

The AGRICULTURAL HISTORY REVIEW



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*

PRINCIPAL CONTENTS

The Pattern of Settlement in Roman Britain
by S. APPLEBAUM

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The Development of Mechanization in English Farming
by W. HARWOOD LONG

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Livestock Prices in Britain
by EDITH H. WHETHAM

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The Pattern of Settlement in Roman Britain

By S. APPLEBAUM

MR Glanville Jones's article 'Settlement Patterns in Anglo-Saxon England' in *Antiquity* (xxxv, 1961, pp. 221-32) led to a passage of arms between himself and Mr Leslie Alcock in the subsequent number of the same periodical (*ibid.*, xxxvi, 1962, pp. 51-55). Mr Glanville Jones's views on the problem of continuity from pre-Saxon to certain later settlement patterns may be right or may be wrong; but they do not arise from a whim or a sudden flash of insight; they have been evolved during a period of prolonged research. Not less important, they reflect a trend in thinking which is reacting against the Simon-pure school of discontinuity between Roman Britain and what came after it: a school which has held the field till recent years. In consequence, whatever ultimately emerges from Mr Jones's line of thought, it is part of a broader movement and as such is performing the service of provoking new considerations and opening up new horizons.

Mr Jones's contention, if it may be summarized in the briefest possible fashion without danger of distortion, is that Celtic society was in greater part based on the common-field system with its accompaniment of nucleated settlements, whose occupants were bondmen, and that certain tenurial patterns recorded in the Middle Ages, not only in Wales and northern England, but also in southern England, more particularly where they involve the phenomenon of discrete estates, go back to the Celtic—and by implication to the Romano-British—pattern.

In the context of this controversy, it seems important to establish what is known, and what is *not* known, of the Romano-British pattern, and how the controversy bears on the archaeology of Roman Britain. Mr Alcock, in his reply to Mr Jones, states: "The Romano-British pattern of agriculture and settlement is remarkably well known," and "in lowland Britain" (in reference to the Roman period) "nucleated settlement is unknown." I am far from convinced that we know so much about the Romano-British settlement pattern. We certainly ought to know much more than we do after so much work; and two years' concentrated study of the Romano-British lowland zone in 1949-51 did not persuade me that the phenomena had been scrutinized as thoroughly as they should be. Very rarely, for instance, has a thorough study been published of a Roman villa or villa-group in relation to its environment.

The late Mr S. E. Winbolt got near to it at Wiggonholt, Sussex; I made an attempt in the same direction for the Basingstoke district; Dr Finberg's paper on Withington suffered from the incompleteness of Roman evidence round the site investigated.¹ Although Messrs Wooldridge and Linton have made generalizations about the close correlation of Roman settlement with the medium (or intermediate) loams,² nowhere have I found a published soils map on to which Roman sites have been imposed, though something like it must have been prepared in the course of the work that produced the second and third editions of the Ordnance Survey map of Roman Britain.

In the meantime, however, can we make any statements at all about the Romano-British settlement pattern? Was the distribution of rural settlement in Roman Britain composed of dispersed sites, or of 'nucleated' villages; and whichever was the case, can the pattern be related to subsequent tenurial arrangements in this country?

Now it is a peculiar fact that, if I have understood Mr Jones's contentions aright, their vindication requires a *dispersed peripheral* pattern (i.e. the discrete estates) related to given centres, rather than actual nucleated settlements as we normally understand them. It is also true that these discrete estates are described as hamlets, i.e. presumably nucleated settlements, by Mr Jones; but this is a distinct problem.³ The first question to be answered is: Has Roman Britain any signs of peripheral distributions? It may be useful to preface a rejoinder by referring to a course of research I carried out a few years ago in France, where I attempted to discover what archaeological distribution was reflected in the Carolingian cartularies of Gaul, which described domains, many of which patently perpetuated in numerous respects the tenurial structure and techniques of late Roman estates. The result of this enquiry was to disclose that 'nucleated' villages certainly existed on Carolingian estates, but that some of the component domains appeared on the Roman archaeological map as estate-centres surrounded by rings of peripheral holdings (*mansi*). This discovery establishes at least the possibility

¹ For Wiggonholt, see below, p. 7; the Basingstoke area, *Papers and Proc. Hampshire Field Club*, xviii, 1953, pp. 126-7.—H. P. R. Finberg, *Roman and Saxon Withington*, Leicester Univ. Press, 1955. Mr Raleigh Radford's work on the Ditchley villa, Oxfordshire (*Antiquity*, ix, 1936, pp. 472 sqq.; *Oxoniensia*, I, 1936, pp. 24 sqq.), suggested the probability of the out-settlement of slaves around the villa in the fourth century, but did not test the hypothesis by actual examination of the sites.

² *Antiquity*, vii, 1933, pp. 297 sqq.; cf. Fox, *ibid.*, pp. 473 sqq.

³ See *Antiquity*, xxxv, pp. 221 sqq. 'Die Entwicklung der ländlichen Besiedlung in Wales', *Zeitschrift für Agrargeschichte und Agrarsoziologie*, x, Heft 2, Oct. 1962, pp. 174 sqq.; 'Early Territorial Organization in England and Wales', *Geografiska Annaler*, xliii, 1961, pp. 174 sqq.; 'Some Medieval Rural Settlements in North Wales', *Trans. & Papers of the Inst. of Brit. Geographers*, 1953, no. 19, pp. 51 sqq.

that Roman Britain might present parallel phenomena; it also warns us that whatever they turn out to be, they are likely to be complex rather than uniform.

The appearance of a peripheral distribution, however, is connected with a social system embodying the coexistence of dominants and dependants, whether the latter are bond or nominally free. It should therefore be re-emphasized at the outset that the existence of a *colonate* is known to us in Roman Britain, at least in the fourth century A.D.; British *coloni* are specifically alluded to in the Theodosian Code. This implies one or other of two conclusions, although one does not necessarily exclude the other. Assuming that the villa (i.e. the country house constituting the centre of a large estate) was generally cultivated at least in part by *coloni*, then they must have lived either at or near the villa itself in a group, or dispersed about it. The first picture is presented at the French villas of Anthée and Chiragan, where the numerous dwellings of the cultivators are ranged systematically in the close vicinity of the estate-owner's sumptuous dwelling.¹ The second picture is discernible in the 'peripheral' pattern detected by the writer east of Reims. If the 'peripheral' pattern of (presumably) dispersed farms is not accepted, then the alternative is the concentration of the *coloni* at or near the villa itself—in which case the villa becomes in all essentials a nucleated settlement. This is where Mr Alcock's denial of nucleated settlements in Roman Britain collides with his equally spirited rejection of the existence of dispersed holdings in the neighbourhood of Roman villas.

There is, of course, a way out of the dilemma: you can claim that the Romano-British estates were run predominantly by slave labour. There are several answers to this. (1) The concentration of slaves on the estate itself implies, in effect, a topographically nucleated settlement, since even slaves must be housed and fed. (2) We cannot ignore the evidence of the Theodosian Code on British *coloni*; and (3) In the later Empire, the distinction between slaves and *coloni* had become increasingly obsolete. Saint Melania, who owned lands in Britain, also owned estates in Sicily worked by numerous "servi agricultores," i.e. slaves settled out as tenants (an obviously peripheral pattern); and *serviles* formed at least one of the three categories of tenant on the Carolingian estates.

Having thus projected a picture on the basis of a theory and of analogy, what do we actually find? First, there are a number of villas in Britain which include among their outbuildings aisled 'barn' or 'basilical' structures which

¹ *Annales de la Société des antiquariens de Namur*, XIV, 1877, pp. 165-94; XV, 1881, pp. 1-40; L. Joulin, *Les établissements gallo-romains de Martres-Tolosanes*, Académie des Inscriptions et Belles Lettres, XI, 1901.

are generally regarded as having housed working hands. It would be of great interest could we decide whether these were occupied by slaves or by *coloni*. The question is more complicated than it may seem, for in some of these buildings what have been thought to be the supports of posts demarcating the aisles may actually have been the supports of raised floors (as at Lullingstone, Kent); in other instances the dimensions of the aisles make it clear that they housed cattle or horses, and the nave may well have been used in such cases for storing fodder and crops.¹ But assuming that workers were housed here, as can indeed be shown in some basilican buildings, our view of the character and class of the inmates is bound to be influenced by the origin of this form of building and by the existence of independent 'basilical' farmhouses which remained the principal buildings of their establishments. The origin of the basilical house is to be found in the prehistoric Early Iron Age cultures of north-west Europe, particularly of Holland, in the combined dwelling-house and byre which was the ancestor of the self-contained medieval Frisian and German farmhouses.² The type figures in Celtic literature, which makes it clear that the kindred and clients of the chief slept in the aisles with the livestock, while the chief slept in the room at the end of the building. It is accordingly evident that in a Celtic context this is the abode of the chief and his kindred, not of bondmen and their families. This has its bearing on the tenurial problem, for it means that in the Roman period such dwellings are not *a priori* likely to have housed slaves,³ and when they occur independently, they would not generally represent the dwellings of bondmen. Exactly why according to present archaeological evidence they appear in Britain only in the second century A.D. is a difficult problem. A recently excavated example at Exning, Suffolk, turned out to be the earliest certain datable instance so far known (early second century).⁴ In the early third century the whole building was rebuilt in stone and a dining room with a mosaic pavement was added at the east end exactly where according to Celtic literature the chief would have had his suite. This particular house also possessed

¹ Cf. the important remarks of Professor Van Giffen on the Frisian and Saxon aisled farmhouses, *Germania*, xxxvi, 1958, pp. 68-71.

² For the literature, see *Agric. Hist. Rev.*, vi, 1958, p. 76, note 1, to which should now be added Van Giffen, *Germania*, xxxvi, 1958, pp. 45 sqq., 'Prähistorische Hausform auf Sandböden in den Niederlanden'.

³ Belgic chiefs were certainly employing slaves on their farms in the pre-Roman and early Roman periods; cf. slave-irons found at Bigberry hillfort, at Lord's Bridge, and Camulodunum (pre-Roman), and at the early villa at Park Street, Hertfordshire. But such finds are unrecorded in later villas. For a possible *ergastulum* in a British villa, probably of 4th-century date, cf. the long narrow range on the north of the courtyard of Pitney, Somerset, with its immensely thick walls (C. Hoare, *The Pitney Pavement*, 1832). But this is the only example I know in Britain.

⁴ *Journal of Roman Studies*, L, 1960, p. 228.

lateral entrances on the long sides, dividing the hall roughly into two, and providing a through passage from side to side, exactly as occurs in the three-room Pembrokeshire cottages and their Welsh Dark Age predecessors with 'outshuts' studied by Sir Cyril Fox.¹ The Exning house thus not only provides a link with Dark Age Wales, but demonstrates that such buildings reflected a peculiar Celtic social structure even under Roman rule.

Something of the function of the independent basilical house can be ascertained from a study of the example at Stroud near Petersfield, Hampshire.² The distinctive features of this villa were: (a) the large basilical hall, with room for working hands; (b) the granary and three stalls for pairs of oxen situated on the east of the yard; (c) the bath accommodation, which is far in excess of the needs of the inmates of this farm alone; (d) a polygonal temple of typical Celtic plan to the east of the dwelling. The relatively small granary and number of ox-teams clearly bear no relation to the number of people living in the house or to the still larger number using the baths. The shrine, moreover, is of a type normally standing isolated in country districts and serving a series of scattered sites. It may be no coincidence, therefore, that four miles to the north of the villa is the village of Liss, whose name is derived from the Celtic word for a 'palace' in the sense of the centre of a large estate. Stroud is only interpretable as part of a cultivated area larger than its own, subordinated to another centre, and having other smaller points subordinate to itself.

Something more is added to our knowledge by the villa of West Blatchington, Sussex.³ Here an Early Iron Age site was superseded in the first and second centuries by a grain-producing farm of Romano-British native type. In the later second century a straight north-south boundary ditch was dug to the east of the site, cutting through one of the farm's second-century corn-drying kilns. This boundary turned out to be part of a mathematically surveyed 'grid' of chessboard fields, another part of which was detected to northward on an air-photograph. We cannot be completely certain that the 'grid' (which was clearly related to the typically Roman method of land division known as *limitatio*, and popularly as centuriation) and the villa were associated. But the chronology of these features suggests they were; both belonged to the 'new order'. A drastic change of tenure had taken place, and a typically Celtic house-plan had appeared, albeit in a romanized version. *Limitatio*, almost invariably the work of an authority (the government, the

¹ *Aspects of Archaeology in Britain and Beyond*, ed. Grimes, 1951, pp. 124-43. For a similar 'through' passage cf. the basilical villa of West Meon, Hampshire, *Arch. Jour.*, LXIV, pp. 1 sqq.

² *Arch. Jour.*, LXVI, pp. 33 sqq.

³ *Sussex Archaeological Collections*, LXXXIX, 1951, pp. 1-66.

military, a municipality), has no sense unless its purpose is to allot land among cultivators—newcomers or occupants or both; a relationship of tenancy is therefore clear. In some way or other, then, authority was here using a combination of Roman methods and native forms to organize (or reorganize) land-settlement on a tenant basis.

From the above cases it may be deduced that some basilical farm-houses were embodied in large estates comprising a number of dispersed holdings; others were the centres of continuous blocks of land systematically divided up among tenants whose place of residence is at present obscure. My own guess is that in both instances some of the tenants dwelt in the basilical house, because they were kindred or clients of the landlord or lessee. In either event, the first form represents dispersed or peripheral settlement (hamlets or individual farmsteads), the second a species of nucleation. My own study of the Basingstoke district, indeed, was strongly suggestive of 'peripheral' tenures about villa-centres in that area. In the same region, also, the name of Woodgarston (recorded as *Wealagaerstone* in 945), immediately south of the late-occupied villa of Balchester, may well have been derived from a group of *coloni* attached to the villa, who survived the Saxon conquest. Further suggestive of such peripheral tenure are the Roman place-names Sulloniacae (Brockley Hill) and Vagniacae (Springhead), whose terminations carry the meaning 'property of'; the implied first word was *villae*, so that a group of farms in one area is meant.¹

Clearly, we must be ready for considerable variation of pattern. At Great Wymondley, Hertfordshire, the east limit of the medieval field-system surrounding the villa-site coincided with a Roman road, and the fields show plain signs of retaining within them a Roman 'grid' division into squares of 200 *iugera*. Remains of a Romano-British settlement have been found to south-east of the villa.² Hence while it is clear that the villa's land was systematically divided into tenancies, further study is required to ascertain whether the tenants were concentrated in the villa, lived in a hamlet nearby, or were dispersed in individual steadings within the measured area.

If the Cliffe *limitatio* (north-west of Rochester, Kent) is accepted as genuine—and I see no reason to doubt it—its centre appears to have been the villa

¹ See 'A Note on Three Romano-British Placenames', *Journal of the British Arch. Assoc.*, 3rd ser., xvii, 1954, pp. 77–8; the stamps of Sullonius, derived from here, have been found at Corbridge (*Archaeologia Aeliana*, 4th ser., xv, p. 280, fig. 12), and several kilns have been excavated on the site of Sulloniacae (Brockley Hill; see *London and Middlesex Arch. Soc. Trans.*, n.s., x, 1951, et seq.). The site may therefore have consisted of a pottery industry with several farms in the vicinity. For 'Celtic' fields in the neighbourhood, see *ibid.*, p. 228, n. 3.

² *Agric. Hist. Rev.*, vi, 1958, p. 73; cf. F. Seebohm, *The English Village Community*, 1896, map facing p. 432; VCH *Herts.*, iv, p. 196; *E. Herts. Arch. Soc. Trans.*, x, pp. 11 sqq.

at Frindsbury at its south-east corner.¹ The comparative rarity of Roman finds over the area of the 'grid' would suggest that here we have a case of the concentration of *coloni* at the villa itself.

As stated, the ecology of the Roman villa in Britain, i.e. its relation to its environment, has been all too little studied, but a word may be said of Bignor, Sussex.² The size of the villa-estate here can be estimated on the basis of its granary-capacity, ox-stalls, and natural boundaries, and it was possible to ascertain what remains, beside the house, were known within these limits. Five or six sites have been identified in the western half of the area, and one, much more doubtful, in the eastern half. In addition, there is a Romano-British 'kite' enclosure on the chalk escarpment to south of the villa, which is likely to have played a part in the economy of the estate, and a much larger enclosure on the Downs to south-westward, though pre-Roman, continued to be used in the Roman period, perhaps by the villa (a rational proportion could be discerned between the size of the villa's sheepfold and the enclosed grazing area), suggesting that its proprietors exercised control over areas of the 'Celtic' cultivation on the chalk.

Interesting from this point of view is the villa at Wiggonholt, Sussex. Its excavator, the late S. E. Winbolt, perspicaciously published the finds in its vicinity, and when superimposed on a local soil map their distribution has something to tell us.³ Four other minor Romano-British homesteads existed near the main house, each commanding a distinctive patch of arable soil, but so close to it as to suggest a relationship of tenancy. This suggestion was reinforced by one interesting detail, namely, that on one of the sites loom-weights were found. Although spindle whorls are frequent on Romano-British sites, loom-weights are much less so, and in two cases where they have been recorded they occurred in association with extensive iron-working.⁴ The conclusion would seem to be that in Roman Britain spinning was a common occupation, but that weaving was carried on at a comparatively few centres, some of which were industrial. (We know that at least one weaving mill was a state concern in the fourth century.) It seems highly probable, therefore, that some of the villas possessed weaving industries, operated by

¹ M. Nightingale, *Arch. Cantiana*, LXV, 1952, pp. 150 sqq.

² The succeeding details are derived from an unpublished study by the writer; for certain information he is glad to acknowledge the assistance of Mr T. Bertram and Mr T. Tupper of Bignor.

³ *Sussex Notes and Queries*, III, 1930, pp. 37-40; for the villa, *Suss. Arch. Collns*, LXXVIII, pp. 13 sqq.; LXXXI, pp. 55 sqq.

⁴ Thealby, Lincolnshire (Dudley, *Early Days in North-West Lincolnshire*, 1939, p. 193, where cf. Professor Hawkes's view that the iron workings were leased to *coloni*); Westbury: *Devizes Museum Catalogue*, II, 1934, p. 180, pl. lvi, 3-5; both were villa-sites.

the tenants. Evidence for such practices in Gaul can be cited from Carolingian estate documents. In Britain the government weaving mill was at Winchester, and it must be presumed that it drew its raw material from the surrounding country. This is not in itself evidence of a tenurial relationship, but it may well suggest the existence of crown domain in the vicinity. The villa-group centred on Andover has been marked by several students as likely to have constituted a single estate, and an imperial inscription has been found at one of its farms (Clanville), set up by the Emperor Carinus (283-4).¹ Carinus' personal administration of Gaul, Germany, and Britain was restricted to the year 283, in the course of which he is known to have taken the title "Britannicus Maximus," and also to have been faced with the revolt of the Gallic Bagaudae, which he fought but did not succeed in suppressing. A milestone of Carinus is known at Bitterne near Southampton, the natural port of entry for the Andover district, and it is attractive to explain this emperor's concern with both points, and his title of Britannicus, by a large imperial estate in central Hampshire and a movement of rebellious peasantry which he suppressed there. In that case, the estates of the Andover district may be assumed to have been run on a colonate basis.

Now the basilical villa of Eastfield, near Thruxton, in this region, is shown by air-photographs to have been associated with 'Celtic' fields. There are other sites of Roman rural buildings at Shoddesden and Warren Hill in western Hampshire which are set in the midst of closely woven webs of similar plots. Another similar case is known at Stancombe Down, Berkshire, and yet another near Kingston, Dorset. Here we may recall that the Fenlands of East Anglia, Cambridgeshire, and south Lincolnshire, with their extensive 'Celtic' field patterns,² are generally regarded as having constituted imperial domain; at least, it can hardly be doubted that they were initially drained and settled by government initiative.³ Such patterns, of course, are not confined to Hampshire or the Fenlands, but extended over much of the chalk uplands and the Thames gravels, and have more recently been disclosed on the gravel areas of the east and western Midlands. It certainly cannot be proved that all such areas were crown estates, though much of them may have been. The *regionarius* who left an inscription at Bath in the later second or third century

¹ J. Liversidge, *Roman Villas in Britain*, 1949 (Cambridge Univ. M.Litt. thesis—unpubl.), p. 331; I. A. Richmond in Council for Brit. Arch., *Research Rpt. I: Romano-British Villas, Some Current Problems*, 1955, p. 34; VCH Hants., 1, p. 297.

² Examination of specimen areas recorded from the air shows that at least two phases supervene one upon another in some localities, and that there recur from place to place patterns which hardly belong to the accepted 'Celtic' types.

³ Collingwood and Myres, *Roman Britain and the English Settlement*, 1937, p. 233; cf. *Jour. Rom. Stud.*, xxx, 1940, p. 186.

may well have looked after such an estate on Salisbury Plain;¹ a section of the 'Celtic' field-area of the Berkshire Downs is cut off from the lowlands on the north by a travelling dyke (the Grime's Ditch) almost certainly Roman and of administrative character, that suggests state action; and it is tempting to link the peculiar tradition of Abingdon's connection with the Emperor Constantine² with the native field-areas of the Thames gravels in that region.

Conjectures apart, the existence of the 'Celtic' field-areas faces us with the question: What do they represent in the spheres of tenure and agrarian structure?

The detailed study and recording of the so-called 'Celtic' field system of England is in mid-channel, and one hopes that first conclusions are not far off. Of similar traces on the gravel areas an admirable first account has been published by H.M. Ministry of Works.³ Where the Fenland systems are concerned, it is difficult to know how far its students have passed the stage of uttering appropriate sounds of wonder and admiration at the harvest of their own air-cameras; one may hope that the end of this era (long over-due) has arrived. In the meantime, very few scholars have endeavoured to tackle (at least in print) the problem of what the 'Celtic' system meant agriculturally and economically. To the credit of the archaeologists it must be admitted that some of them are still grappling with the complex problem of date (far from solved in the English lowland region, though not existent to the same extent in the Fenlands). A social interpretation of the pattern may possibly come out of Wales and Ireland. Be that as it may, Mr Jones's doctrine has to be adjusted to the existence of these field systems if it is to stand up to the test.

