that is one reason why a reviewer

must exercise caution equal to that exercised by the writer in presenting his conclusions. It is altogether too easy to condemn a book because it contains some statements with which it is impossible to agree. Few people would, I imagine, be prepared to accept the conclusion that the relations between the labourer, cottager, farmer, and landlord were always amiable, and that the rural poor always accepted their situation without resentment. The only active protest against his conditions that is noticed here is the Captain Swing riots of 1830, and a novel view of these is presented. The rising was not the result of hardships caused by enclosures. It broke out in the south-east where the open-field system was abolished, if it had ever operated, before the sixteenth century. This is certainly true, but the sporadic riotings of 1795 and 1816 are not mentioned. Whether the situation of the labourer at these dates was the effect of the eighteenth-century enclosures or not, it was desperate, and the men and women indicated it in the only possible way. They seized stocks of grain, flour, and provisions and sold them at what they estimated to be fair prices. Twenty-five years before Arthur Young reported that a labourer had denied that thrift would help him, asking whether he would be allowed land for a cow if he saved his money, and calling raucously for another pot of beer. These things do not indicate contentment.

Nevertheless nothing can be more true than that the great landowners took the lead in farming during the eighteenth century. The names of Tull, Townshend, Coke, the Duke of Bedford, and innumerable others spring at once to mind. They were not altogether philanthropists. They wished to improve their estates and to make larger incomes from them, but they did make English farming a pattern for the world in their day. After 1830 their interest declined though there are great names associated with the foremost agricultural societies during the nineteenth century, as any reader of the journals and transactions is forced to recognize. The squirearchy did not perform the same func-

tion individually in that century as in the preceding despite the members of these corporate bodies. An excellent illustration of the changed outlook of the landed gentry is that the country house libraries were not expanded by the purchase of contemporary literature after about 1830, and this is carefully underlined.

The steady increase in local power of the squires by reason of the decentralized system of government from Tudor times and the part they played in national government until the rise of the manufacturers is described; their promotion of legislation to support the agricultural interest is carefully worked out.

In spite of their apparent homogeneity the squires were a mixed bag, as every class of people is; and their ranks were constantly being depleted by the failure of families, either by sterility or stupidity. Similarly new blood was always being infused by the penetration of new rich into their ranks. And both by reason of isolation and of wealth there was amongst them a great freedom to develop individuality. None of these points is missed in this story and many more are discussed. It is a fascinating book to read, but I cannot help feeling that the examples given are to some extent selected, as is possibly inevitable. For this and other reasons the book is rather provocative, but what is the use of a book on such a subject that is not?

Few writers could hope to write the history of a social class so that all its readers would agree with it in its entirety, but this study must be read by all who wish to know something of a most important class of countrymen, whose influence on the development of our farming was so great. Its partiality can be excused in its writer.

G. E. FUSSELL

VICARS BELL, *To Meet Mr Ellis: Little Gaddesden in the Eighteenth Century*.

Faber and Faber, 1956. 160 pp. illus. 15s. William Ellis of Little Gaddesden wrote a great many farming textbooks in the second quarter of the eighteenth century. His agricultural precepts, many of which naturally

appear again and again in the different books, are interlarded with anecdotes of persons and their actions, stories of gypsies, horse copers, and so on, many of them having quite a Borrovian flavour. Much of this material was condemned at the time and by later critics as irrelevant padding which only obscured what ought to have been his main and only theme.

Mr Bell rejoices in these details. From them, and the contents of Ellis's *Country Housewife*, he has attempted to describe life as it was lived in Little Gaddesden about 1750. He is fortunate in being able to supplement Ellis by the observations of that clear-eyed critic, Pehr Kalm, who was at Little Gaddesden in 1748. He has also used the contents of the parish chest. It is difficult from such limited material to collect any clear impression, and the voluminous quotation necessarily carries with it a rather disjointed effect. The chapter headings are most felicitous.

The book portrays every aspect of life in this village as fully as the sources used will allow, and supplies details of everyday occurrences in the kitchen, the cowshed, the field, and the fireside. The details, however, remain details and are not woven into the story of a day, a week, or a season. They are just happenings, and in so much are very similar to the routine of seed-time and harvest, lambing and calving, and so on that are the events in all villages, and which have been described in so many local histories. The more of such collections of details the better, I suppose. The obvious similarities are corroborative, the differences informative about local variations; but I feel that Mr Bell was often as greatly intrigued by oddities as Ellis and Kalm were, and as perhaps I am. For example, the hay lathe in Ashridge Park, 1748, illustrated on p. 135, is obviously the same as that described by Sir Hugh Plat as used at St Albans a hundred and fifty years before. This is a detail for me; amongst the others there must be some for other people. That is the value of such compilations.

G. E. FUSSELL

H. E. DALE, *Daniel Hall, Pioneer in Scientific Agriculture*. John Murray, 1956. 242 pp. 21s.

SIR E. JOHN RUSSELL, *The Land Called Me: An Autobiography*. George Allen & Unwin Ltd, 1956. 286 pp. 25s.

The story of the development of agricultural organization, education, and research as they are today is in all essentials a twentieth-century story. Hall, Dale, and Russell, the three men with whom these two books are associated, played leading rôles in the formative phases of this story. Sir John Russell, the sprightly octogenarian who is happily still with us, also writes the foreword to the book on Daniel Hall. The first sentence of this foreword—already much quoted—can aptly be applied to all three, for they all belonged to “the band of pioneers who in the 1890’s refused to accept the widespread view that British agriculture was dead and only awaited burial at the hands of the Board of Agriculture.” That is why Dale’s elegant and scholarly biography of Daniel Hall and the revealing asides in Sir John Russell’s characteristically modest autobiography are important to the agricultural historian.

In the words of his biographer, Sir Daniel Hall “did a remarkable work, and he was a remarkable man.” That work falls conveniently into three parts: that which was accomplished before, during, and after his fifteen years as Development Commissioner and as a higher civil servant.

Born in Rochdale, educated at Manchester Grammar School, and proceeding to Jowett’s Balliol as a Brackenbury science scholar, Hall started his career with a short spell of schoolmastering in Birmingham. The turning-point came with the decision to become a lecturer under the University Extension Movement in Kent and Surrey at the time when the “whisky money” was beginning to lubricate the educational machine in rural England. Henceforth he made it his mission “to carry science to the farmers.” In 1894 Wye College was started and Hall became its first principal. His pioneer courses at Wye were widely fol-

lowed and to this day their influence is discernible in the agricultural curricula of colleges and universities. In 1902 Hall was appointed Director of Rothamsted Experimental Station, then at a critical stage in its history. Here for the next ten years he revitalized the work of Lawes and Gilbert, and developed Rothamsted on lines which reflected views he had already formed about the direction in which research in agricultural science should go if it was to meet the needs of farming in the modern world.

The five books which Hall found time to publish in this first period up to 1912 are now of great historical interest. *The Soil, Fertilizers and Manures*, *The Feeding of Crops and Stock* are still read for their intrinsic worth, but they are now notable as an indication of the immense strides in agricultural science which they heralded. In the words of Sir John Russell, they are “a remarkable trio which we are not likely to see repeated as it is improbable that any one in the future will be competent to write on all three of these subjects.” The other two books—*The Book of the Rothamsted Experiments* and *A Pilgrimage of British Farming*—are “already classics in the sense that they will always find readers so long as men feel any desire to know the history of agricultural science, or to see a picture of British farming and the British countryside as they were in the days before the great wars.”

The two chapters which deal with the eventful years from 1910 to 1927 are as much a history of agricultural research and administration as a biography of Hall. They gain authority from having been written by a distinguished civil servant who occupied a key post from which to observe the events he chronicles, and who was, moreover, the author of two standard books on the working and the problems of the higher civil service. The pioneering story of the Development Commission and the revealing picture of the administrative machine in action given in these two chapters make them of absorbing interest both to the agricultural historian and to the student of government.