Is this an 'open-field' or an 'enclosed-field' system? The field complex at Cush, Co. Limerick, Ireland, investigated by the late Professor O'Riordáin, which resembles much of the Irish field-divisions still surviving and also the English 'Celtic' patterns, is one of plots enclosed by banks.⁴ Mr C. E. Stevens has pointed out to me that a passage in Caesar (*Bell. Gall.*, II, 17) seems to provide a clue showing that the fields of the Belgic Nervii were enclosed by quick-set hedges. The Belgic farm at Wyboston, Bedfordshire, as excavated, is an isolated steading with distinctly demarcated plots. On the other hand, if my interpretation of the Figchellean Down complex (Wiltshire) is right, it implies that cattle had to be kept off the summer fields by boundary dykes, and that the winter crop was protected by a fence, which would mean that

¹ *CIL*, VII, 45; cf. Dessau, *Inscriptiones Lat. Sel.* (1892), 2768, 2769.

² *VCH Berks.*, I, p. 202.

³ The Royal Commission for Historical Monuments: *A Matter of Time: the Archaeological Survey of the River Gravels*. 1960.

⁴ *Proc. Roy. Acad. Ireland*, XLVI, pp. 142-5, 175 sqq.

the stock were then on the summer fields, by implication not effectively enclosed.¹ Yet Celtic fields both in the Vosges and in Yorkshire were enclosed by stone walls, and the boundaries of the Wessex plots must have been effectively marked by mounds, hedges, or fences to have left traces visible in air-photographs.

The second vital problem is whether the settlement pattern of the 'Celtic' field system was—at least in Roman times—dispersed or nucleated. It is surprising that after so many years of work we are still unable to give a clear answer to this question. What is plain is that Little Woodbury was not the last word, and that such a complex as Figcheldean Down represents something more than a single family. From that point of view, the date of this complex is unimportant; it seems to me highly probable that close local investigation will ultimately show that (e.g. in Sussex) some blocks of downland fields were worked not by isolated farmsteads but by hamlets of small adjacent dwellings, of which Park Brow was perhaps an example.² The group recently excavated at Studland, Dorset, is another.³ But this was not, I think, invariable, and other areas characterized by isolated steadings are exemplified by the Cranbourne Chase sites. In relation to the last, a case has been made for identifying the *Anicetis* of Ravennas with the Roman villa of Tarrant Hinton.⁴ This name can be associated with a state contractor leasing to *coloni*, and its plural form suggests a group of farms, likely to be in adjacent Cranbourne Chase, which current doctrine holds to have been state domain.

Bound up with the distribution problem is that of tenure. Mr Jones suggests a connection between peripheral or discrete hamlets and hillforts. British prehistorians do not seem to have finally decided whether hillforts were more than temporary points of concentration in times of war, but at least in the 'B' and Belgic phases agriculture was carried on at Caburn, Maiden Castle, Worlebury, and Bigberry, to cite some well-established cases. Recently, travelling to Cambridge, I was immensely impressed by the fertility of the soil in the immediate vicinity of the Belgic hillfort of Sandy, where heavy iron coulter have been found. Elsewhere I have pointed out the apparent close connection between the associated boundary-dykes and drove-ways on Figcheldean Down and the hillfort of Sidbury; and whether or not the field-complex can really be dated from the Early Iron Age (such dating

¹ *Proc. Prehist. Soc.*, XX, 1954, pp. 103 sqq.

² *Archaeologia*, LXXVI, 1926, p. 8. This is the Roman settlement found near the Early Iron Age village.

³ *Proc. Dorset Nat. Hist. & Arch. Soc.*, LXXIV, 1953, p. 92; LXXVI, 1954, pp. 77 sqq.; LXXX, 1959, pp. 105 sqq.

⁴ *Jour. Brit. Arch. Assoc.*, 3rd ser., XVII, 1954, pp. 77-8.

was only tentative; a Romano-British date is more likely on general grounds, though not on the evidence of the air-photographs), the building of a hillfort implies authority and an agricultural surplus given up by the cultivators to support the builders. One may also point to Casterley, Wiltshire, which contained a single Belgic farmstead contemporary with it; the building of the fortifications here must have required the participation of the surrounding population, who may be conceived to have stood in a relation of subordination to the owner.¹ The difficulty facing Mr Jones's theory, in this sphere, is chronological. The lowland hillforts were abandoned during the Roman occupation, and such reoccupation as they experienced in the sub-Roman period was crude and short-lived. The tenurial link in Roman times was not between such centres and surrounding settlements, but between the social successor of the hillfort after *deductio in planam*, namely, between the Romano-British tribal centre—the *civitas*—and those settlements. Presumably in many cases the masters of the hillforts² became *decuriones* of the *civitates*, and *ipso facto* villa-owners on lowland soils. Whether they retained control of the downland peasantry in Roman days is a question. But the topographical implication is that in lowland Britain links have to be looked for not between hillforts and Romano-British hamlets but between villas and such hamlets, and this may considerably modify our interpretation of the evidence to hand. It would mean, for instance, that *at least* some of the dependents of the Romano-British centres are to be looked for in the uplands, and the centres in the lowlands, rather than vice versa. Exceptions there may have been. Casterley continued to be occupied by a farmstead in the Roman period, and the presence of a basilical farmhouse in the centre of the hillfort of Tidbury, Hampshire, may be a perpetuation of the old order in extraordinary or new circumstances; so may the remains of a Roman villa within the hillfort of Borough Walls near Daventry. The Tidbury dwelling casts additional light on the social character of the basilical house, and all these instances strengthen the case for seeing in the disputed remains within Castle Dore and Dinorben a Dark Age repetition of the Early Iron Age set-up.

So we return full circle to the subject of the relationship between the villa and its environment. But as we do so, we must make one more general observation concerning the 'Celtic' field system. This is that it represented, immediately before the Roman period, the greater part of the cultivated area of lowland Britain, and under Roman rule a very considerable part of it, prob-

¹ *Wilts. Arch. Mag.*, xxxvii, 1912, pp. 57 sqq.

² For *oppida* in the clency of chiefs cf. Caes., *Bell. Gall.*, viii, 32 (Uxellodunum); Grenier, *Man. d'arch. gall.-rom.*, vi, p. 734; Duroviguto, identified by Richmond and Crawford (*Archaeologia*, xciii, p. 33) with Sandy, Bedfordshire, means "hillfort of Vigutus."

ably more than was envisaged before the fuller application of archaeological air reconnaissance. Now if Mr Jones is right that the individual homestead cultivated by the kinship group represented an aristocratic minority (a view now gaining ground in Ireland¹), while the greater part of the Celtic countryside was cultivated by bondmen settled in hamlets associated with common fields—then either the ‘square field’ pattern of Roman Britain represents the bondman class, i.e. a common-field system linked with nucleated hamlets, or this pattern is not a common-field system and Mr Jones’s theory cannot apply to the ‘Celtic’ field areas. It is more than likely that the British ‘Celtic’ field system is not homogeneous, but with this reservation, the difficulties of applying his doctrine to the *totality* of the system are such that it is worth considering whether it should not be applied rather to the villa sector of the Romano-British economy.

As we have seen, the two sectors were not mutually exclusive; there were villas with ‘Celtic’ fields and some occur in the heart of ‘square field’ areas, but this does not meet the objection inherent in Mr Jones’s contention that bondmen held holdings in the *open* field. The evidence for the character of the fields of those villas not associated with ‘square’ plots is still far from satisfactory, but it is more substantial than some archaeologists have been prepared to admit.² In so far as it goes, these fields seem to have taken the form of long broadish strips; this is the evidence of Cliffe, Great Wymondley, Bury Lodge near Hambleton (Hampshire), Twyford Down (Hampshire), the Carolingian villas, and the heavy Romano-British coulter.³ Such fields are also found interleaved among normal ‘square’ plots in Dorset, Berkshire, Sussex, and the Fenlands.⁴ Here, if anywhere (and the whole state of the

¹ See V. B. Proudfoot, *The Advancement of Science*, 60, Mar. 1959, pp. 336–8; Estyn Evans, *Geography*, 24, 1939, pp. 24–36.

² As Rivet, *Town and Country in Roman Britain*, 1958, p. 122. Cf. *contra* C. Bowen, *Ancient Fields*, p. 24. For a clear case, O. G. S. Crawford, *Archaeology in the Field*, 1953, p. 206, fig. 37 (Holbeach Drove, Lincolnshire).

³ It would be well to recall that the Twyford Down coulter (*Pr. Hants. Field Club*, XIII, pp. 188–90) was found in a long lynchet field; it may also be noted that another large coulter comes from the Romano-British village of Abington Piggots, Cambridgeshire (Cambridge University Museum of Archaeology and Ethnology), which showed clear signs of continuous occupation from Roman to Anglo-Saxon times.

⁴ For the Fenlands, see here note 2; for Dorset, Bowen, *ibid.*; in Berkshire cases occur at Stancombe Down (I am indebted for this information to Mr P. Rhodes); in Sussex at Jevington (*Suss. Arch. Collns*, XLIV, p. 49). As regards the Carolingian estates of Gaul, see now Lynn White, *Medieval Technology and Social Change*, 1962, pp. 38 sqq. and 69 sqq. This scholar believes that the heavy plough cannot be traced in Europe before the 7th century, and came to England with the Danes in the 9th century; the three-field system spread, on the evidence he cites, from the Rhineland in the 8th century. He notes (p. 46) the suggestion of Haudricourt and Delamarre, *L’homme et la charrue*, 1955, pp. 108–10, that the heavy coulter might

evidence is incipient), are the preconditions for continuity between Roman and post-Roman field systems. Yet from Mr Jones's point of view this possibility is hardly encouraging, for the areas where new Roman systems were laid out were presumably often without previous 'Celtic' systems, while considerable areas characterized by the Celtic pattern are excluded from the application of Mr Jones's projected pattern. In this situation, the inference that the formation of the 'bondman' class did not precede the Roman conquest is hardly likely to be admissible. We are, in any case, faced with the question: Did the Roman jurists and administrators distinguish between 'free' and 'subordinate' elements among the Celtic population? Were Belgae treated differently from the people they had dominated? General assumptions and parallels aside, unless we are prepared to accept the phenomenon of the basilical house as producing more than a hypothesis, we just do not know. The Welsh evidence suggests the distinction between freemen and bondmen was allowed to stand, but the greater part of Wales was and remained under military and tribal rule till the end of the occupation, and was not subjected to the far-reaching impact of Roman immigration and economic development. At best, we might adopt the provisional broad hypothesis that "*colonus* = bondman," but as the Roman term connoted in the later Empire several sub-categories, free and unfree, this amounts to a *petitio principii*. All we can say is that a Celtic bondman *might* be a *servus casatus* in the eyes of the late Roman jurist.

As we have seen, some villas appear to have housed their tenants close to them, and others were surrounded by peripheral tenant holdings. Where the latter are concerned, much play has been made with the apparent absence of farm-sites from the neighbourhood of many villas. This, however, may be more apparent than real, and arise from insufficient search for such sites, which need be represented in each case by no more than a little pottery and a scatter of tiles. Secondly, too much can be made of distance. In Italy and Sicily to this day there exist towns of some thousands of inhabitants, many of whom walk from three to ten miles every day to cultivate their holdings in the vicinity.

Finally, a note on the problem of continuity from the archaeological angle. There is possible evidence for a survival of an advanced Romano-British agriculture for some time after it is commonly thought to have vanished, and this evidence needs careful examination by scholars on both sides of the Irish Sea. It consists of a number of iron plough-coulters found in Ireland, which,

have been used separately on a heavy frame that went ahead of the scratch-plough. Yet none of this evidence need contradict the prior existence of strip-fields, perhaps common, on Carolingian estates.

so far as available dating goes, are not before the fifth century and may be a good deal later. Of seven specimens illustrated by Mr M. Duignan, only one does not resemble the Romano-British type; one was found in a site yielding sub-Roman pottery, another at a site yielding Terra Sigillata.¹ Now some of the objects imported from Roman Britain to Ireland appear to date from between about 450 and the early sixth century (e.g. Garranes) and though Garranes had relations with south-western Gaul, it was also in touch with Britain.² Only one of the illustrated coulter, as stated, did not look Romano-British, but resembled the type known in France; none of the Roman coulter I have seen illustrated in reports from Gaul and the Rhineland is of the commoner Irish-Roman form. Literary evidence for the contacts between Irish and British Christianity from the fifth century on is considerable, and these apparently became intensive in the seventh century. In view of all this, the possibility should be examined whether some aspects of villa agriculture were not imported into Ireland by Romano-British refugees between the fifth and the seventh centuries, and whether this does not imply the survival of some Roman estates in Britain for a long time after the fifth century. If I had to guess, I would see the route of transmission from Gloucestershire via the early monasteries of Pembrokeshire.³

To sum up: there are considerable difficulties in seeing in the Romano-British 'Celtic' field areas the seat of Mr Jones's bondmen tenures of nucleated hamlets and common fields. But the Celtic field pattern was probably itself not homogeneous, and further study is needed to establish its settlement patterns and agrarian usages. Secondly, Roman villas represent both nucleations and peripheral patterns, and at least three forms of field system (centuriated, 'Celtic', long-strip). We are not yet in a position to establish whether the peripheral farmsteads were themselves isolated or grouped, or both. Thirdly, if we are looking for continuity between Romano-British and subsequent dependencies in the British lowlands, we have to seek them not in connection with hillforts but in connection with villas, and it is in their context, in two cases, that signs of continuity between Roman and later field systems have been noticed. It is with them that it is natural to connect the plough-coulter whose transmission to Ireland may imply a late survival of Roman methods in the evacuated province.

¹ *Jour. Roy. Soc. Antiquaries of Ireland*, LXXIV, 1944, p. 133 and fig. 4, nos. 2-8.

² *Proc. Roy. Ir. Acad.*, XLVII, pp. 126, 142, 143.

³ Cf. K. Jackson, *Language and History in Early Britain*, 1953, p. 122, on Irish at the monastery of Menevia (Saint David's). Relevant here may be the last phase of occupation at Llantwit Major villa, confined to the basilical outbuilding (*Bull. Bd of Celt. Stud.*, XIII, pp. 163 sqq.). Was it later than the datable material was able to convey?

The Development of Mechanization in English Farming

By W. HARWOOD LONG

ENGLISH farming is probably the most highly mechanized in the world. Accountancy studies show that even without farm motor-cars, vans, and lorries, most systems nowadays require more than £10 capital per acre in tractors and general tenant's equipment—almost one-third of the total working capital.¹ To equip a farm with these implements new would cost considerably more.

It is interesting to trace the development of this aspect of farming since the days of hand tools and ox labour. The plough has, of course, a very ancient origin; it was a common implement of cultivation in biblical times. Fitzherbert tells us that by the sixteenth century special types of plough were to be found in different parts of this country, but apart from harrows no other cultivating implements are referred to. In the seventeenth century attempts were made to improve the plough and to invent a seed-drill; Tull's is the best-known example. Tull also invented a horse hoe, and there are references to seed harrows and rollers in this century. But few of these inventions were adopted commercially, and by the time of the Hanoverian enclosures virtually all the implements on farms were hand tools, with the exception of ploughs and harrows, and waggons, wains, carts, or coups. This is made abundantly clear from the inventories which many peasants left behind them with their wills. An examination of a sample referring to the county of Yorkshire in 1688 and 1689 shows that most farms had ploughs, except in the dales where the land was almost all under grass. Similarly, harrows were almost universal in those districts which had any arable land. Frequently it is stated if they were ox harrows or horse harrows, and it seems probable from the numbers of each that horses and oxen were used about equally for harrowing.

There were very few waggons at this time in Yorkshire, but most farms had at least one cart, coup, or wain. In the Plain of York, Holderness, and on the Wolds, wains were more popular than coups or carts, but in the hillier districts the reverse was true, though many farms in the Dales had no vehicle

¹ See e.g. 'Types of Farming in Yorkshire', University of Leeds, Economics Section, Dept. of Agriculture, Farmers' Report No. 143, Table V, p. 34, and *Farm Incomes in England & Wales 1957/58*, H.M.S.O., Table 36, p. 55.

at all, unless it was a sled. The inventories make it clear that these implements were frequently dismantled on the farm, and there is a strong suggestion that they were commonly home-made. Thus, it is usual to find parts of the plough valued separately, such as the beam, the irons, handle, or stilts. On one farm, "plow timber" was valued individually.

It is not likely that harrows were ever taken to pieces: certainly no valuation of a part of a harrow has been found.

It was unusual to describe the wains, carts, or coupes. All were two-wheeled vehicles.¹ One seldom met a waggon and then only in the East Riding. A certain amount of specialization seems to have occurred, however, for one or two inventories mention hay carts, and less frequently a dung cart and a turf cart. Similarly, a muck coupe (with iron-bound wheels) appears once, and in another inventory a wain coupe. Most sleds are not described, but single examples of an ox sled, a great sledge, a hay sled, and a long sled occur. More interesting is the frequency with which parts of these vehicles crop up in the valuations. There are several entries of "pair of wheels," and sometimes these are entered as cart wheels, coupe wheels, wain wheels, and even sled wheels. Axle trees are often valued separately, and there are frequent references to "a gang of ffelkes," "a gang of spoakes," and to naves (naths or neffs), which suggest that many wheels were made on the farm. Occasionally a cart body or wain body was valued without its wheels and with the wain blads (shafts) as a distinct item. Most carts and wains had raves or shelvings to make possible a larger load at hay time and harvest; these were always valued separately, as were the shackles and bolts which went with them. Sometimes an entry "waine timber" appears, suggesting that the body as well as the wheels was to be built at home.

Beyond this very short list of implements, the seventeenth-century farmer relied on hand tools for cultivating, harvesting, and barn and yard work. These are usually entered in considerable detail. There was a variety of forks, described as hay, pike, half-pike, pitch, dung, dock, iron forks, and gripes. Other tools were shovels, spades, hacks, and gavelocks. The work which is now usually performed by the roller when the seed bed is being prepared had to be done by hand with the help of a moll (mell, maul, or mall). Hoeing was done with a hack, and the crops were bound to the wain or cart at harvest time

¹ According to Wright's *Dialect Dictionary* a wain was a long, narrow two-wheeled waggon; "an ox-cart without sides. The veritable wain, now never seen, was a narrow, long-bodied vehicle, with two wheels only, and these at the hinder end. The front or foremost end trailed along the ground (N. Yorks). A large ox-cart with an open body and furnished with shelvings (Marshall Yorks)." Constable's painting of a wain (in the National Gallery) shows a vehicle with two small wheels in front and two large wheels at the rear.

with ropes which were usually noted separately in the inventory. The grain after threshing was dressed with the help of what was usually described as a "window cloath," but sometimes as a "winding" or "winnow" cloth; a few inventories also included a "hand ffan." The grain was finally bagged up into sacks or pokes. (It is interesting to notice that in spite of the detail with which many of these small tools were entered in the inventories, scarcely once does a flail appear.) Sieves and riddles occur fairly frequently; there is some indication that each class of corn had its own size of riddle. "Sithes" appear more frequently than sickles, and ladders, grindstones, and wheelbarrows were sometimes mentioned. Scuttles, baskets, metts (which held variously 1, 2, or 3 bushels), maunds, skepps, and buckets were all in use, and, for other purposes, gavelocks (crowbars), hammers, wedges, axes, bills, and chisels.

Corn was sown from a seed hopper and hay was made with the help of a "sweath" rake in addition to the hayforks. The usual way of feeding fodder to livestock was by putting it into standhecks which stood in the yards.

Dairy equipment was usually valued in considerable detail. Most farms had either a churn or a cheesepress, and many had both. Kitts, sayes or milk cans, siles or kiln hairs, kivers and kimblins, skeels and bowls and cheese fatts all played their part in the production of butter and cheese, and many inventories include cheese (as well as bacon and beef) in their total.

The work of the farm was shared by horses and oxen. Generally the harness worn in the plough teams was valued separately as "yokes" and "teames." Saddles appeared in addition and were sometimes identified as cart saddles, pack saddles, hackney saddles, load saddles, side saddles, and pillion seats. Other bits of harness which were each valued separately in some inventories were bridles, haimes, traces, back band, back haimes, and the girth. The swingle trees (sometimes described as "thorough trees" or "work trees") made the attachment to the plough or harrows.

As one might expect, the values at which these items were entered in the inventories were by no means uniform from farm to farm, but an approximate valuation is as follows:

Wains, waggons	40s. to 60s.
Carts, coups	20s. to 50s.
Sled	2s.
Plough	5s. to 6s.
Harrows	2s. to 5s.
Horse hoe (one entry only)	6s.
Standhecks	2s. to 3s.
Wheelbarrows	2s.

Ladders	1s.
Saddles & Bridles	2s. to 5s.
Wheels	2s.
Sacks, pokes	6d.

It was usual to refer to implements and equipment as "gear." The amount of the valuation depended on the size of the farm and, to some extent, on the system of farming. On the grassland farms of the dales and moors, gear often consisted of only a cart, or perhaps a sled, in addition to hand tools, dairy utensils, and harness. It was unlikely to exceed £3 in value and might easily be no more than £1. Elsewhere one or two ploughs, an ox harrow and a horse harrow, and a wain, besides hand tools and harness, were commonly found, with a range in value of from £3 to £8. The valuation of gear ranged from 3 per cent of the total of £45 in the Dales to nearly 8 per cent of £50 in the Industrial West Riding district and nearly 5½ per cent of £119 on the Wolds.

There was little incentive to introduce machines into farming when most of the land was held in strips in the open field, and when Young made his Northern tour in 1770 he found that waggons, carts, ploughs, and harrows were the only field implements used in Yorkshire.

The popularity of carts in some parts of Yorkshire and wains in others, which the inventories reveal, persisted one hundred years later. But in Holderness waggons appear to have superseded wains, though according to Arthur Young they were very paltry vehicles. Whereas in some parts of England the narrow-wheeled waggon, capable of transporting 90 to 100 bushels of corn, was giving way to a broad-wheeled waggon, the Holderness waggon would hold only 40 bushels, or at the most 50 bushels of corn. Leatham described the East Riding waggons as clumsy and heavy running. They needed 2 to 4 horses to pull them. The width of waggons was confined by statute to not more than 4 ft 6 in. between the wheels, inside measurement. This was too narrow for the size of the carriages, and there was a big danger of their overturning. Other disadvantages of these dimensions were their heavy draught and high rate of wear and tear. According to Young, waggons cost £15-£17, carts £10, ploughs 17s., and harrows 12s. Oak and ash timber was valued at 1s. 4d. to 1s. 6d. a foot, and a run of wheels of ash, £3 15s., which suggests that it was still usual to make some farm implements, or assemble them, on the farm.