Hall was made an original member of the

Development Commission set up in 1910 to administer the £2,500,000 Development Fund which had its origin in the Lloyd George Budget of 1909. In 1912 he accepted the offer of a paid Commissionership, thereby becoming virtually the Commission's permanent adviser. Before the end of its first year the Commission had decided to do three things: to extend research and education; to promote inquiries to measure the economic possibility of establishing flax, hemp, tobacco, and sugar beet in this country; to encourage the organization of agricultural co-operation. The promotion of research, education, and advisory work was, however, soon to become the keystone of the Commission's activities. It was as one of the two architects (the other was Sir Thomas Middleton with, interestingly enough, the 'synoptic' influence of Sydney Webb in the background) of the implementing structure that Hall was to make his great and enduring contribution. This structure had three tiers. First, the 'agricultural organizer' and the 'farm institute' catered for the farmers at the county level. Secondly, the 'advisory officers' centred on colleges and universities stood to the county organizers "in something like the same relationship as the medical consultant to the general practitioner." Thirdly, a chain of specialized institutes closely connected with universities and colleges provided for systematic, continuous, and fundamental research in the various branches of agricultural science. So far as the third tier is concerned there can be no dissent from the judgement that "Hall, far more than any other single man, may justly be called the creator" and that in the event he gave this country one of the best systems of agricultural research to be found in the world.

Hall's translation from the Development Commission to be Permanent Secretary to the Board of Agriculture in 1917 started "the least happy and the least fruitful period of his life." It lasted only three years, but the candid and detailed record of these three years given by his biographer are of the greatest interest and for two main reasons. First, the record

happens to deal with the critical years when real power in agricultural affairs had passed largely from the Board to the war-time Food Production Department whose Director-General was the 'bonny fighter' Sir Arthur Lee (afterwards Lord Lee of Fareham). It fell to Hall, however, to advise and to help his chief Sir Rowland Prothero (afterwards Lord Ernle) to pilot the contentious Corn Production Bill through Parliament and the story of the passage of that bill given here makes good reading. Secondly, the record gives a frank and searching account "of the revolutions in the Board's higher command" which stemmed from the reaction of the orthodox higher civil servant to "the advantages and disadvantages, to both the parties concerned, of the entry of men from other professions into government service at a mature age." In 1919 Hall ceased to be Permanent Secretary but he remained a civil servant for a further seven and a half years in the newly created office of Chief Scientific Adviser and Director-General of the Intelligence Department. In this office, and later as a member of the Agricultural Research Council, he had the satisfaction of assisting actively in the task of bringing to full and vigorous working order the great schemes of research and education which he himself had designed at the Development Commission.

At heart Hall "was always more of a gardener than a farmer," and it must have been with the greatest pleasure that in 1927 he followed his great friend Bateson as Director of The John Innes Horticultural Institution on the outskirts of London. Here he remained until war came in 1939, when he made his last move, this time to the Lord Wandsworth College in Hampshire, the home of yet another educational venture to which he had already given long and loving service. One aspect only of his many and varied endeavours during this third and last phase can be mentioned here. "For many years the agricultural economist and reformer in him had been steadily growing on the man of natural science," and in his last book—*Reconstruction and the Land*—published the year before his

death, he advocated a comprehensive policy which would permit science to have full scope in determining the structure as well as the practice of British agriculture.

Unlike a good biography, which evokes criticism, a good autobiography evokes enjoyment. By this test Sir John Russell's urbane autobiography is a very good book indeed. The very title tells us a lot about the man. Sir Daniel Hall was attracted to agriculture mainly because he saw the golden opportunity it presented for scientific adventure and, as stated above, his last book proposed an all-embracing plan for the future of farming. Sir John Russell tells us that he first got interested in agriculture while doing social work amongst the poor of Manchester, when he "conceived the idea of establishing an agricultural settlement, to which people who had failed to make good in the towns might come." He knew nothing about country life in England, but he "remembered the little farms of Wales and how vastly better the people lived there." Since then Sir John has become a good countryman himself, but he has never lost his early concern for the underprivileged. His autobiography shows him to be, in truth, a very human scientist.

Like the biography of Hall, *The Land Called Me* also spans a long period of incredible change and can be conveniently considered in three phases. Each phase is, in its different way, of interest to the historian.