The eighteenth century saw the introduction of some new machines as well as the improvement of others. Early in the century a winnowing machine was designed, and by 1770 one was made that cleaned and sorted grain. Before the end of the century, winnowing machines were in general use and cost £4

to £6 new. Experiments were being made with threshing machines in the 1780's. Some rubbed out the grain, others beat it out. A portable threshing machine was exhibited at the Woburn Agricultural Meeting in about 1800. The early models were all operated by horse labour, and it was not until the half-century that steam replaced horse threshers. The earlier types threshed only about 7 quarters of wheat a day compared with 60 quarters by a steam thresher. However, they needed a crew of only 5 men and boys, and 4 horses, compared with a dozen or more men with steam. And they worked much more quickly than a man with a flail, who would thresh no more than a quarter of wheat in a day. By 1841 threshing machines included most of their modern features, but it was only then that they replaced the flail on the majority of farms. By 1867 the advantages of the steam over the horse thresher were so great that the judges at the Royal Show recommended that prizes for horse-drawn threshing machines should be discontinued; in the 1880's a high degree of perfection had already been reached, so that for the last 80 years little change has occurred in their design.

Primitive kinds of seed-drill had been experimented with from time immemorial, and in the seventeenth century several drills had been designed or constructed. The most famous was Tull's which he built about 1700 on the principle of the organ. But throughout the eighteenth century drills were regarded with suspicion by most farmers. The reporter on agriculture in the East Riding in 1794 found that drills were very little used, and in 1800 in the North Riding they were employed only for sowing turnips and beans. However, the first decade of the nineteenth century found a big change in farming practice, and many firms consequently put drills on the market for the first time. By 1830 the two types, cup feed and force feed, had become established, and drills had already been designed which would sow seed in combination with manure. By 1860 most of the features of the modern drill had already been incorporated.

The plough has probably the longest history of any implement in Britain. By the end of the seventeenth century it had already evolved into its present form and, as the inventories show, it had acquired all the main features that we know it to have. During the last three hundred years its development has, in fact, been mainly in variations on the same theme, generally by increasing the number of furrows, or sometimes changing its application, as in the sub-soil plough, its type, as in the turn-wrest plough, or in the material from which it is made when iron superseded wood. The stimulus for double-furrow ploughs came through the shortage of labour, especially skilled ploughmen, in the middle of the nineteenth century.

The nineteenth century was notable for the steam plough as the twentieth

century is for the tractor plough. A system of ploughing with an endless steel rope moved by a windlass was patented in 1832 and by the middle of the century it was being used commercially; in 1867 it was estimated that 200,000 acres out of 12 million acres of arable were steam tilled. The subsequent depression in arable farming went against the development of steam ploughing, and during the 1914-18 war the advantages which tractors driven by internal-combustion engines had over it became apparent. It was not, however, until the 1939-45 war that the tractor became the almost undisputed source of motive power on the farms of Britain. Since then numbers of tractors have continued to increase so that there are now more than 400,000 in England and Wales. This represents considerably more than one per holding. Similarly, in 20 years the number of farm horses has fallen from 856,713 in 1938 to 167,000 in 1958.¹

Harrows have not developed greatly since the seventeenth century, though some specialized forms, such as Parmiter harrows for grass land, and spring tine harrows have been introduced. The scruffler, or cultivator, has emerged out of the harrow, and is an alternative implement to the heavy harrow for cleaning the land. One had been designed by 1808.

In the seventeenth century any working down of the soil which could not be accomplished by ploughing and harrowing had to be done by breaking the clods by hand with a beetle or moll. The first rollers were brought into use about 1800 and were made of wood, stone, or iron. Since then, wood and stone rollers have largely disappeared and the design has taken two forms, viz.: flat rollers, for consolidating land that is already in a fine state, and Cambridge or Crosskill rollers, for breaking down clods.

Although haymaking requires much human labour compared with most other enterprises, it was not until the middle of the nineteenth century that machines began to be used instead of manual labour on a wide scale. In the eighteenth century even the use of forks was regarded as a sign of indolence in the North Riding. From the beginning of the nineteenth century some progress had been made in inventing and introducing tedders and horse rakes, but the difficulties of using machines satisfactorily in grass fields which still showed the high ridges and deep furrows of their arable past for a long time militated against the introduction of haymaking machines in many districts. Moreover, although it was estimated that a horse rake would do the work of up to 20 men with "dew" rakes or sweath rakes, there was little point in investing capital that might be used elsewhere to save labour, which, for much of the earlier part of the century, was to be had in abundance. Labour

¹ The diminishing importance of horses is illustrated by the fact that 1958 was the last year for which official returns of their numbers were published.

had become scarcer when the grass mower was introduced about 1850, but the swathe turner did not appear till the latter part of the century, and the side-delivery rake in the first decade of the present century. Hay and straw elevators made lighter work of stacking in the latter part of the eighteenth century if conditions were favourable for using them, and in the 1920's hay loaders increased the rate at which hay was loaded (though they did not lighten the work).

Attempts to produce a machine to cut corn go back to the eighteenth century, and early in the nineteenth century various designs were tried out, but, with little demand, progress was slow. Bell's reaping machine, with reciprocating cutters and side delivery, was designed in 1828, and this, with others used in the U.S.A., became the prototypes of the modern binder, but the sickle and scythe were not finally replaced by it until the beginning of the present century.

By this time the idea of a machine to cut and thresh the corn simultaneously had already been conceived. Combine harvesters were not uncommon in California in 1890, but they made little appeal to British farmers until the 1939-45 war. At its outbreak, there were probably fewer than 100 in the country, but numbers rose rapidly and by 1958 had reached 40,000. A self-propelled combine represents one of the most expensive items of agricultural machinery, often exceeding £2,000 in cost.

Potato sorters date from the 'sixties of the last century, a potato digger from 1852, and a prototype of the spinner from 1855. Baird's potato planter was put on the market in 1857. But the problem of lifting potatoes without employing large amounts of hand labour still awaits solution. Mechanizing the sugar beet crop, which was introduced into the farming systems of this country only in the middle 'twenties of this century, has been more successful. Simple ploughs for lifting the roots have now largely been superseded by complete harvesters which top the crop, lift and clean it, and deposit it in loaders.

Machines for crushing cake were necessary when oilcake was bought in slabs three or four feet long. Since compound cakes in nut form, brought on to the farm in bags, have taken the place of straight cakes, cake breakers have fallen into disuse. The prototype of the chaff cutter appeared at the end of the sixteenth century, and early in the nineteenth turnip cutters and grain and cake mills were introduced. During the nineteenth century the larger farms installed steam or oil engines which were connected by shafting to the barn machinery. Early in the present century these gave way to the internal-combustion engine. As tractors replaced horses, they were often used for barn work too.

Towards the end of the century, cream separators came into use, and a milking machine was patented. It was not, however, until comparatively recently that machine milking became almost universal in all except the smallest dairy herds.

In the eighteenth and nineteenth centuries the produce of British farms for the first time was grown mainly for market rather than for the subsistence of the growers. At the same time, industrial machinery of all kinds was being introduced, and it was natural that thought should be given to inventing machines for agricultural purposes too. Until the middle of the nineteenth century mechanization made less headway than it might have done because of the surplus of agricultural labour for which employment had to be found, and many machines that could have saved labour were roughly handled by farm workers who feared that they might be displaced.¹ By the middle of the nineteenth century farm labour was becoming scarce, and the high price of horses gave an additional reason for introducing labour-saving machines. For nearly a hundred years from the middle of the eighteenth century farms became well equipped to make use of what horses and steam could do for agriculture. The design of many implements, such as horse ploughs, rollers, and threshing machines, during that time reached such a standard of perfection that little improvement has taken place in them since then. There was unfortunately little to encourage farmers to bring in new implements during the last quarter of the nineteenth century or the first years of the present century, for agriculture was either in a very depressed state, or was still suffering from the effects of depression. Moreover, labour was still cheap and plentiful. At the beginning of the 1914-18 war many able farm workers were still earning no more than 16 shillings a week in wages. The war and the Agricultural Wages Boards caused wages to rise by approximately double, but post-war depression induced farmers to follow those systems which would involve least expense, and there was no real change in the machinery situation up to the beginning of the Second War.

In 1937 the amount of capital tied up in implements and machinery, including farm tractors and motor-cars, on typical Yorkshire farms, was about £2 an acre. It varied with the type of holding. On cash roots farms in the Vale of York, whose system was both intensive and diversified, it was nearly £2 15s. an acre; on the large sheep and corn farms of the Wolds it was scarcely more than £1 15s. an acre.

The present-day implement valuation of all farms is very much higher. This is due partly to the higher degree of mechanization and partly to higher

¹ But in Yorkshire threshing by flail had become so unpopular that the introduction of threshing machines was welcomed by the workers.

prices. More farmers own cars now than in 1937, and although this is a tendency by no means confined to farmers, the fact that cars are used for personal as well as business purposes makes it wiser to exclude them from the post-war valuations for the purposes of this study. (It was not possible to do so before the war.) The valuation of implements and machinery, including tractors, on a group of cash roots farms in the Vale of York in 1957 averaged £14 15s. an acre; on the Wolds it was nearly 10 guineas an acre. Even if it is assumed that prices have risen threefold since before the war, the increase in real terms represents quite double.

What this amounts to in terms of machinery can be seen from the analysis of the purchases during the twenty-year period on one cash roots farm of rather under 200 acres. In 1937 this farm had the following equipment:

Cultivating equipment	5 ploughs, 3 sets of harrows, pitch pole harrows, Cambridge roll, scrufflers, one-row horse hoe, two-row horse hoe.
Drills	Corn drill, turnip drill, fiddle drill.
Haymaking equipment	Sweep, horse rake, turner, mower.
Harvesting equipment	Binder, potato sorter, and baskets.
Carts, etc.	2 waggons, 4 carts, motor lorry, trailer, shelvings and racks.
Barn machinery	Chaff cutter, mill, turnip cutter, weigh and weights sack lifter, cake crusher, winnowing machine, sack barrow.
Sheep equipment	Turnip cutter, racks, troughs, nets, and stakes.
Pig equipment	Huts and troughs.
Poultry equipment	Hen houses, huts, incubators.
Cattle equipment	Tumbrils.
Sundry equipment	Ladders, hay forks, muck forks, shovels, waggon ropes, scythes, hand hoes, push hoes, hoppers, wheelbarrow.
Horse equipment	Gearing for 4 horses.

The total valuation, including a motor-car valued at £45, was £459.

Twenty-two years later, in 1959, the valuation of machinery and equipment on this farm was £3,890, excluding the motor-car. Details are available of the purchases and sales of equipment in each year. They give a vivid picture of the growth of mechanization:

1937-38	New equipment	Cultivator, manure drill.
	Replacement	Trailer.

1938-39	Replacement	Sugar beet plough attachment, potato hand riddle.
1939-40	New equipment	Tractor, with plough, cultivator, and 3-row ridger.
	Replacement	Harrows.
1940-41	New equipment	Scruffler, 4-row root drill.
	Replacement	Horse hoe, harrows.
1941-42	New equipment	Potato lifter.
	Replacement	Harrows, binder, weigh.
1942-43	New equipment	Tractor, sheep rack, potato steamer.
	Replacement	Potato sorter.
1943-44	New equipment	Tractor lift unit.
	Replacement	Cart, mower, hay turner.
1944-45	New equipment	Cultivator.
1945-46	New equipment	Potato lifter.
	Replacement	Fertilizer drill, 3 carts.
1946-47	New equipment	Motor truck, tractor.
	Replacement	Tractor harrows.
1947-48	New equipment	Petrol pump and tank, cultivator.
1948-49	New equipment	Disc harrows, tractor plough, sack lift, potato row splitter.
	Replacement	Tractor.
1949-50	New equipment	Beet harvester, tractor equipment, weeder.
	Replacement	Tractor, manure drill.
1950-51	New equipment	Side-delivery rake, engine (for potato sorter).
	Replacement	Potato sorter.
1951-52	New equipment	Tractor, elevator, potato digger, fire extinguisher.
	Replacement	Trailer (replacing cart).
1952-53	New equipment	T.V.O. tank, weeders.
	Replacement	Hammer mill, trailer (for cart), 2 tractors, weigh.
1953-54	New equipment	Manure loader and bucket, 3-furrow plough, corn drill, fire extinguisher.
	Replacement	Tractor.
1954-55	New equipment	Fertilizer distributor, electric drill.
1955-56	New equipment	Beet thinner, beet topper, potato sorter, poultry troughs, nest boxes.
	Replacement	Fertilizer distributor, potato harvester
1956-57	New equipment	Tipping gear for lorry, motor pick-up, truck, rotovator, irrigation equipment.

- 1956-57 Replacement Sugar beet harvester.
1957-58 New equipment Rota hoe ($\frac{1}{2}$ share), buck rake, beet-top saver,
farrowing rails.
1958-59 New equipment Hay baler ($\frac{1}{2}$ share), irrigation equipment.

This farm has eight main enterprises, and because of the complexity of the system, a greater number of machines is required than would usually be necessary on a simpler system. On the other hand, nothing has been spent on grain storage or on a combine harvester, both items which represent high capital expenditure on many farms. It has not always been possible to distinguish between new equipment and replacements, but this distinction is significant only with the larger machines, like tractors, which could be followed through accurately. Sometimes a replacement has been by tractor-drawn for horse-drawn implement. The main features are the substitution of 4 tractors for 5 horses, for all the horses were disposed of during the period, and an increase in the total machinery inventory from £414 to £3,710 (exclusive of cars). How much of this can be regarded as the result of the rise in prices cannot be estimated accurately because so many of the implements valued at the end of the period were not in general use before the war, but the list of new purchases gives an indication of the high degree of mechanization which took place.

This is typical of the trend during the full period of this study. Once holdings were suitable by their size and layout for a higher degree of mechanization than the seventeenth-century farmer enjoyed, machines began to be used. It was fortunate that large-scale businesses were growing up at the same time, so that the advantages of factory production could be enjoyed in the manufacture of the more complicated farm machines. Two things were needed, however, before they were universally adopted: sufficient prosperity to induce farmers to sink the capital which the purchase of machinery involved, and alternative employment for workers who had under the old Poor Law regarded work on the land as their right—if their place of settlement offered nothing else. Both these conditions were fulfilled in the 1860's, and soon after it is probable that with the exception of harvesting machines and internal-combustion engines, most farms were as well equipped with as good machinery and implements as at the beginning of the First War.

Thereafter progress was comparatively insignificant until 1939. Apart from the four years of war, farming was depressed almost throughout the period, from the 1870's to the 1940's, and farm wages remained low. Moreover, arable farming, in which the effects of mechanization are most pronounced, was losing ground to grass land and livestock, and cheap imported

feeding stuffs lessened the advantage of reducing the costs of growing fodder at home by improved methods. The outbreak of war in 1939 changed all this. Arable farming returned to favour, horses were slow workers and expensive to keep, and there was no certainty that the armed forces would not take away a considerable proportion of the staffs. The money soon became available to buy tractors and numbers increased very rapidly. The disadvantages of using horse machinery behind tractors were soon apparent, and it became necessary to change all the field machinery to tractor-drawn types.

It may not be altogether easy to explain why the metamorphosis in this country has been so much more complete than in other countries. The larger size of most English farms has certainly been an important reason, and the increased prosperity of farming has made mechanization possible to a degree which could not have been thought of when farming was depressed. The need to equip labour with the tools for increasing its output in order to offset wage increases and shorter hours of work had its influence, too, though the number of workmen (unlike the farm horses) has not fallen significantly. This list of reasons would not be complete without mentioning the security which a high degree of mechanization gives to the farmer who fears lest he may be denuded of his workers. This was a real threat during the war, and many farmers insured against it by buying machinery. The effect has been to increase the tenant's investment to such an extent that capital is now a worthy partner with land and labour as a factor of production.

Livestock Prices in Britain, 1851-93

By EDITH H. WHETHAM

IN assessing the fortunes of the different branches of British farming in the nineteenth century, historians have had to rely on the trends in prices collected mainly in urban areas for products often much altered from those sold by farmers. Beef and mutton at wholesale markets have undergone much processing and incurred many costs compared with the fatstock for which farmers were paid at country auction sales. And in selling fatstock, farmers also sold hides and tallow and skin wool as well as meat; further, their profits depended as much on the price of the store animals bought for fattening as on the price of meat in the ultimate market. Unfortunately, we have no regular series of fatstock prices for the nineteenth century, but some unofficial information on store stock prices can be used, in conjunction with meat and wool prices, to assess changes in profit trends for the mountain, hill, and upland farms devoted primarily to stock rearing, and for the lowland farms which fattened sheep and cattle for the meat market.

Three price series are here used: that published by the Teviotdale Farmers' Club, that published in the *Transactions of the Highland and Agricultural Society* from 1886 onwards, and that published by R. M. Barrington in the *Journal of the Royal Agricultural Society of England* in 1893. The first is presumably based on local prices recorded at the main autumn sales in each year, and was published for the years from 1859 to 1893 in Wilson Fox's report on Cumberland to the 1894 Royal Commission on Agriculture (*Report on Counties*, II, p. 47). These prices refer to draft ewes from Cheviot flocks and their progeny either by Cheviot or by Border-Leicester rams; to the wool from these flocks; and to shorthorn store cattle. The second series, which goes back to 1818, is derived from the records of the Inverness market;¹ it includes wethers, lambs, and draft ewes of both Cheviot and Blackface breeds, and the wool derived therefrom. The third series is taken from the autumn fair at Ballinasloe, in Ireland, described as being held mainly for store stock; as Ireland was a major exporter of sheep and cattle to Britain in the last half of the nineteenth century, it is not unreasonable to assume that prices here would reflect fairly closely price trends in store markets in other parts of Britain. When the prices derived from these different sources were converted to index numbers, with the decade 1865-74 as a base, both the trends and the fluctuations round the trends were seen to be remarkably similar.

¹ *Trans. High. & Agric. Soc.*, XVIII, Fourth Series, 1886, p. 297.

Yet the reliability of these prices is clearly no greater than the reliability of the original observations from which they were derived. It was customary to quote prices as a range, with no indication of the volume of business done at each end of the range, whose size varied greatly from year to year. The average taken of the quoted range inevitably ignores the greater variability of prices in some years than in others, a variability which reflects partly the skill of stockmen and farmers from whose holdings these beasts were sold; partly the conditions of soil and climate; and partly the influence of weather on the general condition of the flocks and herds. A single figure quoted for each year for each market is inevitably a highly condensed summary of a general trend in prices as recorded by one observer. Nor are these records attributed to any particular author, but it is probable that they were derived from the books or memories of the auctioneers functioning in each market. The departmental Committee on Agricultural Prices in Scotland (1902) commented on the imperfections of prices collected from this source, for auctioneers were unwilling to publicize low prices in the markets with which they were concerned, and might quote only a range of the higher prices.¹ Nevertheless, the close conjunction of these sets of prices, derived from such different sources, suggests that they can be used, with caution, to indicate trends over the forty years from 1851. Table I gives the price index for wool and for each class of stock, taking a straight average of available records for each class, with the average of 1865-74 as a base for each series.

WOOL

It will be seen that after the general rise in all prices in the 1850's, wool prices followed a pattern of their own. After a peak in 1864, six years of falling prices were followed by a short upward movement in 1871 and 1872; then the fall was again resumed until wool prices attained stability at some 60 per cent of the base period, and somewhat below the level of the earliest years. Prices of the fine Cheviot wool from Inverness fell less after 1871-2 than the prices of the Blackface wools or the Cheviot wools from Teviotdale, but nevertheless the fall was drastic and severe for all types of wool from 1872 to the end of the period here included. The growing imports of this product brought a permanent fall in its value from the 1860's onward, which especially affected the mountain farms with their wether flocks.

STORE SHEEP

Table I shows that a new pattern in sheep prices developed in the middle of the 1860's, a pattern of far wider fluctuations from a markedly higher level

¹ Cd. 805, p. xiv.

TABLE I
PRICE INDICES FOR WOOL, STORE STOCK, MUTTON, AND BEEF, 1851-93
(Average of 1865-74=100)

	Wool	Store Lambs	Store Wethers	Ewes	Store Cattle	Mutton (a)		Beef (a)	
						Prime	Middling	Prime	Middling
1851	63½	66½	64	61	55	72	69	65	62
2	63	60	68	64	63	72	69	65	64
3	89½	82	82	78	75½	89	86	80	80
4	59½	79	79	72	84½	89	86	88	88
5	69½	85½	81	72	86	87	84	88	90
6	86	76	77	73	92½	87	84	85	84
7	100½	82	85	72	96½	89	84	85	86
8	70½	78	82	75	87½	84	80	83	84
9	92	78	78	76	82	87	86	85	84
1860	120	85	83	77	84	92	91	88	86
1	91	80	83	79	85	90	91	87	86
2	100	81	80	79	85	87	87	81	80
3	117½	90	81	79	92	89	87	83	84
4	149	116	89	89	92½	90	93	88	90
5	119	134	96	114	98	105	106	94	94
6	117½	122½	111	118	96	100	100	94	97
7	88	70	91	83	95½	90	91	92	92
8	85½	62	80	67	92½	84	86	88	88
9	85½	78½	89	82	95	95	93	97	94
1870	82	87	102	93	99	95	95	99	99
1	115	119	108	114	112	103	107	106	109
2	115½	134	121	126	107	110	111	104	107
3	94	120	118	111	105½	116	115	115	115
4	103	78	95	92	99	102	97	110	105
5	102½	113	105	108	102½	116	107	113	113
6	86	114	115	105	94	118	106	110	107
7	86	120	117	109	95	113	98	108	101
8	77	121½	109	115	105	111	100	108	101
9	65½	93	98	82	93	105	95	97	92
1880	74½	102	103	99	108	108	98	103	101
1	67	106½	109	100	101	113	104	99	99
2	60	139	120	128	119	118	109	106	105
3	56½	140	123	130	118½	120	111	108	105
4	56	107	109	110	104	105	97	103	101
5	54½	87	91	81	86	92	86	92	90
6	59½	94	93	91	83	102	91	87	82
7	65	92	86	82	73	85	77	76	74
8	59	126	89	94	93	95	86	85	80
9	60	137	102	114	97	103	91	83	80
1890	59½	121	93	101	89	97	82	83	78
1	59	87	86	78	81½	87	77	83	82
2	55½	65	76	62	69½	87	77	83	78
3	55½	89	86½	69	75½	87	77	85	80

(a) Sauerbeck's meat prices from the London market, published in the *Journal of the Royal Statistical Society*, and converted to the base of 1865-74.

than was known in the previous decade. It seems likely that the change was brought about not only by the growing demand for meat from the towns, but also by the influence of the railways which in the 1860's effectively linked the great store stock markets in the remote areas to the arable farms in the east, south, and midlands, with their pastures for summer grazing and their fields of turnips and swedes for winter feeding. If the agricultural census of Scotland taken by the Highland and Agricultural Society in the years 1854-7 is compared with the official census begun in 1866, it will be seen that in Scotland the number of cattle on farms in June rose sharply in the north and west, the most remote districts, but fell in the east; and that though the number of sheep rose in all regions, the rise was greatest in the northern counties. More draft ewes, more wethers and lambs became available for fattening in the lowlands as the falling costs of sending them south or east raised prices to rearing farms, but much of this increased supply could only be fattened from the turnip crop which was at intervals seriously affected by drought and the 'fly'. Drought in 1867 and the really disastrous drought of 1868 brought down prices for store sheep for three successive years by one-third of the 1865-74 level; the dry year 1874 left a similar but smaller mark, as did that phenomenally wet year 1879, when many turnip fields were too wet to carry sheep in the autumn. Spells of dry weather in 1885 and 1887 brought already low prices lower still, as did a similar spell in 1892. Lamb prices fluctuated most, since lambs needed more and longer feeding than wethers, before being sold fat at 12-15 months; but ewes were often bought to be crossed again with a Border-Leicester or Down ram before being fattened for the butcher, and a poor turnip crop affected their prices almost as much as those for lambs.

The general trend in these sheep prices, and the timing, though not the size, of the fluctuations, follows pretty well the general trends in Sauerbeck's mutton prices, though the peak in 1865-6 must reflect the indirect result of the epidemics of rinderpest and pleuro-pneumonia of those years which disrupted the markets for cattle and for beef. But from 1851 to 1863 mutton prices were higher in relation to sheep prices than at any other period, indicating a high level of profitability for sheep fatteners; a similar difference on a smaller scale developed for six or seven years after 1873. The peak both in mutton and in sheep prices over these decades was reached in 1882-3, and it was not until 1891-2 that prices fell substantially below the level of the base years. After the epidemic of sheep rot in 1879-80, many farmers in the lowlands were restocking, and this demand kept up store sheep prices, whose supply had been drastically reduced by the two severe winters of 1879-80 and 1880-1. The losses then experienced on hill farms meant that a higher proportion of a smaller crop of lambs was required as replacements and

smaller numbers were thus available for sale at a time when demand was exceptionally high. A similar conjunction followed the long winter of 1887-8 when lamb and ewe prices rose very sharply and to a far greater extent than the small rise in mutton prices. Such high prices did not therefore necessarily bring high profits for hill farms, but only mitigated the results of a reduced output, while they added to the costs of lowland farms.

Except for the immediate effects of severe winters, the number of sheep recorded annually in June increased generally in Scotland and in Wales over this period, starting with the first census in 1854 and 1866 respectively. But in England the highest numbers were recorded in 1867 and in 1874 at 19·8 millions; there was then a slight fall until the wet year of 1879 brought an epidemic of liver rot that swept away many lowland flocks and reduced the numbers year by year to just under 15 million in 1884. In the grassland counties there was then some recovery in numbers, but not in the five eastern counties of Cambridge, Essex, Huntingdon, Norfolk, and Suffolk, where the fall continued remorselessly throughout the depression years. Some of this fall was clearly due to the quicker fattening of sheep at earlier ages, for it was the number of sheep over one year in age which fell most from 1874 onwards; the numbers under one year old in June (which indicate breeding flocks) showed much less change, apart from those ill-favoured years of 1879-84. The larger number of hill lambs bought at autumn fairs must have been more frequently sold in their second spring before the June census was taken, partly because the fall in wool prices diminished the profits to be obtained from keeping them over a second summer to be sold fat and shorn at 15-18 months; wethers were similarly got away earlier and at lighter weights. In the north, too, there was a profitable trade in taking ewe lambs from the mountain farms for wintering on pasture or turnips; as the numbers of ewes rose in the hills, so did the pressure to find suitable wintering on which the young stock could build the constitutions required to face future winters on their own ground. This trade brought a steadier return with less capital outlay to lowland farms than the outright purchase of hoggetts or ewes for winter fattening.

STORE CATTLE

The prices of store cattle reflect pretty closely the trends in Sauerbeck's beef prices derived from the London market. But the cattle prices appear to have risen rather faster than beef prices up to 1871 and to have fallen slightly more in the subsequent decade; they were appreciably higher than beef prices from 1880 to 1884 and again from 1888 to 1891, when the feeders' margin must have been severely squeezed. All classes of meat producers, however, must have benefited from the long rise in prices over the first twenty

years included in these statistics; again, it is noteworthy that cattle prices reached their highest point in 1882-3, thereafter falling sharply in 1887 and again after 1889. The peak in 1882-3 presumably reflects the high prices of store sheep in those years, for sheep and cattle were alternative enterprises for some farmers with pastures to be grazed or with turnips to be turned into manure. Others might be restricted to sheep through lack of buildings, while farmers with a surplus of straw, or with wet fields on heavy soils, necessarily relied on cattle for their muck-making.

In the lowland belt of arable farms running north of the Border, cattle fattened on oat straw and turnips, with a supplement of home-grown corn or, increasingly, of purchased cattle cake; sheep likewise consumed turnips with some trough feeding, while the ewes and their lambs would be run over the temporary leys in the summer. South of the Border, oat straw had less feeding value, and cattle used the straw as litter, while they fattened on turnips and hay, with, again, a growing consumption of cattle cake or maize. Stirks might be wintered cheaply on straw and turnips, before being fattened on summer pastures to the point where two or three months in the stalls or yards brought them out for the Christmas markets. But some fodder could usually be found for the cattle, even if turnips were scarce; the chaff-cutters and the turnip-slicers could be supplemented by green crops or by the wares of the provender merchants. Hence the demand for store cattle was less variable than that for store sheep, just as the supply was also less affected by seasonal variations in weather; prices did not show those huge fluctuations from year to year which were so marked a feature of the store sheep market.

PROFIT TRENDS IN HILL FARMING

In order to show the effect of these price trends on the profits of stock-rearing farms, three indices (base 1865-74) were compiled from the price data, referring to (a) Scottish mountain farms selling wool, two- or three-year-old wethers, and draft ewes from a Blackface flock; it has been assumed that these products provided over the period one-half, one-third, and one-sixth of the gross receipts; (b) hill farms in Sutherland or on the Borders which sold Cheviot wool, wethers, and draft ewes, together with some Cheviot or half-bred (Cheviot $\times$ Border-Leicester) lambs; the proportions are taken to be one-third for the wool and one-sixth each for the other four products; (c) upland farms selling half- or three-quarter-bred lambs, Cheviot wool, draft ewes, and store cattle, in the proportions 5:2:1:2.¹ These indices

¹ These weights are largely arbitrary, but originate in contemporary accounts, e.g. James Macdonald, 'Agriculture of Sutherland', *Trans. High. & Agric. Soc.*, XII, Fourth Series, 1880, pp. 76-8.

are shown in Table II. The distinction between these types of farming lies in the proportion of wethers to lambs. Mountain farms in a severe climate maintained flocks of wethers for the higher ground where ewes did not thrive; they sold each year their draft ewes and a proportion of two- or three-year-old wethers, keeping the greater part of their lambs to replace the drafts from the older sheep. They therefore had a high proportion of mature animals from which they sold several clips of wool; and a principal item of expense was that of wintering their lambs on the turnip fields or pastures of lowland farms. Border farms in a more kindly climate could keep all-ewe flocks and therefore sold primarily their surplus lambs, together with the draft ewes and the annual clip of wool from the ewes. According to the altitude and the feeding value of the pastures, such farms kept pure Cheviot flocks, selling either Cheviot lambs or the half-breds got by Border-Leicester rams; or half-bred ewes crossed again with the Border-Leicester to produce three-quarter-bred or 'park' lambs. These hill and upland farms might also run a certain number of breeding cows whose trampling helped to keep down the bracken and whose progeny by shorthorn bulls found a ready sale as yearlings or two-year-olds at the autumn markets.

The rising prices for the first twenty years of the period justify the remark made in 1878 that "there is perhaps no class of farming in Scotland that will at the present time give the same return of profits as that derived from Highland sheep farming;"¹ only the dry years from 1867-8 and the simultaneous check to wool prices disturbed the profits and rents of farms selling wool and store sheep. Nor was it only prices that rose over these years; the annual census showed that many farms were gradually increasing their flocks, and contemporary comment also shows that wire fencing, better drainage, and the application of lime had enabled many upland farms to change their breeding policy, so as to produce more highly priced animals. Writing in 1862, Sanderson commented that "all upland improvements tend to make the Cheviot breed supplant the Blackface; and again, the half-Leicester supplants the Cheviot and the full-bred Leicester goes on extending its range."² Another writer almost contemporary with Sanderson noted that in south-west Scotland there were "many farms from which a few years ago the Blackface lambs averaged 10s. per head that are now selling the produce of the same ewe by a Leicester ram at 24s."³ These cross-breds or 'mules' were almost as

¹ James Mollison, 'Farming in the Central and North Western Districts' in *Report on the Present State of Agriculture of Scotland*, High. & Agric. Soc., 1878, p. 103.

² James Sanderson, 'Agriculture of Berwick and Roxburghshire', *Trans. High. & Agric. Soc.*, 1862, p. 354.

³ G. Murray, 'Improved Value of Scotch Sheep', *J.R.A.S.E.*, Second Series, III, 1867, p. 575.

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TABLE II

PRICE INDICES FOR LIVESTOCK REARING FARMS
(Average of 1865-74=100)

	A Mountain	B Hill	C Upland
1851	59½	66	66
2	65	66½	67
3	87	85	83
4	68½	72	77
5	75	78	83
6	78½	80	83
7	91	84	86
8	75½	73	78
9	78	82	82
1860	118	98	93
1	—	87	81
2	85	87	88
3	104	95	92
4	117½	116	113
5	106	97	117
6	137	119	105
7	—	83	77
8	70	77	68
9	75	84	90
1870	100½	90	90
1	124	106	115
2	105	132	129½
3	100	110	116
4	103	96	93
5	93	117	115
6	101	104	106½
7	99	115	108
8	81½	108	113
9	94	90	83
1880	79	96	97
1	87	98	94
2	94	103½	114
3	103	110	113
4	88	97½	94
5	77	83	80
6	79	86	88
7	73	84	81
8	77½	87½	95
9	90	96	106
1890	83	90	98
1	76	77	83
2	67	66	71
3	77	76	79

popular as the half-breds with lowland farmers buying sheep for their turnip fields. The fall in wool prices from 1864 onwards checked the upward movement in the composite indices and was the chief reason for the fact that between 1871 and 1884 they fluctuated across a downward trend, while stock prices tended to rise. It was the mountain farms whose profits were presumably most affected; they drew a high proportion of their receipts from Black-face wool whose price fell most in this period, bringing their composite index down by 1885 to less than 80 per cent of the base. The hill and upland farms suffered less, since a higher proportion of their income was derived from selling store animals, and their composite indices only fell below 80 per cent of the base level in the early 1890's.

The fact that store sheep and cattle prices fell between 1884 and 1888 and after 1890 in rough proportion to the general trend in meat prices implies that lowland farmers were then able to buy their raw materials at falling costs, while the price of feeding-stuffs had fallen earlier and further. There was thus a double economy to set against the shrinking receipts from the sale of livestock and against the adverse trend in prices in the store markets in the years 1880 to 1884 and 1888 to 1890. This advantage was no doubt only a small mercy in comparison with the general fall in prices, and especially in beef prices after 1884. It is curious, though, that English lowland farmers tended to increase their cattle stocks throughout the depression, but somewhat reduced their sheep numbers, while Scottish lowland farmers increased their sheep flocks more than their cattle herds; the explanation may lie in the greater growth of the dairy trade south of the Border. On the other hand, the mountain, hill, and upland farmers who reared animals for the store markets took the full brunt of falling prices after 1884 with no countervailing economies, for they bought few animals (except rams) and no significant quantity of the cheaper imported cereals. Yet they also increased their stocking of both sheep and cattle, presumably because they thus added little to their costs but considerably to their gross receipts.

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Notes and Comments

DECEMBER CONFERENCE

The Conference which was due to have been held on 8 December at the London School of Economics was cancelled because of the bad weather. It is hoped that all those who had registered received telegrams in time. Any inconvenience caused to members of the Society is very much regretted. The December Conference for 1963 will be held in London on Saturday, 7 December, and the President, Mr R. V. Lennard, has agreed to give his paper then.

THE EDITOR

At the meeting of the Executive Committee held in London on 4 October, the Committee received a letter from Dr Finberg in which he intimated that he would like to resign the editorship, having completed ten years in office. The Committee agreed to ask Dr Finberg to accept reappointment for three

years on the understanding that his successor would be appointed not later than the third year of the period. Dr Finberg has agreed to this proposal.

THE SECRETARY

At the request of the Secretary, the Executive Committee agreed at their meeting on 4 October to ease the amount of secretarial work by asking the Society's printers to send out the journal to members from the current issue. Changes of address should, however, still be notified to the Secretary. It was also agreed by the Committee that future Annual General Meetings and Conferences should be organized by a small sub-committee rather than by the Secretary.

During the Secretary's absence on sabbatical leave in 1963, Mr C. A. Jewell has been invited by the Committee to be Acting Secretary.

Book Reviews

E. W. BOVILL, *English Country Life 1780-1830*. Oxford University Press, 1962. xii+266 pp., illus. 30s.

This book is an enjoyable introduction to the flavour of fifty years of country house and sporting life. It has been produced and illustrated with the restrained elegance we have come to expect from university publishing houses. It is crammed with anecdote and detail, Mr Bovill's selection of which is surer than his treatment of themes. And precisely because the book offers no serious analysis it may be taken as a useful test case of the sort of rural history which nowadays seeps down to the man in the street, or at least the man in the public library.

Mr Bovill borrows his propositions about agriculture from contemporary didactic writings and later textbooks, never from recent journal articles or monographs. The outcome is a rigid, old-fashioned account of agricultural change. Until the late eighteenth century, he asserts, the greater part of English farmland was open field, "cultivated under an archaic and profitless system to which all were compelled to conform," which "prohibited" individual enterprise and forbade change "of any kind." In short, "progress was impossible," and the fertility of most common fields had been exhausted. Outside the open fields lay "seemingly limitless wastes," but legal and customary rights made their cultivation "equally impossible." Only Parliamentary enclosure could smash this vicious system, but the heavy cost of enclosure was to have "disastrous" and "dire" social consequences, for the open-field system while it "closed the door to progressive agriculture" had at least the merit of giving "every" countryman a livelihood and perquisites from his share in the land. Mr Bovill is the complete 'pessimist'. In the towns, he claims, the industrial revolution resulted in an unspeakably horrid existence at subsistence pay for the workers; in the country enclosure (once it had broken the grip of the

open-field system) caused "most of the troubles."

After this unhappy sketch of the economic background Mr Bovill hurries on to indulge his personal delight in the history of gardening, planting, field sports, coaching, and tales about servants. On these topics he is entertaining, and to pass on to them after a preliminary look at the agricultural economy is reasonable enough in a book of this kind. As Professor Clapham observed, foundations exist to carry better things. Unfortunately, the foundations here are antique and unsafe. Furthermore, Mr Bovill is afflicted with that range of sentimental attitudes which have given rural history an unenviable reputation as comic or suspect. He deplores towns, he believes fox-hunting is a democratic national sport, he thinks that character not wealth still commands esteem in rural England (an oversimplification which even his evidence from the past damages), he assumes that his readers have servant trouble, he uses phrases like "simple country people," and he laments the ousting of coaches by the railways as "a grievous loss." Surely it is possible to love the countryside and its past without this whimsical involvement, and to combine with affection a passion for the serious study of rural society and the agricultural economy?

E. L. JONES

MARY LOBEL (ed.), *A History of the County of Oxford*. Vol. VII, Dorchester and Thame Hundreds. Published for the Institute of Historical Research by Oxford University Press, 1962. xxviii+248 pp. £6 6s.

This volume covers 21,860 acres in 247 pages but costs as much as Volume VI of the Victoria History of Oxfordshire, published only three years ago, which covered 59,520 acres in 388 pages. By far the longest article is that devoted to Thame, and this is the outstanding contribution to a volume of uniformly good quality. Appetites are whetted near the beginning by the attempt of Nicholas IV's provisor to take

the prebend of Thame by force in 1293; and they are not subsequently disappointed. The division between *Trade and Industry* and *Agrarian History* is well handled, except perhaps for some awkward repetition of information from tax assessments. It is impossible to say how old was the emphasis on meadow and pasture which shows itself clearly at Thame by the end of the fifteenth century; the preponderance of this kind of land in the farm sold by Thomas Elys in 1311 suggests that it was quite old, though not strong enough to bring about depopulation until the sixteenth century. With such good grazing available it is only surprising that open-field husbandry could act as a brake on conversion from arable to pasture down to the beginning of the nineteenth century.

In the Middle Ages Thame belonged to the see of Lincoln. A survey of the bishop's lands made in the second quarter of the thirteenth century, now in the possession of the Queen's College, Oxford, covers his estates here and in five other parishes described in this volume—Chislehampton, Dorchester, Burcot, Drayton St Leonard, and Stadhampton. An imperfect guide to the real world of the thirteenth-century peasant—it is hard, for example, to believe in the ten resilient virgaters who stayed the course at Chislehampton between the making of the survey and the Hundred Rolls—this document is nevertheless of great interest, not least for the carrying services which it records. By contrast, evidence relating to the economic and social history of these parishes in the later Middle Ages is disappointingly thin; little is known about farming practice and the layout of the fields before the sixteenth century. At Chislehampton, Dorchester, and Stadhampton enclosure was well advanced by the end of the seventeenth century. In the eighteenth century both Dorchester and Stadhampton could boast experimental farmers; of particular interest is Thomas Smith's description of farming in Stadhampton in 1793. The description of Burcot's economic and social history contains much useful information, but the lines of the narrative do not stand out very clearly here in

the chronological setting which is a broad requirement of the *V.C.H.* The most interesting man in Burcot's history was Hugh le Frankelyn, who claimed in 1279 that his ancestors had been free sokemen serving the king for forty days in war with coat of mail, lance, and helmet; the bishops of Lincoln had withdrawn this service. Four men at Drayton St Leonard and one at Stadhampton made a similar claim.

Of the other parishes described in this volume, South Stoke and Great Milton deserve mention for their treatment of economic and social history. South Stoke, divided by the Icknield Way into riverside Stoke and upland Woodcote, might be used as a textbook illustration of the effect of woodland on agrarian and social development, for medieval Woodcote, once a clearing in the woods, was a village of mainly free tenures, light labour services, and early enclosure. The topographical description of the parish is excellent. The statement that Eynsham Abbey's demesne "in 1269 was said to consist of 12 virgates; in 1279 of 8 or 9 virgates" is perhaps a little rash, for the sources measure the demesne in carucates and hides, and the size of the virgate at South Stoke—fifteen acres—raises a suspicion that there may have been more than four to the hide. The point is important: if the demesne consisted of only twelve virgates in 1269, it was to be nearly doubled in the next hundred years. The article includes useful information about manorial leases from the fifteenth to the nineteenth centuries. Nothing is said—and presumably nothing known—about fines in the fifteenth and sixteenth centuries, but the records of Christ Church, Oxford, the post-Reformation lords of the manor, furnish details of fines for renewals of leases between 1669 and 1831.

The map of Great Milton before enclosure is the only map in this volume which has been printed from an unsatisfactory block. Little is known of open-field agriculture here before the end of the fifteenth century. By then sheep-farming was prominent and enclosure had begun. Details are given of the numbers of sheep kept on the commons and pasture of

Great Milton by some yeomen and gentry of this and other parishes. Amercements for overburdening the commons should perhaps be interpreted differently in different parishes. Four families found at Great Milton in the fifteenth century were still there in the eighteenth century. More unusually, woad was cultivated on the prebendal manor in the seventeenth century. It must always be difficult to divide the history of a parish between the sections traditional in a *V.C.H.* article, but it is hard to see why most of the material in the last two paragraphs of the *Economic and Social History* of Great Milton was not put later, with *Schools and Charities*.

The temptation to offer advice is powerfully present to every reviewer of the *Victoria Histories*, and some of the advice, if followed, might weaken the History's position as a standard work of reference by making it too sensitive to the merely passing fashions of historical scholarship. The History holds its position by virtue of the sheer weight of its learning, well exemplified in the present volume. One could wish that there might be more reflection on some of the problems posed by the facts—for example, the reality underlying the medieval tenemental pattern—but this is to ask for a few extra pages, not for a different kind of History.

B. F. HARVEY

SUSAN REYNOLDS (ed.), *A History of the County of Middlesex*, Vol. III (The *Victoria History of the Counties of England*). Oxford University Press, 1962. xx+326 pp.; 37 illustrations, 7 maps. Index to Vols. II and III. £7 7s.

The *V.C.H.*, even among English institutions, is unique. In what other series could the gap between the first two published volumes run to fifty-one years, and those be the second and third, while it is still not known how many there are to be in the complete design? The greater part of Vol. II consisted of general articles; these were not satisfactory at the time the volume came out in 1911, and now they can be seen to be quite inadequate, especially in the economic chapters. It will be

a measure of the success of the present editorial team how far the promised Vol. I proves to remedy the shortcomings of the general articles in Vol. II without professing to do so.

The volume just published is the result of local enthusiasm prevailing on all twenty-six borough and district authorities in the county and the London County Council (but not the Middlesex County Council) to share the cost of writing it—an arrangement which, with respect, is not the same as that in Wiltshire, which is infelicitously stated in an editorial to have furnished the prototype; there are significant differences, at any rate to Middlesex eyes. It contains topographical descriptions of the second part of Spelthorne hundred (Shepperton to Teddington), the whole of Isleworth, and the first part of Elthorne (Cowley to Harlington). It thus covers most of the places within the area lying in the great loop of the Thames from Staines to Isleworth, an area full of interest to the agricultural historian. In the days of Elizabeth I the northern edge of this district was celebrated by John Norden as supplying the finest wheat—the manchet for the royal table; but the principal interest of Middlesex in this connection lies in specialized crops, especially soft fruits and the king of apples, Cox's Orange Pippin, first raised in the garden of a retired brewer at Colnbrook End, near Stanwell, about 1830. The soil of southern Middlesex is "one of the finest and most easily worked market-garden soils in this or any other country," according to the 1948 report of the Waters Committee on Sand and Gravel (of all things!). And what do we grow on it now? An airport, and things like that.