The first six chapters bring the story up to 1901 when, at the age of twenty-nine, he was appointed on Hall's staff at Wye College. For the social historian these chapters, and especially the first three, are of absorbing interest. Without in any way dramatizing his beginnings Sir John gives a vivid picture of his boyhood and youth in the London and the North of the last quarter of the nineteenth century. It is the familiar story of the fight against black-coated poverty waged by the middle class, with their respect for education and their determination to win the benefits which they believed education alone could bring them. In the case of young Russell this

determination took him successively to the Presbyterian College, Carmarthen, to the University College of Wales, Aberystwyth, and, for six years as student and demonstrator, to the Owens College, Manchester.

In the four chapters covering the second phase Sir John tells of his life at Wye and of his thirty-one years as Director of Rothamsted. He is far too humble a man, however, to do justice to his great achievements in this responsible position. But this can surely be said, that Sir Daniel Hall was as lucky to have been followed at Rothamsted by Sir John Russell as Sir John tells us he was lucky to follow Hall.

Sir John has always been a great traveller, and the remaining eight chapters of the autobiography narrate the incidents of his many journeyings in Europe, Africa, India, Russia, and America. These chapters help to explain how it came about that an octogenarian was to be the author of *World Population and World Food Supplies*, the standard book which is likely to remain the chief quarry for scholars in search of the facts of world agriculture at the mid-century.

EDGAR THOMAS

NIGEL HARVEY, *Ditches, Dykes, and Deep Drainage*. Young Farmers' Club Booklet No. 29. Published by Evans Bros. Ltd, for the National Federation of Young Farmers' Clubs. 48 pp., paper covered. 2s. 6d.

The history of land drainage could be made into a fascinating subject, though it has to be admitted that few, if any, land drainage historians have taken their opportunity. On this account Mr Harvey's book is all the more welcome. It sets out readably, concisely, and comprehensively the story of land drainage in this country. The common error of supposing that land drainage is a Dutch importation and the giving of the paternity of land drainage to Vermuyden is avoided. Mr Harvey is well aware that drainage in Romney Marsh is probably older than drainage in the Fens, and that in the Fens much valuable work was done in the Middle Ages.

A little more attention might have been

paid to the local authorities who have been responsible for land drainage works. Their history is of interest not only because it goes back very far, but because they are among the few survivors of local authorities which exist for the carrying out of a special purpose. It may well be, however, that Mr Harvey did not think that this was a suitable topic for a booklet directed to Young Farmers' Clubs.

J. E. MAHER

GEORGE EWART EVANS, *Ask the Fellows who Cut the Hay*. Faber and Faber, 1956. 250 pp. 25s.

This book is not history in the precise modern connotation of the word. It is scantily indexed and wholly undocumented. But it is history in the sense that Gilbert White and the Sturt-Bourne duality wrote history, at first hand, or at most second hand. And at times Mr Evans echoes more than a little of the talent which, by exact reporting and unembroidered prose, conveyed so valid a picture of Selborne and the Surrey Labourer.

The author and his wife went to live in the Suffolk village of Blaxhall in 1948 and, being observant people, soon realized the wealth of material awaiting the industrious collector of the ways of a passing, and immediately past, generation—the Victoriana and the Edwardiana of the East Anglian village. Being industrious people, they set about collecting it; and Mr Evans's narrative of the careers, habits of life, methods of work, and material and spiritual cultures of Blaxhall, as so attractively presented in *Ask the Fellows who Cut the Hay*, makes a substantial contribution to rural history.

Much of the content of this book will be familiar in a general way to most readers: we all know of the harvest customs, the itinerant gangs of sheep-shearers, the village ways of bacon curing and brewing. What is valuable here is the precise and detailed account of how such work was done in one particular place, giving concreteness to generalization and a local home to ancient crafts. To most of us, also, these matters have become so shrouded in sentimentality as to be abhorrent:

Mr Evans, by rescuing the memories and the oral traditions of his dying neighbours and immortalizing them in print, does a considerable service in substituting for a cupid-blinded nostalgia a sober appraisal of the facets of rural Suffolk before the agricultural revolution of the last half-century. He has, as it were, photographed the visage of a drowning culture as it comes up for the last time, and not left it to the historian to reproduce its lineaments as best he can from a bare skeleton in a record office mortuary. It was a task which urgently needed to be done before it was too late; and he has done it with enough imagination, and with the mysticism of the muck-and-magic school sufficiently controlled, to turn the near-corpse of the immediate rural past into a human entity, and not an angel. There are leaky thatch and streaming walls here, beside the smell of bacon smoking in the chimney corner; and aching muscles and sodden clothes beside the home-brewed ale.