Broadly, the agricultural story is that of change from arable farming to meadow, especially on the clay belt—at Greenford in 1810 a survey of the demesne recommended that future leases should be drawn to prevent return to arable because that could lessen the value of the estate. Farther south, on the gravels of the Thames plain, things were not very prosperous when William Cobbett was observing the road from Richmond to Chert-

sey Bridge in 1822. "All Middlesex is *ugly*," he wrote; "the soil is a gravel at bottom with a black loam at top near the Thames; further back it is a sort of spewy gravel." He added of the labourers that they looked to be "about half *Saint Giles's*: dirty, and have every appearance of drinking gin." After Cobbett's day, the loam was found to be excellent for market gardening, by R. D. Blackmore (of *Lorna Doone*) for example, at Teddington, and the gravel for building and road construction. The parish-by-parish story, with its maddening gaps and silences—at Teddington "after this time [the 1360's] nothing is known about the tenants' farming and very little about the community at all" until the nineteenth century—is deftly told, and the date, often surprisingly late, at which agriculture ceased to be the principal occupation of the places is carefully ascertained. The main interest of the story lies outside its territorial limit, in the development of London as a specialized market, first for hay and then for market produce (and for bricks and gravel), and in its final overflow, the bursting of the great wen, which has not yet completely submerged Cobbett's spewy gravel or the scene described by Matthew Arnold on his way to Laleham: "the great road thro' the flat, drained Middlesex plain, with its single standing pollarded elms."

MICHAEL ROBBINS

C. STELLA DAVIES, *The Agricultural History of Cheshire, 1750-1850*. Chetham Society, Third Series, x, 1960. xii+230 pp. 35s.

In the past the Chetham Society has published many more volumes bearing on the agrarian history of Lancashire than of Cheshire. This volume helps to redress the balance, but suffers from the fact that it deals only with the short period 1750-1850, and since the earlier centuries are shrouded in mystery, this book lacks the long perspective so necessary for a proper evaluation of the significance of this period. A knowledge of developments in at least the two previous centuries would have prompted certain questions, and thus helped Dr Davies to look at

her material differently, and perhaps draw more telling conclusions from it. For example, in the Tudor period, the economy and structure of society in the forests were distinct from those of the rest of Cheshire. It would have been useful to examine them separately in the eighteenth century and see if and how these differences were perpetuated. The large numbers of sheep in Macclesfield Forest in the eighteenth century were not, as Dr Davies suggests, the result of the improvement of pastures by liming after the Restoration, but were already a speciality in the sixteenth century. If it is true, as she says, that "the herbage would have been of little value without the application of some alkaline agent," then another question must be asked. How did these populous forest communities succeed in getting a living?

Dr Davies has gathered much detailed information from local sources on many aspects of rural life, but it is not arranged in a way that reveals its full significance. Facts and comment on the economic fortunes of Cheshire farmers during this fickle century are scattered, when they should have been marshalled to form one of the most important chapters in the book. And some of the unifying themes that are used to bring diverse material together are oddly chosen. Dairy farming does not foster a spirit of co-operation among farmers, as Dr Davies points out, but she chooses co-operation in the community as a theme, and illustrates it with remarks on benefit societies, cattle plague, and tithe. Some impression emerges of the relatively mild impact of depression after the Napoleonic war upon this county of small dairy farmers, employing relatively little day labour. As Sir John Sinclair observed at the time, and Mr Fletcher, writing of a kindred county, Lancashire, has since underlined, "grazing farms are different." The appendices include extracts from a number of original documents together with useful tables of statistics, some drawn from the censuses, and some constructed by Dr Davies from the land tax returns.

JOAN THIRSK

H. C. PAWSON, *A Survey of the Agriculture of Northumberland*. County Agricultural Survey No. 3. Royal Agricultural Society of England, London, 1961. 25s.

The Royal Agricultural Society has since its early days recorded the state of agriculture in the counties of England. At one time prize essays were published in the journal: later, descriptions of the farming in the county which happened to be acting as host to the Royal Show appeared year by year. This work has been continued in recent years by separate publications devoted to individual counties. Three have already appeared and the first two, on the agriculture of Kent and Sussex respectively, were noticed in Vol. IX of this REVIEW. The third, on Northumberland, written by Professor H. C. Pawson, is the subject of these notes.

The aim of the series is to survey the contemporary agriculture of those counties which it includes, and to describe developments during the present century. Those surveys which have already been published fulfil the first part of the assignment very satisfactorily, but they all show the difficulty which they have experienced in interpreting the second. This originates largely in the difficulty of developing the story on a county, as distinct from a national, basis, in the twentieth century when so many of the factors which have influenced the development of farming are common to the whole country.

Another difficulty originates paradoxically in the fact that the county units are often too large for statistics of crops and stock for the whole county to have much value unless they are broken down into their farming districts. Garrad realized this, and he illustrated his descriptions of the individual districts of Kent by groupings of the appropriate parish statistics. For Northumberland, no such breakdown has been attempted, although the tables, and particularly the graphs which show the trend in the county acreages and livestock numbers over the period from 1870 to 1956, would have been much more valuable if they had been given for each of the districts described in the text. (It is to be hoped that the

Statistics Branch of the Ministry of Agriculture, on whose good offices the provision of this material depends, will not find that modern methods of recording it make its extraction in the future less feasible than in the past, for there is no doubt that with the passing years its value increases.)

The absence of official statistics in the Northumberland survey is a smaller loss than it might have been because of the considerable span of years over which Prof. Pawson has been acquainted with the farming of the county. As a result, the war and post-war years have been described with the authority of one who was on the spot when the events themselves occurred, and a bibliography shows that there is ample literature for reference on that part of the present century which the memory of even an Emeritus Professor cannot be expected to cover. The material exists, therefore, for a survey of each of the farming districts, and of each of the classes of livestock. These are all described, along with the natural features of the county, its farm equipment, rents and labour force, markets, agricultural education and research, forestry, and the changes which have occurred in the present century.

Northumberland is noted for its herd of wild white cattle at Chillingham, and Prof. Pawson gives a fascinating account of its history and characteristics. The county is also known for its high proportion of large farms; 13.3 per cent exceeded 300 acres in 1956 compared with 3.7 per cent in England and Wales. That Northumberland is a county of relatively large farms is also implied in the selection of those described in the survey, for nearly all of them exceeded 300 acres. But it is disappointing that no attempt is made to explain how Northumberland came to be a county of large farms after having been outstanding for the small size of its farms in Tudor times and later. Indeed, when the author declares (p. 198) that agriculture changed more in the first half of the twentieth century than in the previous 2,000 years, one may wonder whether he is including structural or only technical changes in his statement.

In other parts of his survey, what he says would carry more weight if he had gone into a little detail to explain his points. For instance, he states that the smaller labour force which farmers nowadays employ compared with sixty years ago makes it more difficult to catch up with the work lost in an abnormal season (p. 41): yet it is generally agreed that with the replacement of horses by tractors and the other ways of mechanizing which have occurred on farms in the last twenty years, most farmers are less handicapped in a late season now than they used to be.

On p. 49 we read that the farmers in the Berwick, Belford, and Bamburgh district still reap much of their own corn with the binder, yet nine pages later we are told that the combine harvester is almost universal in the northern area of the county.

On p. 120 the difficulties of becoming attested in Northumberland are attributed largely to the number of Irish store cattle which are imported. But in some parts of the county home-bred store cattle are sold for finishing in the Midlands and South (p. 88). A comparison of their numbers to the numbers of imported stores would have helped the reader to assess what possibilities may exist for improving the chances of attestation by making the county more self-sufficient in its livestock.

The author takes many Northumberland farmers to task for being less generous in the use of fertilizers on grassland than he would like them to be (p. 199). Yet when he attributes their slow progress in this matter to the poor prices of fat cattle in the inter-war years, and says that it is no good producing more and better grass if it does not increase profits, surely no one could have defended more adequately than he has done himself their reluctance to use manures.

Finally he claims that the greatest change in farming in the present century is the increasing influence of the State "for better or for worse, so far mainly for better" (p. 206). (Does he intend us to believe that the State's influence is the cause of "the greatest revolution farming has undergone for 2,000 years"?)

But on p. 201 he suspects a more sinister influence, for he suggests that the State's policy of manipulating prices is the reason why so many farmers express fears for the future.

The reader of this book will have his knowledge of Northumberland farming considerably enriched, even though he may be disappointed that there is not more discussion on the problems of the farmers.

W. HARWOOD LONG

JEROME BLUM, *Lord and Peasant in Russia from the Ninth to the Nineteenth Century*. Princeton University Press, 1961. x+656pp. £5. This volume traces "the history of the lords and peasants, and of the relationships between them, from the time when large private land-ownership first established itself on Russian soil, to the abolition of serfdom a thousand years later." The author himself also points out that the economic importance of agriculture in the period covered and the attention paid to general economic development make the book "a study in the economic history of Russia. . . But it is also meant to be a study in the history of human freedom." Mr Blum has certainly tackled a vast and important problem in trying to trace agrarian relationships for a thousand years in an area as huge as Russia. In carrying out this tremendous task he has made a great quantity of information accessible to those with no Russian. It is, however, sometimes difficult to see how complete is the evidence adduced; more tables might help to highlight the gaps in our own knowledge. Nevertheless, this is a very welcome addition to the all too brief list of works in English on Russian agrarian history, particularly since Russian history has been predominantly agrarian history almost till the present day.

Inevitably, such a book affords many opportunities to differ from the author's views, especially since for much of the period evidence is relatively meagre. In some cases, for instance as regards the reasons for the economic decline of Kiev before the Mongol invasions or the movements of population from the Kiev area after the invasions, Mr Blum

seems to have dismissed or ignored recent work; and throughout his book he uses little or no modern archaeological and ethnographic evidence. At times even documentary evidence seems to be a little forced. Blum sees the thirteenth to fifteenth centuries as a period of economic and political decline of considerable intensity. Probably no one would argue against the decline, only about its intensity. He adduces as his most plentiful evidence the references to *pustoshi* "by which was meant abandoned lands." But the reference Blum cites defines them, I believe more accurately, as "empty lands—unpopulated, uncultivated (both with fields, and also with woods and other appurtenances)." A careful analysis would have to be made before mention of such wastes, which included outfields, etc., could be interpreted as abandoned lands.

Reliance predominantly on documentary sources probably accounts for a failure to appreciate adequately the technical evidence. The *sokha* is glossed as a "primitive plow" (it is actually a bifurcated ard), and although Blum correctly pointed out that it was "well suited for the shallow soil of the North" on p. 23, by p. 339 he refers to it as of inefficient design and a poor tool at best. It seems highly probable, though, that the general use of the *sokha*, which remained common till the 1920's, not only hindered Russian colonization of the steppes, but also meant that, contrary to Blum's opinion, it was easier to come by a living in the forest (p. 95).

In the sections dealing with the last century and a half of serfdom, over a half of the whole book, the variation in attitudes of serf owners in various areas to the question of the abolition of serfdom are surveyed. There are a number of illuminating thumbnail sketches of various individuals, lords, and also peasants, who, although serfs or of serf origin, were able to become merchants and factory-owners. It is, of course, much more difficult to find evidence to illustrate the run-of-the-mill peasant; but Mr Blum throughout the book seems little concerned to attempt to counterbalance the bias imparted by reliance almost exclusively on written sources for the

history of a society which was very largely illiterate. The peasants and their views in fact are greatly under-represented in this book, and this can only in part be ascribed to limitations of evidence. This, combined with Mr Blum's concern with freedom, leads, I believe, to a certain bias in presentation, since the freedom with which he is concerned is that centred on the individual, which arose, and is still largely limited to, western Europe. In Russia and other parts of eastern Europe, however, political and social life is, as it has long been, centred on the group or community. However difficult it may be for us at this remove to see inside the Russian peasant commune, we must make the attempt or Russian history will remain, as for Sir Bernard Pares, "the history of an underworld."

R. E. F. SMITH

HAROLD W. BRACE, *History of Seed Crushing in Great Britain*. Land Books, 1960. 172 pp. 30s.

It is surprising that the seed-crushing industry, the handmaid of agriculture, has waited so long for its history to be written. But the waiting has been worth while, for the author of this book is a unique expert—an amateur historian and a professional oil miller.

The history of the industry from the eighteenth century onwards is well documented and Mr Brace tells an ample tale, dealing authoritatively (and intelligibly for the layman) with the various methods and machines used for seed-crushing, and the geographical expansion of the industry. Originally it was concentrated in eastern England where much of the seed was grown. Later it spread to places scattered all over the kingdom. But now that the bulk of the seed is imported from abroad, the industry is centred upon the coastal ports.

The most tantalizing part of the book is the first chapter, in which Mr Brace sets down all he has been able to discover about coleseed growing and seed-crushing before 1700. The story is brief and perplexing in many ways, and should persuade the historian to concentrate his efforts upon finding more evidence.

It is difficult to believe that farmers' inventories of the sixteenth century will not tell us more about the growing of seeds. The first reference Mr Brace has found to oil-making comes from Crowle in Lincolnshire in 1381, and the second from the will of an oil miller in Hull in 1525. Official references to oil-milling are more numerous in Elizabeth's reign, when the Crown tried to encourage it for the benefit of the clothiers, who were paying high prices for foreign oil. But even here there is nothing to show where the oil was being milled. Then suddenly in the 1590's rapeseed appears as a crop and an export. It was being shipped to Zealand in 1593, and the reviewer has found a reference to ten combs of rapeseed in the possession of a farmer living at Terrington St Clement in the Norfolk fens in September 1599. The port books of Boston and Colchester sprout a number of entries concerning the export of oilseed and oilcake in the early seventeenth century. If exports could be undertaken in the early Stuart period, when did the industry begin to expand, and what seeds were used? The answers to these two questions at the moment are purely speculative. Mr Brace has views on the second problem. He believes that as hemp and flax were used for weaving, and as rape yields the largest percentage of oil, the latter was used for seed-crushing from the beginning. But if this is so, why have no references as yet been found to the crop before the last years of the sixteenth century, in contrast to the numerous references to hemp and flax? Mr Brace is sceptical of the view sometimes put forward that coleseed was introduced by the Dutch drainers, but Mr Fussell's article on the crop, which Mr Brace may not know ('History of Rape or Cole', *Nature*, CLXXVI, July 1955), produces weighty evidence to suggest that its introduction may well have been due to the Dutch, though not necessarily the drainers. It is true that rape first appears as a large-scale crop in the newly drained fenlands in the early seventeenth century, but Dutch immigrants were filtering into England for some decades before, and they were thoroughly familiar with the crop at home. Even

though cole was an indigenous plant on the sea shores, some foreign stimulus to the field cultivation of the crop seems likely. But again we are driven to speculate. In view of Mr Brace's precise documentation of the later period, it is time we made a better job of the early history of seed-crushing.

JOAN THIRSK

MICHAEL CHISHOLM, *Rural Settlement and Land Use: An Essay in Location*. Hutchinson's University Library, London, 1962. 208 pp. 12s. 6d.

A few years ago the American economist Walter Isard made the charge that in most works on economic theory the "analysis is confined to a wonderland of no spatial dimensions. The factor of space is repudiated, everything within the economy is in effect compressed to a point and all spatial resistance disappears." The criticism is aimed, in the main, at Anglo-Saxon economists and, in fact, it is rare to find a work on location theory written by an Englishman. The field has long been the preserve of continental European writers (notably Weber, Losch, and Christaller) though considerable interest in the subject is beginning to appear in the United States. Unfortunately, too, most of the writings are inaccessible to all but the specialist owing to their being couched in complex mathematical terms. Mr Chisholm's book, written primarily for the student and eschewing all mathematics apart from elementary arithmetic and three simple graphs, is therefore to be welcomed. It is true that he confines himself only to the study of rural land use and settlement patterns, but within the limits set for the writer of an introductory text, he succeeds in putting across most of the appropriate principles of location theory, and more importantly, he illustrates the abstract theory with a wealth of real-world examples.

Primarily the aim of the work is to show how distance, and its associated costs of movement, exert an influence on land-use patterns. The analysis is centred on the theoretical work of the early nineteenth-century German writer J. H. von Thunen,

whose ideas of the concentric zoning of cropping patterns around a settlement are well known. The chapter explaining the basic Thunen theory, unfortunately, is somewhat rushed. The whole analysis hinges on the troublesome concept of economic rent—a feature of economic theory which, in the reviewer's opinion, needs to be spelled out in considerable detail if it is to be understood. It is in the succeeding chapters on the application of the theory to real situations that Mr Chisholm excels. Application at the farmstead and village levels and to the region and the world is thoroughly pursued. One must commend the writer's diligence in tracing examples from a wide diversity of sources and from many countries. The agricultural historian is likely to obtain much food for thought from these sections of the book.

However, it is one thing to show how land-use patterns are arranged around a given settlement—it is quite another matter to show how a settlement *pattern* is generated. In fact most settlements are located as the result of industrial considerations and agriculture adapts itself to the supply of major urban areas. Rural areas, however, have their own complex patterns of settlement and communications, whose genesis must be explained. This is the object of three of Mr Chisholm's nine chapters (VI to VIII inclusive). Here, unfortunately, the writer appears to be less confident in his treatment. Many interesting points are made and the documentation, once more, is comprehensive. The basic theory, however, is less well developed and its application is disjointed. It must be remembered, nevertheless, that Mr Chisholm has chosen to study a most complex field which has long been a source of worry and perplexity to location theorists. The final chapter, on technical changes in transport facilities and their likely effects on land-use patterns, is excellent.

The dust jacket states that the argument ranges across the field of Geography, Agricultural Economics, Economic History, and Planning. One is left with the impression that experts in each of these disciplines would profit from reading Chisholm's book—and that

each would come away with a desire for more in the same vein. A textbook which makes a genuine addition to knowledge is a rare event.

G. H. PETERS

ROSALIND MITCHISON, *Agricultural Sir John, The Life of Sir John Sinclair of Ulbster, 1754-1835*. G. Bles, 1961. x+292 pp. 35s.

Although Sir John Sinclair's name is so widely known, curiously little has till now been written about him. What there is was for the most part inspired by himself—the autobiographical introduction to the two volumes of his Correspondence, the biographical memoir by his son, Archdeacon Sinclair, and, based on this, a memoir published in W. and R. Chambers's Repository of Instructive and Amusing Tracts. In these he appears as a great man dedicated to useful works and devoted to the public good, indefatigable and unsparing of himself in the causes for which he worked—a truly exemplary figure.

Mrs Mitchison's book is the first to assess Sir John through other than his own or his family's eyes, and as she does so the bright Victorian image clouds a little. His virtues remain as above, but his faults appear too. His intellect was essentially pedestrian, he had no great clarity of thought, he lacked humour, he could be something of a bore, and the enthusiasm that never knew when to stop gave him a special capacity for putting his foot in it. But for these faults, he might have achieved in Britain as a whole the stature he achieved in Caithness, where, in pursuance of his ideals, and aided by his influence and wealth as principal landowner, he planted extensively, introduced better breeds of cattle and sheep, improved communications, established villages and industries, rebuilt Thurso, fostered the herring-fishing, brought wide expanses of land under cultivation, abolished the runrig system and with it feudal services and charges, and generally raised the standard of living of his tenants.

Here alone, Sinclair could have made his name. As a member of Parliament, this was the sort of thing he aimed at doing for Britain as a whole, and his concern for the economic

well-being of the country was the guiding factor in most of his work and writing. At a time when agriculture was the basis of the nation's way of life, even of its class structure, this was naturally the subject with which he busied himself most, though he was willing to write at length on any subject, naval, military, legal, literary, medical, or what have you. It was no mean achievement to be described abroad as "le premier agronome de l'Europe."

Today he is best known as the name behind the first Statistical Account of Scotland, and, through the Board of Agriculture, of which he was founder and president, the County Agricultural Surveys. These amount to 122 volumes. The collection of information at parish and county level, and its analysis, were seen as the first steps towards informed government action, and in this Sir John was ahead of his time. It may be as well that his main task was editing, not writing, them, since of the 370 publications for which he is said to have been personally responsible, only one or two are much known today. His virtue lay not in his writing, but in his ability to initiate a project and see it through to the end. It is a tribute to his enterprise that the Third Statistical Account is now in process of publication. The Accounts supply invaluable check-points for students of local history in Scotland, at the late eighteenth, mid-nineteenth, and mid-twentieth centuries. With these, supplemented by the County Agricultural Surveys, nearly every parish in Scotland has its economic, agricultural, and to some extent social history ready to hand over the last 200 years. Scotland has thus more reason to be grateful to Sir John than has England, where his efforts to carry out a statistical survey were quashed, though he did, of course, succeed better there with County Surveys in the face of considerable difficulties. These Surveys are as valuable as the Statistical Account for providing present-day agricultural historians with source-material.

Mrs Mitchison does not quite do his Agricultural Surveys justice, but otherwise she has produced an excellent book, combining, on the one hand, good biography, showing Sir

John as a product of his environment and as a man with faults as well as virtues, and, on the other hand, good history, throwing a great deal of light on the politics and local electioneering of the time. It is a book for which there has been a long-standing need.

ALEXANDER FENTON

V. GAFFNEY, *The Lordship of Strathavon: Tomintoul under the Gordons*. Third Spalding Club, 1960. 328 pp. No price stated.

This careful and scholarly study in the agricultural and social history of north-east Scotland follows in the tradition of works by I. F. Grant and H. Hamilton. The strath of the River Avon and its tributaries, roughly corresponding to the large Banffshire parish of Kirkmichael, identifies the geographical area of Dr Gaffney's work; the Gordon Castle papers provide his main manuscript source. Selected extracts from these papers make up slightly less than half the volume; the rest is a detailed account by Dr Gaffney of various aspects of life in Strathavon in the eighteenth century and earlier.

With most of the land above one thousand feet and much considerably higher, Strathavon's major contribution to the agricultural economy of the region in the eighteenth century was its summer grazings. Dr Gaffney devotes a chapter to describing the shealings, the disputes about them, and the land improvements attempted. His account is revealing and readable, although one wonders if he sympathizes too much with the view that summer in the hills was a Highland jamboree. Lowland accounts of Highlanders spending much of their time lazing in the sun, or in the whisky house, are perhaps a little biased—or hopefully envious.

The founding of the village of Tomintoul—now a familiar name from snow-blocked road reports—is the subject of another chapter. In eighteenth-century Scotland many landowners tried to establish village communities to encourage the weaving and linen industries. This was a major motive in developing Tomintoul, which, it was hoped, would eventually become an important centre of

Highland industry. The first feu duties in the village were charged in 1779, but progress was slow and fifteen years later the *Old Statistical Account* recorded 37 families in Tomin-toul and not a single manufacture to employ them. By this time the landowners had certainly abandoned their efforts to encourage flax-raising in Strathavon.

Competition between deer, sheep, and cattle is discussed at some length by Dr Gaffney, who also devotes a special chapter to recruitment. Authentic accounts of the methods used to enlist Highlanders are already numerous; the Strathavon story reveals some of the disruptive economic effects as well as the human problems involved.

The final and longest chapter, on landholding, covers many topics, including land measures, changing forms of tenure, and the methods, conditions, and level of rental payment.

This study will undoubtedly contribute towards a general economic history of Scotland, the need for which has been frequently declared in recent years. Perhaps Dr Gaffney might have set out more deliberately to select, emphasize, and summarize those aspects of Strathavon's economy which would be most relevant to such a history. The fear of generalization and all its dangers can produce an episodic approach which classification alone does little to remedy.

GEORGE HOUSTON

MARGARET KIDDLE, *Men of Yesterday: A Social History of the Western District of Victoria, 1834-1890*. Melbourne University Press, 1961. xviii+574 pp. (London: Cambridge University Press.)

The Australian colonies in the nineteenth century were not, for all their radicalism, of an unequivocally democratic cast. The "real" Australia—the Australia, say, of Lawson, where "they call no biped lord or sir, And touch their hat to no man!"—emerged out of the conscious and systematic destruction of a transplanted old-world class system, out of the constitutional defeat of the pseudo-aristocracy of the 'Shepherd Kings'. This conflict,

this persistent, pragmatic transformation of an inherited culture towards a profoundly egalitarian national ethos constituted the central strand in Australia's socio-political evolution during the nineteenth century. It has received less attention than it deserves.

Thus we owe much to Miss Margaret Kiddle for helping to redress the balance. She illuminates the squatter society, and the assault launched against it, in a way that even S. H. Roberts's important study could not do. This is a misleadingly unpretentious book. Dominated by no Grand Thesis, Miss Kiddle's approach is dictated by a simple interest in the lives of the men who settled and civilized the south-west of Victoria—that "tall, swift-moving, laughing crowd, superb on horseback" (p. ix). These limitations of scope may seem severe; but this region, though relatively small, was a focal point of Australian development; these people, representative of many others. The writer is justified in claiming that "The story of the Western District is in many ways that of Eastern Australia in microcosm." Further, by thus confining herself she exploits an assiduous eye for detail, mustering an enormous amount of empirical support, much of which is newly culled from contemporary records. Throughout, the treatment is remarkably comprehensive, thoughtful, and judicious. Miss Kiddle teaches us a great deal about Australian history. This is a very good book indeed.

Sustained settlement in Victoria was begun (after the fashion of the country) in defiance of authority, by land-hungry Vandiemonians in the 'thirties. Fighting climate, natives, and disease—not to mention regulations—they and the (predominantly Scottish) immigrants who joined them built in two decades a unique pastoral society of large holdings and a hybrid culture. Their success rested upon adaptability, and they quickly developed distinctively Australian characteristics. Yet the re-establishment of the familiar social rigidities of home appealed strongly to these squatters who, troubled by the dubious legality of their position, sought security in the *status quo*; and the very strength which they sought thus to

protect assured the success of their efforts. But it could be only a temporary success. With gold, in the 'fifties, and the 'New People' who swelled the population sevenfold in a decade, came an unprecedented threat, reflected not only in numbers but in a new political awareness. These were the days of Social Justice; these the people who could resist Wentworth's call for "a British, not a Yankee constitution." The 'sixties brought concerted legislative attempts to break the land monopoly. Closing ranks and largely negating those attempts, the squatters could still see in the 'seventies and 'eighties qualities of a Golden Age; but "the glow which suffuses this period is one of twilight." The victory of the levellers was by then assured.

With its wealth of data (copiously documented) on such matters as prevailing wage rates, prices, rents, land holdings, techniques of selection, and problems of agriculture, this study will have great value to historians of all shades. For those who hope to understand Australia it is indispensable. Miss Kiddle has, one hopes, opened a new phase in Australian historiography; but she wrote in a race with premature death, and will not see it flower.

L. MCGREGOR

R. B. KELLEY, *Principles and Methods of Animal Breeding*. Angus and Robertson, 3rd edition, 1960. viii+358 pp. 42s.

Kelley is to Australia what Hagedoorn and Nichols are to Britain, the current classic on animal genetics. And, like them, he is consistently reprinting. This edition is the third of his *Principles and Methods of Animal Breeding*, excluding two straight reprints. His success has come because he has deliberately fallen between the two schools of laboratory scientist and practical breeder; and fallen upon his feet. This book serves both admirably; although I fear that neither will find out what Bakewell, the Collings, and Bates, and the Scottish men, were really about in fundamental terms. He takes the conventional histories of eighteenth- and nineteenth-century livestock improvement, retells them in much detail, but never reaches the analysis which he,

as one of the handful of English-writing geneticists competent to make it, could offer. That, despite our current great advances in genetic understanding and the science of blood grouping, has still to come.

This is of minor relevance to the practical animal breeder, even though a major disappointment to the agricultural historian. But to the man who wants to know what livestock breeding is all about this book is probably the best, clearest, and simplest guide in English today: more wide-ranging than Nichols in that Kelley makes greater use of American research results, and Beltsville and other centres in the States are in most branches of stock improvement some years ahead of British research stations; and free from the controversy which has surrounded many of Hagedoorn's views. It is not always easy stuff for the layman, but he who perseveres will discover all he needs to know about population genetics, genotypes, artificial insemination, and right through to progeny and performance testing.

R. TROW-SMITH

STAFFAN HELMFRID, *Östergötland—"Västansång."* *Studien über die ältere Agrarlandschaft und ihre Genese*. Communications of the Geographical Institute, Stockholm University, no. 140, 1962. 278 pp.

Continental historians and geographers are far better informed on the work of their European colleagues in the field of agrarian studies than are English scholars. Hence, although this book has a relatively narrow local theme, its value is greatly enhanced by constant reference to similar problems in Europe as a whole, and to the relevant literature from other European countries, particularly from Germany (where Dr Helmfrid first made contact with scholars working on landscape history, and was thus prompted to embark on this study), from Denmark, and, to a lesser extent, England and Eastern Europe. If English scholars would give up the notion that their agrarian history is a case apart from that of the rest of Europe, they would benefit greatly from the lively discussions that are in progress

on the subject of field systems, settlement patterns, and the causes of agrarian change.

This book is concerned with the making of the landscape of the plain of Östergötland, formerly known as Västansång, in east-central Sweden. Östergötland consists of three belts of territory, a strip of forest and mountain in the north, a plain in the centre, and another strip of wood and mountain in the south. Dr Helmfrid concentrates attention on the central plain, which is one of Sweden's most fertile farming areas, and is called a granary of the kingdom. It was also an area of early settlement. A rich collection of maps for the mid-seventeenth century allows the author to make a detailed analysis of the economy of the plain at that time. The importance of cereal production emerges clearly in the relatively high proportion of land devoted to arable. In the western half of Östergötland, where cereal production for the market developed earlier than in the eastern half (eastern Östergötland gave somewhat more attention to cattle production in the mid-seventeenth century, though it was still a cereal-exporting area), between 20 and 30 per cent of the parish area on average was given over to the plough, compared with 10–15 per cent in other parts of Sweden. In consequence, the grazing in some places was insufficient for the feeding of the stock, some parishes had no common pastures left, hay had to be bought in, and some stock sent away at certain seasons into the forest regions. Cereal production in the region was facilitated between the mid-thirteenth and later-fourteenth centuries by the growth of Skänninges, a trading port of the Hanse, and in the fifteenth century by the growth of Vadstena, which supplanted it.

In view of this attention to cereal production (mainly barley and, to a lesser extent, rye), it is surprising to find that a two-course rotation of crops prevailed in the common fields of the region. Dr Helmfrid makes some interesting observations on its virtues over the three-course. It was regarded locally in the mid-eighteenth century as a much superior system, the three-course being fit only

for more primitive forest areas; the communities of the plain which changed from a two- to a three-course were regarded as taking a backward step. In view of this evidence, Dr Helmfrid suggests that the value of the two-course rotation lay in the ample pasturage which it afforded in the fallow year—a suggestion that has already been made to explain the prevalence of the two-course rotation in some fertile regions of England—and his argument is the more convincing for Östergötland since parts of the fallow fields were frequently sown with peas.

This description of the landscape and economy of the Östergötland plain about 1640 is followed by a discussion of its origins, and deals with the place-name evidence; the archaeological finds from prehistoric settlements; the problem of continuity between prehistoric sites and historic settlements (the majority, i.e. 76 per cent, of prehistoric cemeteries lie within the boundaries of settlements possessing pre-Christian place-names, and 73 per cent lie within 300 metres of an old village nucleus); the patterns of Viking and medieval settlement; the effect of the *solskifte* (the systematic rearrangement of intermingled lands which was carried out in east central Sweden from the thirteenth century onwards); the desertion of sites in the later Middle Ages, most of which were re-occupied between 1540 and 1640; and crop rotations and their origin. On this last subject, Dr Helmfrid is inclined to accept the suggestion of Göransson that the two-course rotation, superseding an irregular, or continuous-cropping system, was introduced into Sweden from England some time during the period 800–1060, when contact between the two countries was close. But more interesting still is Dr Helmfrid's conviction that the discipline of regulated crop rotations was inseparably associated with the growth of the village community, just as the abandonment of strict cropping regulations accompanied its decline. It is worth noting that the English evidence also tends to support this view, inasmuch as the tightest discipline in the cultivation of common fields is found in the larger nucleated

villages of the arable regions, whereas laxer rules were characteristic of the more loosely organized common-field settlements in the pastoral regions, and these lapsed without much opposition to permit easy enclosure.

The book concludes with a summary of the significance of the Swedish evidence when seen against the European background. Dr Helmfrid resumes his discussion of the *solskifte* and their origin, and while accepting the evidence of *solskifte* in England, concludes that the examples found so far are too few to support the notion that they too were imported into Sweden from England. As for the origin of nucleated villages with common fields, Dr Helmfrid summarizes, and himself accepts, the view of modern German scholars that the highly organized village communities of the eighteenth and nineteenth centuries, whose lands were mapped in the volumes of Meitzen, were the result of long, slow development, and did not start in this form. Village communities and communal farming, they believe, superseded single farmsteads, and were brought into existence by the rise of population, land scarcity, and the need for more intensive cultivation. Although at least one English scholar, and possibly more, would disagree with this as a generalization explaining the origin of all English and Welsh villages and common fields, it is probably the correct explanation for at least some of them.

The book ends with a bibliography of articles and books on the history of the landscape and agrarian economy by over two hundred writers. It is a sad comment on the comparative isolation of English scholars that a fair proportion of these publications do not exist in any English library.

JOAN THIRSK

Hatfield and its People. Book 9. Farming Yesterday and Today. Hatfield W.E.A., c/o Mrs Barbara Hutton, 2 Vigors Croft, Hatfield. 1962. 50 pp. 2s. 6d.

The Hatfield branch of the W.E.A. has shown great enterprise in getting its research on Hatfield into print, and it is now well launched on

its series of illustrated booklets. This is Book 9, and another five titles are due to appear shortly. This study of Hatfield farming is based on farm accounts, surveys, a few probate inventories, tithe maps and awards, and some private papers in the possession of local farmers. The authors' local connections have been used to good advantage, and there is much detail in the later history of the parish that would have been difficult to come by without them. The sources for the earlier centuries up to 1800 are less abundant, and the remarks on them occupy only nine out of forty-nine pages. They could have been enlarged by using some of the material on the county as a whole, for example, in the *Calendar of State Papers Domestic*, and this would have helped towards the understanding of the place of Hatfield in its region.

The old parish of Hatfield was a large territorial unit, nine miles in length, and covering 13,000 acres. It possesses several different types of soil, some chalky, some a sandy loam, and some gravelly. Hatfield itself lies in the centre, and colonization of the extremities of the parish was a long-drawn-out affair: already under way at the time of Domesday, it had made substantial progress in the northern sector by the early thirteenth century, and in that area was probably complete by the end of the fifteenth century. A survey of the parish in 1607 shows that the farms in the north had as much ploughland as they possessed in the early nineteenth century, when arable cultivation was at its height.

There is much evidence in this book to support the statements of eighteenth- and nineteenth-century writers that the county was made fertile by London manure. Without it, the comparatively poor soils of Hatfield, and Hertfordshire, could not have been improved so early for cereal production. More than many other parishes in the neighbourhood, Hatfield also relied on the dung and the hoof of the sheep, and by the early eighteenth century large farmers were buying sheep from elsewhere in the autumn, and fattening them for the butcher in the spring. Some

Hertfordshire farms nearer London were already supplying oats for London horses in the early seventeenth century, if not before, and this traffic (oats in return for London manure) exerted considerable influence over the pattern of farming in Hatfield by the end of the eighteenth century.

The havoc wrought by nineteenth-century depression on arable farms is dramatically portrayed in maps and surveys. The parish had 59 farms in 1824 and only 32 at the end of the century. Twenty-four farms changed hands in the period 1824-38, though without losing their separate identities. After 1850 they began to be amalgamated into larger units, and by 1905 nearly half the arable in the parish had been converted to pasture. But some of the most successful farmers in the lean years at the end of the century were not the ones who turned to grass-farming; they were Scotsmen who had arrived in Hatfield before the onset of the Great Depression, who made careful choice of their farms in the more fertile northern half of the parish, near the Great North Road and the railway, and who grew potatoes. Their success encouraged more of their countrymen to come to Hatfield, and Lord Salisbury seems to have favoured them as tenants. Some of their descendants continue to farm in Hatfield to this day.

This brief summary is enough to show the wealth of fascinating detail in this book on the history and economy of Hatfield. Those who are also interested in the history and economics of these booklets as a publishing venture should read an article by the editor of the series in the *Amateur Historian*, v, no. 3, Spring 1962.

JOAN THIRSK

H. C. DARBY and E. M. J. CAMPBELL, *The Domesday Geography of South-East England*. xviii+658 pp., illus. £6. H. C. DARBY and I. S. MAXWELL, *The Domesday Geography of Northern England*. xvi+540 pp., illus. £5 5s. Cambridge University Press, 1962.

The second volume of Professor Darby's great Domesday series, published in 1954,

consisted of 498 pages and cost 55s. The third and fourth have now appeared, at prices which reflect not only their greater bulk but also the successive increases in printing costs over the last eight years. Like other publishers and printers, the Cambridge University Press is here in the grip of forces beyond its control; but so too are its customers, and the economics of book-production might well have suggested some departures from the original plan, which, requiring as it does a fresh start to be made with each county, has entailed a good deal of costly and—to be frank—rather tedious repetition.

As it is, the original ground-plan has been retained (except in Yorkshire, where the nature of the material defies convention), nor has Professor Darby been visibly moved by criticisms levelled at the earlier volumes. For example, the Domesday figures are still manipulated so as to fit into the county boundaries of the 1960's, which may be out of date by 1970; the maps do not attempt to reconstitute the hundreds and shires of King William's day; there is the same hesitant treatment of the *servi*, who are still called "serfs"; and the historian will continue to be irritated by finding Domesday Book habitually miscalled "the" Domesday Book. It may be added that fuller use could have been made of pre-Conquest documents, such as the ship-list of c.1000 which couples Barnes with Chiswick among the estates of St Paul's Cathedral. Barnes is named in the Domesday of Middlesex, but Chiswick is not, nor does Professor Darby's co-author include it in his enumeration of missing settlements.

And so on, and so forth. In twelve hundred pages closely packed with detail, a captious critic will easily discover matter for fault-finding. What is more important is to recognize with gratitude the service Professor Darby and his collaborators have rendered to historians and geographers by extracting, digesting, and illustrating for our benefit the multifarious information hidden in the Domesday folios. That information is not the less valuable for being coloured to some extent by the shortcomings of the great survey

itself, with its exaggerated emphasis on arable husbandry. Indeed, the volumes before us help to correct that over-emphasis, with their maps of woodland, vineyards, fisheries, and salt-pans, and their citation of entries concerning rural handicrafts.

A fuller notice must await the completion of Professor Darby's undertaking, when the series as a whole can be reviewed in an article of some length. Meanwhile, attention should be drawn to two items of particular interest: the appendix on the identification of the Yorkshire vills, and the thorough discussion of the New Forest under King William.

H. P. R. FINBERG

STAFFAN HELMFRID (ed.), *The Morphogenesis of the Agrarian Cultural Landscape. Papers of the Vadstena Symposium at the XIXth International Geographical Congress, 14-20 August 1960*. Reprinted from *Geografiska Annaler*, XLIII, nos. 1-2, 1961. iv+328 pp.

This volume is like a rich cake. It contains so much information and so many ideas that no one but a reviewer should attempt to digest it all at once. On the other hand, no one who claims some interest in agrarian history should fail to sample at least some of its contents. It contains twenty-eight mostly short papers, of which eleven are in English, two in French, and fifteen in German. The reader who intends to tackle the German articles can smooth his path by first reading the paper towards the end of the volume on 'Old hamlets with infield and outfield systems in western and central Europe', written in English by the German scholar, Harald Uhlig. It has a much wider scope than its title implies, and besides giving a valuable survey of recent German research on types of settlement and field patterns, also explains the precise German terms for strip fields, common fields, and enclosed fields, etc. The German articles deal with three main themes: the effects on agriculture and landscape of economic crisis and population changes; the history of enclosure; and the origin of different field patterns.

On the first theme, Professor Abel analyses the effects on agriculture of the slow but steady recovery of population in Europe from the second half of the fifteenth century. It led everywhere to pressure on food supplies, but food prices rose unevenly. Grain prices quadrupled while those of animal products rose only two-and-a-half times, and in Germany this led to a fall in meat production and an extension of corn cultivation. Since corn-growing seems to be associated in Germany (and, for that matter, in England, too) with the strengthening of the village community, Professor Abel suggests this as the explanation why villages expanded, and hamlets declined, or at least ceased to multiply, in the sixteenth century. For the poor, however, whose purchasing power was drastically curtailed by inflation, meat was beyond their means, and they were obliged to eat more of the cheaper cereals, and drink beer rather than wine. Hence, concludes Abel, the reduction in vine cultivation. We might add also that this possibly explains the extreme surprise of German travellers in the sixteenth century at the large quantities of meat consumed by the English peasant. Professor Mortensen's paper consists of a series of challenging questions, to which he offers some tentative answers. Why did people in the high Middle Ages cheerfully colonize new sites for settlement, whereas in the period after the desertions they preferred to enlarge old villages? Why did the period of desertions and retreating cultivation also witness in Germany the spread of the three-course rotation of crops, signifying a more intensive use of land? Why were some places in Germany, in East Prussia, for example, depopulated at the same time that new settlements were being created nearby? If Professor Abel is right in attributing depopulation in the later Middle Ages to the plague, why did populations in West Germany begin to rise again about 1470 when the plague was still rife? Some of these questions simply serve to emphasize the differences in detail between English and German experience in the fifteenth and sixteenth

centuries. Others, however, suggest new ways of looking at the English scene.

Three papers on the enclosure history of Germany and Sweden likewise afford instructive comparisons with England. Gerhard Erdriss describes enclosure in the Allgäu. Although it was one of the earliest districts in south Germany to show an interest in enclosure—the first moves were made in the 1550's—and although the impetus came from the peasantry, little progress was made until the eighteenth century. In Sweden, where the movement started late, it too required encouragement from above, and legislation, before it slowly won support. In north-west Germany, it was the enclosure of the commons which constituted the largest problem. A map accompanying this paper by Helmut Jäger shows how extensive they still were in the mid-eighteenth century. In consequence, the modern landscape owes much to the changes that followed enclosure in the eighteenth and nineteenth centuries, whereas in other parts of Germany much of the countryside had been shaped by events in the previous five hundred years.

Several articles on field patterns show that European scholars are well ahead of their English colleagues in achieving a precise classification of types: Uhlig gives on p. 306 nine different schematic village layouts for Germany, involving open, but not necessarily commonable, land. More striking still, however, is the common assumption that underlies all these papers, namely, that there is nothing permanent in field patterns and rules of cultivation. The point is proved in several well-documented examples, showing strip fields which developed out of square, enclosed plots, and vice versa. Annaliese Krenzlin's evidence is derived from a com-

parison of field patterns between the sixteenth and nineteenth centuries in northern Lower Franconia; Svetozar Ilešić describes, and illustrates with maps, two transformations of the field pattern in north-west Yugoslavia which occurred in less than a hundred years, between 1860 and 1936.

Other papers in this volume deal with Swedish settlement patterns, and the evidence of systematic allotments of strips in England, similar to the *solskifte* in Sweden; two stimulating essays on Wales are offered by Professor Jones Pierce and Glanville Jones, and another on Ireland by James Johnson. Others deal with Poland, Albania, and Algeria. Dr Finberg summarizes recent progress in English agrarian history.

Despite the widely diverse districts and periods with which these papers are concerned, certain general conclusions recur more than once. A number of writers agree in associating the emergence of common fields with the extension of arable land, and consider that this occurred most often in periods of rising population. At such times, partible inheritance was also powerfully at work—the paper on Ireland makes this point as well as others on Germany and Yugoslavia—giving rise to a pattern of land in strips, though subdivision did not always take this form. It seems to be agreed also that hamlets and infield-outfield cultivation represent a stage of development following upon shifting cultivation, and that this phase in turn was likely to be superseded by the growth of villages and a common-field system. Since both types of settlement and field arrangement occur in many European countries, there is clearly nothing peculiarly Celtic about the former, or Anglo-Saxon about the latter.

JOAN THIRSK

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by ALEXANDER FENTON

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The Land Tax Returns

by D. B. GRIGG

*

Enclosure and Changing Agricultural Landscapes in Lindsey

by S. A. JOHNSON

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Skene of Hallyard's Manuscript Of Husbandrie

By ALEXANDER FENTON

SCOTLAND is very much England's poor relation as regards pre-eighteenth-century writings on agrarian matters. England has its sixteenth-century writers such as Fitzherbert, Tusser, and Googe, and its seventeenth-century writers such as Markham, Blith, and Hartlib. To match this influential series of authors, Scotland can supply only two, and that at the very end of the period. The first is James Donaldson, whose *Husbandry Anatomiz'd* (Edinburgh, 1697) seems to show that Scottish agriculture was little more advanced in 1697 than English agriculture in the time of Fitzherbert in 1539. Donaldson, however, was an Edinburgh printer, and though he says he spent his early years on the land, it seems clear that a good number of his ideas are borrowed from earlier English sources, notably "Merkem" (Markham), himself a borrower from German as well as English writers. This must be borne in mind when trying to assess the state of contemporary Scottish agriculture, as it may well be that Donaldson introduces a false element of archaism into some parts of his book.