Mr Evans pins his facts on to a select few of the aged folk of Blaxhall. To Robert Savage, the seventy-five-year-old shepherd, for example, he attaches his account of the shepherding techniques and the shepherd's clothes and tools of the past three-quarters of a century. Here, as elsewhere in this book, the reporting is explicit: Savage and his contemporaries held the crook by the lower end of the handle, slid it up the near hind leg of the sheep to be caught until the thigh was wedged in it, and then by a twist of the wrist threw the sheep on its back—a method of throwing which must have led to a high incidence of blackleg in Blaxhall.

Some of the year's work with the flock unfortunately goes unreported: a long aside on Coke of Holkham, which adds nothing new to history, would willingly have been sacrificed for a description of how a Victorian shearer opened up and clipped the fleece. Mr Evans does, however, remind us that transhumance was not confined to the hills: the Suffolk shepherd also went with his flock to the saltings as, several centuries before, the *bercarius* of Wellingborough took his sheep

to the maritime marshes of Crowland abbey.

The same treatment is accorded the Blaxhall housewife with her baking, brewing, and cheesemaking (Suffolk cheese has been revived in the last year or two); the farmer with his leases, his harvest by contract, and his tools; and the villager in general with his schooling and superstitions, his customs and his dialect. It is a pity, however, that Mr Evans has thought it necessary to pad out an otherwise impeccable piece of reporting with so much conventional parochial history from the parish chest and from irrelevant periods. Without this make-weight matter *Ask the Fellows who Cut the Hay* would be an achievement beyond reasonable reproach; with it, the book is curate's-egg.

The physical volume itself, like all that issue from the house of Faber, bears evidence of thoughtful design. It is set in Monotype Bell and printed on good white paper with a care for evenness in impression: but the Bewick cuts selected for the chapter headpieces reproduce ill upon an inhospitably smooth paper; they have lost most of their fine detail, and in one case at least (p. 42) have been so drastically trimmed as to lose their artistic unity.

It remains only to express the hope that Mr Evans's example in rescuing the immediate past from the grave mouth long enough to paint its likeness will be followed in other regions of Britain. The result would be a corpus of material for which all future generations of rural historians could not fail to be grateful.

R. TROW-SMITH

REX C. RUSSELL, *The 'Revolt of the Field' in Lincs. The Origins and Early History of Farm Workers' Trade Unions*. Lincolnshire County Committee, National Union of Agricultural Workers. 1956. 168 pp. 2s. 6d. For half a crown this book is excellent value. It traces the history of farm workers' trade unions in Lincolnshire by means of selected extracts from local newspapers and official blue books with the minimum of interspersed commentary. The result is a lively month-by-

month account of union agitation as it can be pieced together from journalists' reports and correspondents' letters in the local press. It is essentially a tale told by contemporaries, full of their own prejudices, threats, and fears, but lacking the bias of after-knowledge. And it makes refreshing reading. Sooner or later, of course, the earnest reader and reviewer begins to feel uneasy because the contemporary account is in some respects misleading. It is an occupational disease of the professional historian to hanker for the balanced, objective, and complete account, and although he may read with enjoyment the stimulating language of the eye-witness, he cannot refrain from summoning the armchair commentator afterwards to his side to put the matter properly in perspective. The enthusiastic, but less earnest reader, however, is free to enjoy the rough and tumble of heated contemporary controversy, and can cheerfully ignore the cool-headed appraisal of the unengaged observer.

The book begins with extracts from the report of the Royal Commission on gang labour in 1867, designed to give a background picture of the working conditions of agricultural labourers. The use of this report as the only source of information is unfair, since it puts a one-sided and, in consequence, an unduly gloomy view of the situation. Gang labour was common in only two out of the four main farming regions of Lincolnshire: on the wolds and limestone heath, where turnip cultivation had led to the extensive ploughing-up of sheep walks and rabbit warrens, and in the fens, where drainage had enabled the former summer pastures to be transformed into fertile arable fields. Many new farms were carved out on these reclaimed lands, but they lacked adequate cottage accommodation for all the extra labour needed. Hence, gang labour came into existence—an innocent expedient to meet an emergency, which brought unanticipated social evils in its train. The working conditions of gang labourers were appalling, as the report of the Royal Commission makes perfectly clear, but they were not the working conditions of the typical

agricultural labourer. A few extracts from other Parliamentary Papers of the same period would have shown that Lincolnshire farm workers enjoyed unusually good working and living conditions, judged by national standards. Indeed, a number of passages in the later pages of the book admit that Lincolnshire was a high-wage county. In the early 'seventies, labourers from southern England were being encouraged by their unions to move there, and it was some time before the protests of Lincolnshire workers at the consequent lowering of their wages persuaded the unions to drop this campaign and to encourage instead emigration to Australia, New Zealand, and Canada.

Background matter occupies only fifteen pages of the book, however, and the rest are devoted to newspaper extracts describing the spread of unionism from the early months of 1872 onwards, the first wage successes in 1872 and 1873, the employers' lockout in 1874, the increasing flow of emigrants from Lincolnshire to the industrial north and abroad, the gradual weakening of the unions as depression deepened after 1879 until 1882 when they ceased to be an effective force. The book ends with the year 1892, when the last attempt to breathe new life into the unions had failed. "As far as we know at present," writes Mr Russell, "—and much more research needs to be done—the Lincolnshire farm-worker was unprotected by further rural trade unions until the first World War." Five appendices give a selection of songs sung at union meetings, wage rates at the Lincolnshire hirings from 1870 to 1891, population statistics for some sample parishes in the same period, sample emigration notices, and news items concerning the formation of Union Co-operative stores. On this last subject, and indeed on many others touched upon in the book, Mr Russell points out how much remains to be discovered. Indeed, he is as much concerned to instigate further research and to gather up information from living witnesses as to record the more accessible printed information. Later, perhaps, he will make his peace with the professional historian and pro-

vide the "balanced, objective, and complete account." Meanwhile, we may thank him for performing a task which could profitably be done for all counties, and, moreover, for doing it in a way that brings the agitation vividly to life, through the descriptions of eye-witnesses.

JOAN THIRSK

A. H. SMITH, *English Place-Name Elements*. Cambridge University Press, 1956. Vol. I, A-IW, lvi+306 pp.; Vol. II, J-Y, vi+418 pp. Each 35s.

In 1924 the English Place-Name Society published a slim volume of some eighty pages entitled *The Chief Elements used in English Place-Names*. The author, Sir Allen Mawer, drew attention in his preface to the heavy but unavoidable handicap under which the book suffered, of being written at the beginning of the Society's work instead of at the end. Now, thirty-three years later, the end is still not in sight, but in the meanwhile nineteen counties have been surveyed, and the quantity of material gathered by the labour of many scholars is great enough to warrant a fresh attempt at synthesis and interpretation. This the present director of the survey, Professor A. H. Smith, has accomplished in the two substantial volumes under notice.

The great historical importance of place-names is now very generally appreciated. They are living witnesses to the unrecorded history of our countryside, and where the archaeological and documentary evidences are alike scanty they become a primary source of knowledge. Any student of agrarian history who reads Professor Smith's articles on such elements as *by*, *feld*, *ham*, *leah*, *stoc*, *tun*, *thorp*, and *wic* will learn much about the shaping of the English landscape which could be learnt in no other way.