Two years later, a treatise of under fifty pages appeared, *The Countrey-Man's Rudiments: or, An Advice to the Farmers in East Lothian how to Labour and Improve their Ground*, by A.B.C. (Edinburgh, 1699). A.B.C. is thought to have been John Hamilton, the second Lord Belhaven. It was written to help "ordinar Farmers," and one might regret that his wish for "a particular Treatise for a particular Shire or Bounds of Land," such as East Lothian had in this one, did not come true till nearly a century later. The tendency of writers to project into the past conditions generalized by them from the Statistical Accounts and Agricultural Surveys of the eighteenth century might then have been avoided and an effort might have been made to seek some of the roots of the eighteenth-century "agricultural revolution" in the seventeenth century or earlier. There is in fact no lack of sources for early Scottish agrarian history, as Gordon Donaldson recently showed.¹ Some of these have been explored—e.g. T. Bedford Franklin used a number of monastic records in his *History of Scottish Farming* (Nelson, 1952), as also did J. A. Symon in *Scottish Farming Past and Present* (Edinburgh, 1959), but

¹ 'Sources of Scottish Agrarian History before the Eighteenth Century', in *A.H.R.* VIII, 1960, pp. 82-90.

the seventeenth century remains very much a blank, though as Donaldson makes clear, systematic study of testamentary records, court books, estate papers, and state records, could certainly alter this state of affairs. An accessible edition of *Husbandry Anatomiz'd* and *The Countrey-Man's Rudiments*, which are both quite short and could well be re-published together, is also to be desired, as the texts are, at the moment, practically unknown.

One of the earliest documents to deal specifically with seventeenth-century agriculture in Scotland, now here published for the first time, is on folio 64 of the Skene Papers in the National Library of Scotland,¹ and dates from *ante* 1666. The writer was John Skene of Hallyards, in the parish of Kirkliston, Midlothian, who succeeded to the estate in 1644, and died in 1669.² Hallyards Castle in which he lived is now a ruin.

GLOSSARY AND TEXT³

BEIR. Four-eared barley.

BEST SHEAPE=best chepe, i.e. cheapest.

BOLL. A dry measure, varying according to locality and the goods measured. A boll of meal, as still sold by Scottish millers, weighs 140 lb. avoirdupois.

BROWDDEN. Extremely fond, insistent.

CHALDER. A measure of capacity, containing 16 bolls of grain.

CRAFT LAND. Land of superior quality because frequently manured, infield.

FALDED. Of outfield land: having animals enclosed on it to manure it.

FORROW. Of a cow: having missed a pregnancy and not in calf, but giving milk the second year after calving.

FURLET. A measure of capacity for grain, equal to the fourth part of a boll, and varying as for the boll.

GAINE. To suffice.

GANGINGE. Going.

GREIVE. The overseer of a farm.

HALD OF. To keep from.

KEAN. A payment in kind made by a tenant. From Gaelic *càn*.

KY. Cows.

LAMBES. Lammas.

LIE. Lea.

MARK. A unit of account, worth 13s. 4d. Scots (=13½ pence sterling).

MUCKITT. Dunged.

NOLT. Cattle.

NUCLE. Of a cow; newly-calved; previously calved and about to calve again.

OVER WATT. Too wet.

OWLK. Week.

PAIPE. Pap, teat.

PROOF-CASTING. Determining the amount of grain in a stack. (See p. 78 below.)

QUAY. A young cow or heifer, 2 years old.

ROWKITT. Put into ricks or stacks (in the field).

SETT. Of rent in kind: to commute for money.

SHAMLOH. A cow that has not calved for two years. Gaelic *siomloch*, a cow that gives milk without the calf.

SILVER. Here=money.

SOWMME. The allowance of animals that may be grazed on a piece of land; a unit of grazing. Now generally called a *souming*.

SPEANED. Weaned.

STAPP. To stuff.

¹ Skene Papers, MS. 29.2.10.

² W. F. Skene, *Memorials of the Family of Skene of Skene*, New Spalding Club, 1887, pp.

117-22.

³ The abbreviations have been normalized, and punctuation added.

STIRK. A bullock or heifer between one and two years old. (Note: a bullock, when three years old, and fit to be yoked in the plough, was called a *stot*.)

STRAIKINGE. In measuring grain; the amount that is "straiked" or stroked off the top of the measure.

TARNETIE MONDAY. Trinity Monday.

TEADIE. Of a cow; in calf (tidy).

TEALL. To till.

THREAVE. A measure of 24 sheaves, usually equal to two stooks.

YEILD. Of a cow; barren, dry of milk.

YOW. Ewe.

YSSSEN. To desire the bull; *yssen'd* here=served.

SKENE OF HALLYARD'S MANUSCRIPT

Of Husbandrie. The first Sheat.

All grounds that ar laboured ar either Craft Land, that is infield or muckit land, or outfield land. Craft land is devided into four pairts; the first pairt is sowen with Beir, the second with oates, the third on of the pairtes by itself is sowne the first yeir with Beir, the second yeir with oates, the thrid yeir with wheat, and the fourth yeir with Peiss, and then begins with Beir again.

The owtfeild land is land that is never muckitt for the most pairt. It lyis lie two yeiris and is falded the thrid yeir and then sowne for thrie yeirs together, and it is sowne with no other grain than with oates. Ther be some owtfeild better than other. Some lyis lie but some two yeires, being falded the second yeir, som four yeires, being falded the fourth yeir. Vhen land lyis lie yett is it profitabl for pasturage of horse, sheepe, and nolt.

Concerninge the sowinge of the seed the Vheit is sowne in November and December, the Peiss in Marche and oates in Aprile, the Beir in May.

Concerninge lyming they lyme befor the Peiss but not befor the wheat.

Concerninge the muckinge and teallinge of the land, when they sow peiss and oates the land is not muckitt, but when they sowe wheat and Beir the land is muckitt, but the Beir getts mor mucke. Vhen they sowe the wheat the land is muckitt, then anes tealled, then sowen, then harrowed. Vhen they sowe the Peiss and Oates then the land is not muckitt, but anes tealled sown and harrowed. But when they sowe the Beir the land is thrice tealled, first when they have sowne their wheat seede, the second tyme when they have sowne ther oate seede, and after the teallinge harrows it and then mucks it verie weill, the third tyme they teall it then after the seed is sown they harrow it.

Concerning the stacking they must not gather in the corn into the barne yaird till it die, that is drie and light and fitt to be stackitt. The beir, wheat, and oates will die within ten or twelf dayis after the shearinge if they be clean of weids and herbes, if the weather be fair. But the peiss is langest a dying, for ten or twelf days after they be shorne they must be rowkitt four or fyve dayes, before they be stackitt in the barne yairde.

Ther be four pecks in a furlett, four furlets in a boll, sixteen bolls in a chalder.

The Peiss sows farder than anie grain, the Beir and the wheat alik, but the oates least of all. For example, fourteen pecks of Peiss, of Beir and Wheat a boll, and fyve furlets of oates, will sowe an aker. As concerninge how many threaves goes to the boll of everie grain, that is as the stowks be in greatnes, som mor, some les, somtymes two threave, somtymes thrie stowkis, somtymes thrie threave to the boll, yett for the generall ther goes fewest sheaves to the boll of wheat and maniest sheaves to the Boll of oates.

As concerning the making of the meale, the Beir and the Peiss gives mor to the boll, for a boll of Beir and a Boll of Peiss, and [if] they be gud, will everie on give six or seven furlets again. A boll of oates, and they be gud, will give a boll of meal, and a boll of wheat, and they be gud, will give a boll of flowr, half a boll of straiking, and a furlet or the thrie pecks of branne.

Peiss and Beir wold be sowne immediatlie efter the land be tealed, but Vheit neids not be sowne immediatlie after the tealinge of the land, but wait upoan seasonabill weather for the sowing of the seid. [In margin: Wheat wold never be nin nights out of the earth.] As concerning oates, infeild oates wold be sown about twentie dayis after the tealing of the land, but owtfeld they teill it when they teill the wheat land. Beir, Peiss, and Oates wold be sowne in drie weather, but wheat wold be sown in watt weather, but not over watt wather.

As concerning the casting of the prooff, the Greive must not cast the prooff, but an other man must doe it. The twentie fyft sheiff is the prooff, beginning at one again. And everie peck a prooff gives six furlets in the stacke.

Of buying oxen and sheipe.

At Dumblane upown Whitsunday monday is best to buy oxen to grass them, for they will gett them best sheape then, and sell them abowt Martimes when they will gett dowbill price for them again. At Carnwath at Midsummer on the 24 day of Iun is gud to buy lambes, and at Peibles upown St. Peters day the eleventh of Iune. At Edenbrughe on Tarnetie monday, being the monday efter Whitsunday, is gud to buy milk kye. Magdalen day in Lithgoue, whilk is Nin dayes before Lambes, is good to buy ather oxen, ky, or Quayis, or stirks or yong stotts or horse.

A nuckle kowe is a kow that is new calv'd and gives milk, a forrow kowe is a kow that gives milk, but it is long since shoe calv'd, swa that shoe has a stirk a yeir old following her. A Teadie kowe is [The sentence breaks off here].

A horse and [if] he be one year old he is two sowmme. An oxe of ane year old is the thrid pairt of a sowmme, but when he is thrie year old he is a sowmme. A kow is iven sik lik, the reasone is becawse a horse eates farr mor

nor ather ox or kow. He eates both day and night except on howr in the night that he sleips, and suppose he were sicke that he wold not stand on his feet, he will be shewing the grasse that is abowt him ever whill [until] he die. Ten sheip is a sowmme, twentie lambes make a sowmme. They tak for the sowmme in sommer fyve marks, and for the wholl yeir ten marks. Fowr scor and fowr goates maks a sowmme.

A nuckle kow or a Teadie kowe is a kowe that is yssen'd or gives milk everie year. A forrow kow is a kow that is yssen'd or gives milk anes in the two year. A yeild or Shamloh kow is a kow that gives no milk at all. The best way to mak a kow to yssen is that shoe be weill wintered and not hungered. A nucle kow will give mor milk in the day nor a forrow kow will doe. The mor milk a kow gives shoe is ever the leaner in the flesh. So a nucle kow is leaner nor a forrow kow, or a forrow kow is leaner nor a yeild or Shamloh kow. When shoe becomes yeild then shoe becomes fatt and fitt to be sold to the fleshers, and when she is fatt shoe will give als gud a price as if shoe had a calf ganginge at her foot. A kow goes thrie quarters of a year with calf. A mar goes eleventh moneths with foll. A yow goes eighteen owlks with lambe. Commonlie they lett not the calf sowcke longer than fowrtie dayis because if they sowck longer they become so browdden that they cannot be halden of the paipe.

Some tymis ky payis a full kean to their maister, sometymes half a kean as they be nucle or forrow. The first kean they pay at midsummer, the second at Lambes. Ky payis butter, yowes payis cheiss. A full kean of butter is six quarters, that is.

Yowis pays always the full kean. Everie fyve paips in the yeir payis a stane of cheiss, and everie yow hes two paips. When they sett the kys milk for silver, they pay for a kowis milk in the year, fyve punds, whilk is onlie for the milk, for the Quayis the kye brings furth pertains onlie to the maister.

Ther be some ky that will not lett downe ther milk vnless they sie the calf standing besid them, sa if the calf die they will give no milk at all. Some, to beguil the kow, they will stapp the calfs skinne with strawe and lay it besid her and shoe thinking it to be the calf will lett down her milk. They will milk the kow although the calf be not speaned. And [if] shoe be a good kow they will mak two paips to gaine the calf, and milk the other two. A kow has four paips and som littill small paips. They will know a good milk kow by a milk vaine that comes from her oodder athort the rimme of her bellie.

Kys milk is best for butter, and yows milk best for cheiss, for kys milk will give both mor butter and better butter than yows milk, and yowis milk will give both mor cheiss and better cheis than kys milk. They use in Cuninghame to make cheiss of kys milk, but it is not good. When they sett the yowis milk

for silver, they pay for the milk of everie yowe in the year a mark; when they sett the yowis milk, they doe sett it wt. this condition that they milk the yowis no longer then michaelmes, whilk is the ridinge tyme. [In margin: for Michaelmes and Hallowmes is the tyme that yowis be ridden. Michaelmes is six owlkis before Mertimes, Hallowmes is nin dayis befor Martimes and then they lambe abowt March or April. The first lambe and the last lambe are not good for keiping.]

DISCUSSION

The following notes make no attempt to be exhaustive. Their aim is partly to clarify the text and partly to draw together a number of scattered sources that throw light on features of seventeenth-century Scottish farming raised by Skene.

ARABLE LAND

The arrangement of infield and outfield here described was the characteristic Scottish one. The infield had all the manure available from the middens, and was constantly under crop, whilst the outfield was cropped on the part manured by the droppings of animals folded on it.¹

Within this basic universal system, however, a good deal of variation was to be found, resulting from soil and other conditions, particularly in the crops of the infield and the proportion of infield to outfield. These variants are to some extent summed up for the eighteenth century in J. E. Handley *Scottish Farming in the Eighteenth Century* (London, 1953), pp. 38 *et seq.*, to which the reader is referred. For the seventeenth century in South-Eastern Scotland, we have the evidence of Skene for just after the turn of the century, and of James Donaldson and Lord Belhaven for the end of the period. According to Skene, the infield was in four parts, of which one was sown with bere, another with oats, and a third (presumably the part that gets all the dung) with bere the first year, well dunged, oats the second year, wheat the third, again dunged, but not as heavily as for bere, and pease the fourth, the ground being limed this time. He did not say what was happening in the fourth part of the infield. Presumably it was sown with pease.

On the hypothetical 60-acre "tack" or holding that James Donaldson described, the croft or infield constituted a third of the total area, and was divided into three parts, growing in rotation barley (dunged), oats, and

¹ As a result of this practice, the word 'fold' came to have, by the mid-fifteenth century, not only its primary meaning of an enclosure for animals, but also the developed one of a piece of enclosed ground used for cultivation. It survives in numerous place-names with this apparent sense, e.g. the common name Bruntfold, a fold in which peaty ground has been made fertile by being burned.

pease, then barley again. On his hypothetical improved 90-acre holding, he recommended, besides 2 acres for a garden and orchard, 22 acres of croft land in five parts, with a rotation of barley, wheat, pease or oats, oats or pease, and grass. At the same time he recommended annual fallowing of part of the outfield, and even spoke of the benefit of sowing clover and grass seed. His advice, if taken, could have helped to precipitate the 'agricultural revolution' in Scotland, but a glance at Handley shows how tenacious the old-established system was.

Lord Belhaven, addressing himself to ordinary farmers, described the East Lothian infield as having four divisions or 'breaks', rotating in the order pease, wheat, barley, and oats. If wheat was not grown, the rotation was pease, barley, and oats, but since in East Lothian practically all rent was paid in victual, and especially barley, tenants were often hard put to it to produce enough barley unless they sowed it after oats as well as after pease. Belhaven's solution was to have a fourfold division, growing pease, barley, and oats with 'fauch'¹ after oats, adducing figures to show that the advantage to the ground would amply repay the apparent initial loss, and would satisfy tenant and landlord alike. His advice on 'fauching' or fallowing was based on contemporary English practice. For example, in Leicestershire, Northamptonshire, and Worcestershire, he had seen as much as a third of the infield lying fauch "by which Method they did sow both their wheat and barley after fauch; then their Oats after their Barley, and Pease after wheat." Ideally he favoured a five-fold division of the infield with two 'Pease-breaks', one of wheat, one of barley, and one of oats, by which wheat and barley might both follow pease, and in conjunction with this regular fauching or fallowing of part of the pease-breaks.

Some seventeenth-century evidence is available for other parts of Scotland, but before discussing this, it will be of interest to see what the situation in the Lothians was a hundred years later, as noted by George Robertson, one of the best of the authors of the late eighteenth-century series of Agricultural Surveys. Instead of dismissing with scorn the "old system" of—in his description—a four-course rotation of wheat (dunged), beans and pease, barley, and oats, he gave it a balanced appraisal in the following terms.—

¹ 'Fauch' was normally regarded as part of the outfield, ploughed and left fallow alternately for 4–5 years at a time. It differed from the other division of the outfield, the folds, in not being deliberately manured in any way. Neither Skene nor Donaldson mentioned fauching in East Lothian (though the latter recommends fallowing part of the outfield) and, as Handley points out, on eighteenth-century evidence, the only county in which the division of the outfield into folds and fauchs is found is Aberdeenshire. Lord Belhaven does in fact use the term, but as a straight equivalent for 'fallow', applying it both to infield and outfield, and using it of East Lothian and England alike.

"It may be remarked that, in the above circumstances (neither clover nor other green crops being known,) this rotation is perhaps as profitable on the whole, as any that could have been devised. The dung *forced* the crop of wheat, and this succeeded by the *black crop*, which seldom failed to prosper, left the land in a fine *heart* for barley, to which three ploughings being given, was far from being a bad preparative to the succeeding crop of oats, and these, of course, thriving tolerably well, left the land, although exhausted, pretty clean for the wheat, which the dung, as before, could carry through."¹

Even as late as 1795 Robertson was writing that a "regular rotation is not to be looked for," and he pointed out that the general principle was to alternate white and green crops. The reader of these present notes must bear in mind that though the term 'rotation' is frequently used in reference to seventeenth-century agriculture, it is merely for convenience, and does not have its modern sense of a scientifically organized succession of crops growing, in their due turn, over the whole of the arable. The term here indicates simply the order of crops on a piece of ground that was never rested, the crops themselves varying from time to time according to such factors as the demands of a landlord for rent in kind, and quite frequently, the need for the improvement of the ground after too long a succession of the same kind of crop. The chief differences by Robertson's time were the use of turnips and potatoes as field crops, summer fallowing, and the planting of clover-seed. Beans had come to be grown too, along with pease, since the seventeenth century, and we know from the Old and New Statistical Accounts and the various Agricultural Surveys that enclosing and underground draining were making good progress. Rotations were beginning to be adapted to local soil-conditions, and Robertson gave variants for rich loamy soils, rich heavy lands, hilly districts, and dry soils. The rotation for dry soils, for example, common near Edinburgh, was a four-course one of potatoes, well-dunged, wheat, clover, and oats. It is evident how the distinction between outfield and infield gradually disappeared as these innovations brought ground, hitherto impoverished after only two or three crops, into continuously better heart, until the difference lay, as it does at present, between grass and arable.

In attempting to find out how agriculture in the Lothians differed from agriculture elsewhere in the second half of the seventeenth century, we can consult two contemporary sources of information. The first is Alexander Garden of Troup's letter of 1683,² relating specifically to his district of Banffshire, but applicable also to the neighbouring parts of Aberdeenshire.

¹ *General View of the Agriculture of the County of Mid-Lothian*, Edinburgh, 1795, p. 89.

² 'An Account of the North Side of the Coast of Buchan, 1683', in *Collections for a History of the Shires of Aberdeen and Banff*, Spalding Club, 1843, p. 105.

Here, we have the outfield, partly folded, and partly fauched (ploughed after 4-5 years grass, left to lie a summer, ploughed again, and sown the following spring), and the 'intown', as he called it, constantly under corn and bere, and having one-third dunged every three years.

This sort of rotation, or rather alternation, of bere and oats was no doubt common throughout much of Scotland, though better favoured areas, such as the Lothians, had, as we have seen, a wider system incorporating wheat and pease. The evidence summed up by Handley for the eighteenth century shows that the growing of bere and oats alone had become, in general, confined to the more northerly counties of Scotland. As late as 1811 G. S. Keith wrote that most Aberdeenshire farmers grew only bere and oats, without wheat, pease, or beans, except in the Buchan area where the growing of beans in drills had become established.¹ Further, fallowing was not much practised, and indeed, he thought it not very suitable for the arable lands of Aberdeenshire, since "the thin loose soil of our outfields, and lands of inferior quality, has too little tenacity to bear the frequent ploughings of a summer fallow; and even the greatest part of our old croft land is adapted for the raising of turnips rather than lying in fallow,"² adding that "Great Britain is not all Norfolk, nor is it all the soil of East Lothian, any more than of Aberdeenshire." Keith was, of course, speaking of the general run of farms and not of large estates such as that of Sir Archibald Grant at Monymusk in Aberdeenshire, where fallowing was a well-established part of the farming routine before 1750.³ The difference between estates and farms with or without improving landlords or farmers must continually be borne in mind in any consideration of agrarian history, since it is potentially very great. Grant showed that fallowing was a practical proposition, in spite of Keith's comments quoted above, but since it was not in general practice in 1811 in the north-east, we can be fairly certain that it was not in use in the seventeenth century except in so far as the fauching of the outfield was a form of fallowing, although its virtues were becoming known in East Lothian a good century and a quarter earlier.

The second source of information on the seventeenth century to which reference may be made is Andrew Symson, *A Large Description of Galloway*, 1684 (Edinburgh, 1823), compiled in answer to a questionnaire circulated by Sir Robert Sibbald in 1682. This is a book which deserves to be better known.

¹ *A General View of the Agriculture of Aberdeenshire*, Aberdeen, 1811, p. 161.

² Keith, *op. cit.*, p. 229.

³ H. Hamilton, ed., *Life and Labour on an Aberdeenshire Estate, 1735-1750*, Third Spalding Club, 1946, and *Monymusk Papers, 1713-55*, Scottish History Society, Third Series, 1945.

Symson's description of the arable land in Galloway is as follows.—

"They divide their arable land into eight parts at least, which they call *crofts*, four whereof they till yearly. Their first croft they call their *lay*, and this is that on which the bestial and sheep were folded the summer and harvest before, and teathed (dunged) by their laying there. The second croft they call their *awell*, and this is that which was the *lay* croft the year before. The third, which was their *awell* the former year, they call only the third croft. The fourth, is that which was their third croft the foregoing year; however good husbands till but little of this; and then these crofts or parts remain four years at least untill'd after this, so that the one halfe of their arable land is only till'd yearly, the other halfe bearing only grass, and, as they terme it, lying *lee*."¹

This description clearly refers to the outfield, which is here called oatland. The crop grown in the oatland was, as the name suggests, oats, and by this system, each of the eight divisions was cropped successively for the maximum of four years (*lay*=corn after lea, *awell*=second year's corn, and so on), and was manured by the folding of animals on it once every eight years. Neither the oats nor the grass would have been good, and indeed Symson says the oats "are commonly very bad . . . having long beards or awns; and although their measure be heaped, and the weakest and worst of their oates, which they reserve for their horses or seed, be winnow'd and drawn out, yet three bolls of corne will not yield much more than one boll of good and sufficient meal straked measure." This contrasts strikingly with Skene's oats, which, if good, gave boll for boll when ground into meal, and so showed the superior productivity of the Lothians.