The volumes provide a comprehensive dictionary of the elements found in English place-names before the fifteenth century. They will be an indispensable work of reference for all who use the county volumes, and indeed for all students of English history, geography, and dialects. A reviewer who is not himself a specialist in this field of study

can only salute the unwearied industry and wide scholarship which have gone to the making of these volumes. It is only here and there that one notices a small omission. For example, the article on *cot* does not mention that the names of four manors in the Devonshire Domesday, three of them quite substantial properties, are compounded of this element and the names of their owners in 1066, so that here at any rate the meaning is not just 'a cottage, a humble dwelling'. On p. 87 of the first volume we read that *celce* is not recorded in Old English, but p. 278 contradicts this by citing *Celce-hyth* (=Chelsea), a well-known instance. There is at least one exception to the statement that "saints' names do not occur" in combination with *-mynster*, for Brannocmynster (=Braunton, Devon) is now known to signify the church of St Brannoc. The equation of *ceorl* with "one of the lower classes of freeman, a freeman below the class of noble, an ordinary freeman," introduces a gloss for which there is no philological warrant, and could not have been made if the author had remembered that Alfred the Great, in his translation of Orosius, uses the word as equivalent to *libertinus*, a former slave who needs a further act of emancipation to make him fully free.

It was no doubt convenient to issue the work in two volumes, but should not the pagination of a dictionary be continuous? A minor blemish, common to this and all the Society's publications, is that nowhere are we given a list of the counties which have already been surveyed. It is to be hoped that one of the blank pages at the beginning or end of future volumes will be utilized for this purpose.

H. P. R. FINBERG

H. GODWIN, *The History of the British Flora: a factual basis for phytogeography*. Cambridge University Press, 1957. viii+384 pp., illustrated. 90s.

Any worker considering the earliest impact on Britain of man as an agriculturist must have come up against the problem of what was, in fact, the native vegetation of these

islands. Dr Godwin's book provides a comprehensive survey of the available data, from which he has built up a picture of the changing flora of Britain throughout the Quaternary era. He reviews the techniques of pollen analysis and identification of other sub-fossil plant remains, by which this volume of evidence has been accumulated, and in the light of his unique experience as the pioneer of Quaternary research in Britain, he discusses the pattern of change in the British flora, and how far the changes since the last Ice Age have been the result of immigration, changing climate, and, finally, of man's influence.

The major portion of the book (224 pages out of 367) consists of detailed records of all British species, including crop plants, which have been identified from glacial and subsequent deposits. For each species, a list of localities and authorities is quoted, and many distribution maps are given. A section on cereals, pp. 262-73, based on the work of Jessen and Helbaek, presents the best modern account of the history since Neolithic times of the various types of wheat (spelts, emmer, and bread wheats), oats, barley, and rye.

In the discussion which follows the long section on records, Dr Godwin points out that our knowledge of the rich flora of the Late-glacial period (approximately 12,000 to 8,000 B.C.), acquired from recent investigations at many sites, establishes beyond doubt the native status of "many weed species hitherto thought to be introductions to the British Isles by Neolithic and later agriculturists"—e.g. *Linaria vulgaris*, *Centaurea cyanus*, etc. Species such as these, together with thistles, docks, and plantains (see Tab. VII, p. 311), flourished in the open conditions of the Late-glacial period, but were strikingly reduced and restricted in range by the post-glacial spread of forests, and only reappeared with the destruction of the forests (which were the natural climax vegetation of Britain in the post-glacial climate) by Neolithic and later man.

Dr Godwin describes the successive migration and establishment of the forest

trees in the earlier part of the post-glacial period of increasing warmth, and discusses the concept of the climatic optimum in the Atlantic period (c. 5000-3000 B.C.), followed by climatic deterioration. He emphasizes that throughout the Late-glacial and until the end of the Atlantic period, Palaeolithic and Mesolithic man was a creature dominated by his environment, and that the greatest change in man's position in the ecosystem came with the migrations of Neolithic peoples with their techniques of cultivating cereals and keeping domestic animals, which occurred in the drier Sub-boreal period which followed the Atlantic.

The sections on "The Sub-boreal period and prehistoric husbandry" and the subsequent "Sub-atlantic period and climatic deterioration" (pp. 331-45) provide a valuable summary of the evidence on the beginning of agriculture in Britain, and the effects of widespread forest clearance, which began in Neolithic times. Dr Godwin's own work on Hockham Mere provides evidence for dating the treelessness of the Breckland from the time of the Neolithic flint-miners of Grimes Graves, and he refers at length to Iversen's pioneer work on Neolithic clearances in Denmark, with his evidence for two thousand years of shifting clearance and cultivation followed by local regeneration, before the permanent widespread forest clearances of the Iron Age.

In his final pages, Dr Godwin considers briefly how the landscape and flora of Britain in historic times have resulted from the impact of successive waves of human settlement on the primeval forest and peat mires. He concludes his survey with a short consideration of Romano-British agriculture, and lists species which are regarded as having been introduced at this time, either as weeds or as economically useful plants.

WINIFRED TUTIN

MALCOLM GRAY, *The Highland Economy, 1750-1850*. Oliver and Boyd, 1957. 280 pp. 25s.

There are several reasons why the develop-

ment of the Scottish Highlands attracts the economic historian. First, it is a region which has a sufficient degree of physical, economic, and social homogeneity to prompt and justify a search for those generalizations which give regional studies their universal value; secondly, there are many useful and accessible sources of evidence, few of them squeezed too dry to quench a scholar's thirst; lastly, the process of change in the Highlands has produced moments of human drama and struggle that stir all but the stony-hearted and tempt a lowland Scot to claim Highland ancestry almost as sentimentally as an American tourist.

Yet, with all the books born out of this, the publisher's claim that Mr Gray has written the first economic history of the Highlands as a distinct region is a truthful advertisement; it is also a modest one, for *The Highland Economy* is an excellent book which deserves to be added to the (all too short) list of standard works on Scottish economic history.

The century covered by the book ended with Scottish industry almost on its feet and the highland economy almost on its knees. It is true, as Mr Gray illustrates, that in the southern and eastern parts of the Highlands the old agrarian economy became more assimilated to lowland ways and that, by 1850, many people enjoyed higher economic standards than in 1750; but in the north-west, and in the islands, the total effect was one of economic degeneration. This contrast between developments in the north-west and the south-east of the Highlands is one of the most interesting features of Mr Gray's study. Differentiation taking place within a fairly homogeneous region invariably provides useful material for social and economic analysis.

The key, according to Mr Gray, is to be found in the relations between agriculture and industry. In the south and east "industry and agriculture were conceived to have separate spheres of action" (p. 71); people were detached from the land and concentrated in towns and villages, leaving a thinner but economically viable rural population. In the north-west "the more enticing prospect was

in encouraging industries—kelp and to a lesser extent fishing—which, being intermittent and seasonal, could best grow among a peasantry still with its land and in its old settlements" (p. 72). The population grew most rapidly in the north, remaining fairly stagnant in the south and east.

No history of the Highlands can avoid discussing the landlords (in the eighteenth century over half of the land surface was owned by less than half a dozen proprietors), and Mr Gray's valuable account of the rise and fall of the kelp industry helps to reveal their directing rôle in the process of degeneration. A greater density of population on the land—which prevented any major improvements in technique—was encouraged and rents were screwed up so as to force tenants to work with kelp for piece-rate wages. Outside the kelp areas there was also a general rise in land rents before 1815 and landlords had by then greatly increased their share of the agricultural income. When cattle prices fell after this date rents remained fairly stable, large-scale

sheep-farming was developed, and only the potato enabled the Highlanders to maintain and feed their families. The potato famine of the 1840's brought disaster to the people.

Mr Gray uses his sources skilfully; he also introduces something of an innovation for Scottish agrarian historians in a statistical appendix which presents the data in an analytical way, taking us far beyond the catalogue and travelogue. Yet there is still a great deal left to be done, and here and there one wishes Mr Gray had pursued his labours even more tirelessly. There is more than "scattered information about grain prices from 1750" (p. 141), and it is hardly true that the price of oatmeal "remained almost stagnant" from 1750 to 1815 (*ibid.*). The price, wage, and rent movements of Scottish agriculture can probably be more accurately measured than is generally thought. Mr Gray's valuable work should inspire others to attempt that—and the many other—tasks in Scottish agrarian history that remain unfinished.

GEORGE HOUSTON

The British Agricultural History Society

IMPORTANT NOTICE

*As from 1 September 1957 the address of the Secretary of the
Society will change from*

*c/o Museum of English Rural Life,
7 Shinfield Road, Reading*

to

The Department of Agriculture, Parks Road, Oxford

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