The other kind of arable on a Galloway farm was the 'beirland', the treatment of which is again best illustrated by quotation.—

"They begin to till their beir-land about the latter end of March, or the beginning of April, and after the same hath been till'd about twenty days, and the weeds begin to *plant*, as their phrase is, they sow it, tilling the same but once, which is something peculiar to this countrey; yea, and they sow their beir in the same place every year, and without intermission, which is also peculiar, in a peece of ground lying neerest to their house, and this peece of ground they call their Beir-fay, on which they lay their dung before tilling; but their dung will not suffice to cover the same yearly; yea, they think it sufficient if, in three years' space, the whole be dunged, and this I suppose, is also peculiar to this countrey."²

This 'beirland' or 'beir-fay'³ was the Galloway equivalent of the infield,

¹ Symson, *op. cit.*, p. 74.

² *Ibid.*, pp. 98-9.

³ The name 'fey' has survived till the present day in field-names in Galloway.

and evinced a number of peculiarities—its local name, the fact that it grew nothing but bere, and that one ploughing only was given (three was normal elsewhere). The dunging of only one-third of the area each year, however, was less peculiar to Galloway than Symson supposed.

Apart from oats and bere, there was only a very little wheat, a very little rye (grown usually by the moor-men only), and very few pease.

Although the state of agriculture here is evidently nothing like on a par with East Lothian, it must be remembered that Galloway was more "plentiful in bestiall than cornes," and had good markets in England for the sale of cattle, in Edinburgh for sheep, in Wigtown for horses and woollen cloth, and in Ayr, Glasgow, Stirling, Edinburgh, etc. for wool.¹ In other words, the economy of the south-west was balanced differently from that of the south-east, as it still is today, and this is another sort of factor which needs to be borne in mind when trying to assess the state of agriculture in seventeenth-century Scotland. Neither then, nor at any time, is it possible to generalize, as this discussion of the farming system of three regions will have made clear.

LIMING

Skene spoke of liming before pease. It has to be remembered that by this time liming was widely used and well understood. Symon gives some of the references to its use,² but as early as 1627 it could be written of Sir James Dundas's lands of Arniston in the parish of Borthwick, Midlothian: "And as to the casualitie of coill [coal]. The endurance thair of is knawne be all coil-maisters to be moist uncertane; without the quhilk, the benefite of lyme stane could serve to no use in this case, yea the manuring with lyme (except the same be used with great discretioun) may importe no lytle harme, and be tyme make the land to becum altogether barren and yield no incres, quhair of a gritt many in divers pairtes of this kingdome doe alreddie find the duilfull experience, and the said Sir James as ane throwe this occasioun is forced to lett a pairt that was wont to be his best oatland ly lie."³ The voice of bitter experience speaking here in 1627 suggests that the history of liming must go back into the sixteenth century.

Skene's liming of pease on the infield seems to be unusual. According to Lord Belhaven, it was the outfield that normally got lime in East Lothian. Lime should go on the folded ground with the first crop, when the soil was at its best; on unfolded ground, lime should be laid on the lea ground, before

¹ Symson, *op. cit.*, p. 72.

² J. A. Symon, *op. cit.*, pp. 113-14.

³ [A. Macdonald, ed.], *Reports on the State of Certain Parishes in Scotland*, Maitland Club, Edinburgh, 1835. There are numerous references to liming and other features of agrarian history throughout these reports.

ploughing. As he put it, "Lime therefore your Clay land in the summer, fallow it at Lambas, Harrow it well after the first Frost, Seadfur and Sow it some time in *February* and through GOD'S Blessing, you may expect a good Cropt of Oats that same year."¹ After liming, no more than seven to eight crops should be taken on the best ground, five to six in poorer ground, and three to four in the worst ground, without resting. However, if liming were done on the infield, one might go on cropping it as long as desired, provided it was dunged at 3-4-yearly intervals. Generally speaking, however, Belhaven preferred resting to liming the infield. This account suggests that at least a little progress had been made in the principles of liming during the twenty years and more since Skene was writing.

MEASURES

The great difficulty about measures is that they vary at different places, at different times, and for different kinds of victuals, so that great caution is necessary in basing statistical deductions on early documents. It is probably safe to assume that Skene's peck, firloft, boll, and chaldre conform to the Linlithgow standard, which had six bushels to the boll. This was the standard laid down as a result of a Commission of Enquiry in 1618 as a basis for the payment of tithes,² but it was far from being in general use. There were, for example, great differences in the south-west of Scotland, and the following quotation from Symson in 1684 will suggest to the student of crops and yields something of what he must keep constantly in mind.—

"The measure, by which they sell their beir, malt, and oates, is their halfe peck, eight whereof make their boll, four their furlet, two their peck. This measure should be burnt and seal'd by the Magistrats of Wigton, and is call'd, in bargains and writen transactions, Met and Measure of Wigton. The quantity of this measure is not exactly knowne, at least it is not allways exactly the same; for it is hard in this countrey to get two measures exactly alike, the sides thereof being not made of hoops and staves, as the Linlithgow measures are, but of one intire thin piece of ash, bended and nailed together, like the rim of a wool-wheel, and so is apt to cling, and sometimes to alter and change its exact circular frame. . . They sell their beir, malt, and oates by heap, and the vessell is so broad, that the heap will be more than one-third part of the whole. The halfe of this vessell they call an auchlet, qu. an eightlet, or little eight part; for it is the halfe of that measure, eight whereof make their boll; so that their boll containes sixteen auchlets; the furlet eight auch-

¹ Lord Belhaven, *op. cit.*, pp. 17-19.

² R. W. Cochran-Patrick, *Mediaeval Scotland*, Glasgow, 1892, p. 165.

lets; the peck four auchlets; and the halfe peck two auchlets. By this auchlet they sell meale, salt, and pease, all straked measure."¹

The last sentence here puts the further difficulty that measures could be heaped or straked, i.e. smoothed down with a flat or cylindrical piece of wood called a 'strake'.² The two types of strake are illustrated in H. Stephens, *The Book of the Farm* (Edinburgh and London, 1844), II, p. 280, and oaken 'strakes' are still to be found along with Winchester bushel measures on many farms in Scotland. The method of using a strake was interestingly described by J. Anderson as follows.—

"A loft floor is always chosen by every buyer to measure the grain he is to receive, and in it he generally takes care to have several persons walking about during the whole time of the operation. The seller may look on, but he is not allowed to touch his own grain during the operation, which is always measured by the buyer or his servant. The grain is usually thrown into the firloft by shovelfuls from a considerable height, so as to make it fall with force. The measure is heaped till it runs over for the most part all round. A large roller is then produced, which is never under four, sometimes near six inches diameter. The roller is laid upon the grain, at the estimated distance of one third of the diameter of the firloft from one of its edges, and then *pressed* forcibly down till it comes *near* to the wood of the measure. They never make it touch the wood. The avowed thickness which ought to be above the wood is *one pickle* [grain] thick, but as this is indefinite, it is often three times that thickness above the wood. The roller is then *rolled*, not straked *backwards*, towards the nearest edge, thus pressing over the edges *some part* of the superfluous grain. It is then lifted back to where it was first placed, and instead of being pushed forward and drawn sideways at the same time as in other places, and the direction of the side motion altered so as to make what is called *three sheeres*, the roller is *lifted* up till it be nearly as high as the top of the heap, and pushed forward a little at the same time—it is then *pressed* down, still continuing the forward direction a little, and again lifted up and pressed down, and so a third time before it reaches the edge of the firloft, where the superfluous grain is pushed off. . . This is the established practice of measuring barley."³ Clearly, the atmosphere in a loft when straking was going on must have been one of high drama. The half boll of "straiking" mentioned by Skene was, presumably, the loose flour swept from the top of the measure by the strake. Generally speaking, the lighter types of victuals were heaped

¹ Symson, *op. cit.*, pp. 98–9.

² These are mostly plain cylinders on the mainland of Scotland, but in Orkney a form with rounded, knobbed ends, resembling a rolling-pin, was popular.

³ *General View of the Agriculture of the County of Aberdeen*, Edinburgh, 1794, pp. 42–3.

and the heavier types straike, so that though there was a difference in bulk, the actual weights were more equal.

The thrave is a measure of 24 sheaves, the usual number contained in two stooks. Depending on the kind of grain, the number of sheaves to the boll varied between 48 and 72. Fewest sheaves would naturally go to the boll of wheat since wheat is heavier than barley or oats. According to Stephens, the proportions were 37 bushels of wheat, 40 of barley, and 60 of oats to the ton.¹

The method of determining the amount of grain in a stack was known as proof-casting. In transactions between buyers and sellers, a neutral 'proof-man' was mutually appointed and Skene of Hallyards was also careful to engage a disinterested proof-man. Lord Belhaven thought that "the Farmer himself should also cart all his stacks to the proofs and see it is well dighted [cleaned]; and for that end he should learn to Wreat [write] and know the common Rules of Arithmetick." The sense seems to be that as each thrave of 24 sheaves was counted in a stack, one sheaf was laid aside—the proof sheaf. For every three proof-sheaves (amounting to a peck, if the equation of 48 sheaves to the boll is being taken) it can be reckoned that there were 6 firlots in the stack (i.e. 72 sheaves). Using the equation of 72 sheaves to the boll, i.e. for oats rather than wheat, then $4\frac{1}{2}$ sheaves would go to the peck and 108 to the 6 firlots. Skene, unfortunately gave no indication of what he might expect a stack to contain *in toto*. W. Leslie gave a clear description of proof-casting in the north-east of Scotland in the late eighteenth century, as follows. "The quantity of grain in the stack is ascertained by the *proof-man*, a professional character in the country, chosen mutually by the seller and buyer. He begins by throwing down 20 sheaves which are called the 'stock', he then turns up three sheaves which he considers, choosing that one of them which he accounts of the same bulk, or most nearly equal in value, to the 20 of the stock. In this way he goes on till the whole stack is thrown down, which if consisting of one hundred stooks, will give 60 sheaves of proof, which is begun to be thrashed by one man for the buyer and one for the seller, who labour to have done nearly as soon as the proof-man. It is his duty to winnow, clean, and measure the corn threshed from the proof sheaves; which if it produces three bushels, that quantity being multiplied by 20, ascertains the stack to be 7 quarters and 4 bushels, which is the quantity to be paid for, the proof being always given to the buyer, as belonging to his bargain. From this it appears that the value of the straw depends on the value of the grain at the time when it can be brought to market."²

¹ H. Stephens, *op. cit.*, II, p. 279.

² *General View of the Agriculture in the Counties of Nairn and Moray* (London 1811), pp. 180-1.

LIVESTOCK

Oxen, cows, and sheep were the animals Skene favoured. The rapacious horse, chewing grass at the point of death, was no friend of his—a clear indication of the value set on grass, and on the need for its conservation. To this end the *soum* or number of animals a piece of pasture was considered fit to bear was carefully worked out. By converting Skene's figures for animal equivalents we get a one-year old horse (reckoned as "two soumme")=6 oxen or 6 cows under three years old or 2 oxen or 2 cows over three years old =20 sheep=40 lambs=176 goats.

These equivalents were and remained fairly general, although variations would naturally occur according to the quality of the local grazing. For example, in the eighteenth century, in the parish of Saddel, Argyllshire, ten sheep or one cow made one soum, and a horse made two soums, as here. The parish of Monkton in Ayrshire had only 5 sheep to the soum.¹ The number of goats Skene mentioned seems excessive, but his figure is probably accurate, since Burt remarked that a soum was enough grass to maintain 4 sheep, and that 8 sheep=1½ cows, or 40 goats. "The reason of this Disproportion between the Goats and the Sheep," he said, "is, that after the Sheep have eat the Pasture bare, the Herbs, as Thyme, &c. that are left behind, are of little or no Value, except for the Browzing of Goats."²

Donaldson's 60-acre farm had a recommended stock of 2 horses, 4 oxen, 8-10 milk cows, and a bull. Six calves—three of each sex—should be brought up each year. The full stock in any one year, admittedly somewhat idealized, was six cattle of one year old and six of two years old, totalling 8 soums; 2 horses, totalling 4 soums; a cow or ox, totalling one soum ("according," as Donaldson put it, "to the vulgar way of reckoning"). This made 27 soums in all, and he estimated that the 48 acres of grass would keep, in addition, 40-50 sheep. The figures for young cattle were different from Skene's whose estimate of the numbers per soum was half that of Donaldson. In the modern system of souming in the Highlands, one horse is regarded as the equivalent of eight sheep, and one cow of five sheep. A certain number of sheep is allowed per pound of rent paid. Following Adam Collier's figures,³ if the carrying capacity of a farm or croft is 1,500 sheep, and the rent is £250, the allotted souming would be six sheep per pound.

¹ *Old Statistical Account*, XII, 1795, p. 477 note; p. 396.

² E. Burt, *Letters from a Gentleman in the North of Scotland*, London, 1759, II, p. 155.

³ *The Crofting Problem*, Cambridge, 1953, p. 33.

SALES AND PRODUCE

The policy of quick returns suggested by Skene's buying of oxen cheap at Dunblane on Whit Monday, and the selling of them at double price at the November term after a summer's grazing, is suggestive more of a money than a subsistence economy. On a place with a souming as given above, Donaldson allowed for the disposal of three oxen and three cows annually, four at Hallowday, two in February or March.

There was evidently little or no trade in calves, and cows, whether calved or about to calve, whether they had missed or were barren, were all regarded with equal reverence, for a 'yield cow', not being under the strain of producing milk, would grow fat and could be sold to the flesher for as much as a cow with a calf. As Handley pointed out,¹ cows were usually in such low condition that they calved only every second year, and indeed A. Pennicuik, writing of a particular use for the plant scabious in the parishes of Calder in Midlothian, not far from Hallyards, says: "The County People call this *Plant Eastning Wort*, which they affirm makes their Cowes come to a Bulling, when they get of it amongst their other Meat."² "Eastning wort" is, of course, the plant that makes cows "yssen" or "eisen"—the word has various spellings. The poor condition of the cows was to a great extent the result of poor pasture. As Lord Belhaven put it: "For Grass I know it is a very great rarity in East Lothian amongst the Husbandmen, neither can they well have it . . . unless they turn some part of their infield Land to Grass, and lime als much of their outfield Land as correspondes thereto, and really I do not know whether that method might not prove in time the best Husbandrie of all the infield Land."³

There was no distinction between suckling cows and milking cows. The practice was to let the calf suck for a maximum of forty days, but some were in the habit of taking half the cow's milk away from the calf before the end of this period. The ties between mother and calf were evidently far closer than they are at the present day, and Skene's description of beguiling a cow into giving milk after the death of its calf is paralleled by Symson, who gave an account of current calf-rearing theory in Galloway.⁴—

"The people of this countrey do very seldome, or rather not at all, kill or sell their calves, as they do in other places; so that it is a rare thing to see veale, except sometimes, and at some few gentlemen's tables. They give two reasons for this; one is, because, as they say, the cow will not give down her

¹ James E. Handley, *Scottish Farming in the Eighteenth Century*, London, 1953, p. 71.

² A. Pennicuik, *Description of Tweeddale*, 1715, p. 15.

³ Lord Belhaven, *op cit.*, p. 22.

⁴ A. Symson, *op. cit.*, p. 98.

milk without her calfe . . . and so, should they kill or sell the calfe, they should want the use of the cow; but this, I suppose, might be helped, would they but traine up the cow otherwise at her first calving. The other reason is of more weight, viz. Since a great part of their wealth consists in the produce of their cattel, they think it very ill husbandry to sell that for a shilling, which, in three years time, will yeeld more than twenty."

As regards dairy produce, the practice was to use cows' milk for making butter, and ewes' milk for making cheese. On Donaldson's figures, 8-10 milk cows would produce 16-20 stone of butter a year, which sold at a "Dollar" or "2 lib: 18 shill." per stone, i.e., 4s. 10d. sterling.

Current butter-making practice is in part described by Donaldson.¹ The milk of ane "mail" [the amount obtained at one milking] was strained, put in a churn, and left to stand in a cool place for twenty-four hours or so. If another mail was required to fill the churn, it was to be added only when churning was about to begin, because hot milk poured on cold might cause 'sheering', or curdling. Evidently butter was made with the full milk, as it is to the present day in, for example, Foula in Shetland, rather than with the cream alone.

Though Skene says that cheese is normally made of ewes' milk, and that the cows' milk cheese of Cunningham in Ayrshire is "not good," Donaldson takes cows' milk for granted as the ordinary medium for cheese. He denounces the common custom of taking the cream off the milk before cheese is made, and urges that the milk should be strained, the vessels kept clean, and the 'yearning' or rennet kept fresh and good.

Eighteenth-century sources refer to both butter and cheese being made from the milk of both cows and ewes, but ewes' milk butter seems to have been, as a rule, mixed with tar and used for smearing wool—the earlier, and distinctly messier, form of dipping.

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¹ J. Donaldson, *op. cit.*, pp. 86-8.

The Land Tax Returns¹

By D. B. GRIGG

THE Land Tax Returns record for each holding in a parish the name of the occupier, the owner, and the sum paid.² They have been used by a number of historians to trace changes in the numbers of occupier-owners in the eighteenth and early nineteenth centuries.³ The aim of this paper is, first, to examine the validity of the Returns for such a purpose; and secondly, to demonstrate how the Returns can be used to show the geographical distribution of occupier owners in an area, an interesting but neglected use of the Returns.

HISTORY OF THE LAND TAX

The history of the Land Tax has been fully discussed by other writers,⁴ and only the more relevant points will be mentioned here. The Land Tax grew out of the Commonwealth Monthly Assessments, and was first raised in 1697. Each county was required to raise a quota toward the total national tax. The quotas were allocated to each county on a rather arbitrary basis, but *within* each county the tax was imposed fairly, on the basis of an assessment made in 1692. The tax was initially raised on three categories of income: profits and salaries; the value of goods and merchandise; and the annual value of land, which was taken to be current rent.

The collection of taxes on personal income proved so difficult that by 1733 it had ceased, and the tax was subsequently raised almost entirely on land. A few other minor items—such as official salaries, mines, and market tolls—

¹ This article is based on an examination of the Land Tax Returns of the Parts of Kesteven and Holland, known collectively as South Lincolnshire.

² Proprietors are distinguished from occupiers only after 1780. E. Davies, 'The Small Landowner, 1780-1832, in the Light of the Land Tax Assessments', *Economic History Review*, 1, 1927, pp. 88-9.

³ A. H. Johnson, *The Disappearance of the Small Landowner*, 1909; H. L. Gray, 'Yeoman Farming in Oxfordshire from the Sixteenth Century to the Nineteenth', *Quarterly Journal of Economics*, xxiv, 1910, pp. 293-326; E. O. Payne, *Property in Land in South Bedfordshire 1750-1832*, Publications of the Bedfordshire Historical Record Society, xxiii, 1946; J. D. Chambers, 'Enclosure and the Small Landowner in Lindsey', *The Lincolnshire Historian*, 1, 1947, pp. 15-20; 'Enclosure and Labour Supply in the Industrial Revolution', *Economic History Review*, Second Series, v, 1953, pp. 319-43; H. G. Hunt, 'Landownership and Enclosure, 1750-1830', *Economic History Review*, Second Series, xi, 1959, pp. 497-505.

⁴ W. Kennedy, *English Taxation, 1640 to 1799*, 1913, pp. 44, 45, 95 et seq., 123-7; Stephen Dowell, *History of Taxes and Taxation in England*, 1884, III, pp. 93-103.

continued to be taxed, but they were often distinguished in the Returns. After the revision of the Tax by Pitt in 1798, these items were recorded in a separate column. The *rate* at which land was taxed varied in the early eighteenth century between 1s. and 4s. in the £, but after 1772 the rate was constant at 4 shillings. However, although the rate of taxation varied until 1772, the *assessment* on which the Tax was based continued to be that of 1692. It was argued that revaluation would be unfair to those who had improved their land.¹

THE LAND TAX RETURNS AS A SOURCE

The Land Tax Returns survive either as assessments or as Returns of the Tax paid.² In south Lincolnshire the extant documents are Returns.³ The earliest surviving comprehensive Returns are for 1798. Complete Returns are available for Holland for that year, but only for three wapentakes in Kesteven. The first complete Returns for Kesteven are for 1808, but unfortunately there are no Returns for Holland for any other year than 1798.

Previous writers have used the Land Tax Returns in three ways to show changes in the importance of occupier-owners at different dates in the eighteenth and nineteenth centuries. Of these three methods, the third is most open to criticism, and the other two methods will be only briefly noted.

1. The number of occupier-owners in a parish, or group of parishes, can be traced from year to year.⁴ There are two difficulties in this method. First, there is no doubt that many occupier-owners avoided paying the tax, and thus they may be underestimated in some areas and in some years. For instance, in 1825, Stapylton estimated that seven hundred freeholders in Holland were not recorded in the Land Tax Returns.⁵ Secondly, many small occupier-owners with a scrap of land and rights of common were not recorded in the Land Tax Returns before enclosure, but had their ownership legalized at enclosure.⁶ Subsequently, they were recorded in the Returns. In some parishes, then, an increase in the number of occupier-owners may be due solely to this.

2. The Land Tax was based on an assessment of value. Some writers have assumed that the total sum paid to the Land Tax by all the occupier-owners

¹ W. Kennedy, *op. cit.*, p. 128; E. O. Payne, *op. cit.*, pp. 12-13.

² A. H. Johnson, *op. cit.*, p. 130.

³ The Land Tax Returns for south Lincolnshire are kept at Lincoln Archives Office, Kesteven County Council Deposit. I am most grateful to Mrs J. Varley for help in examining these documents.

⁴ For instance by J. D. Chambers, *op. cit.*, 1940, p. 118, and 1947, *op. cit.*, p. 18; A. H. Johnson, *op. cit.*, p. 130 et seq.

⁵ J. D. Chambers, *op. cit.*, 1953, p. 329.

⁶ E. Davies, *op. cit.*, p. 90; J. D. Chambers, *op. cit.*, p. 123.

in a parish was directly proportional to the amount of land they held. Consequently, annual fluctuations in the amount of tax paid by occupier-owners will show the changes in the acreage held by occupier-owners over a period of time (assuming the rate is constant in the period considered).¹

3. An occupier-owner may farm four or five hundred acres. Clearly it would be of interest to trace changes in the numbers of occupier-owners in each size group. This has been attempted by some writers, who have assumed that the tax paid on each holding is proportional to the size of the holding.² Thus, E. Davies, for instance, assigned occupier-owners to one of several size groups; those paying less than 4s., those paying more than 4s. but less than 10s., 10s. and under £1, £1 and under £2, and so on. Davies converted these sums to the acreages held by means of an 'acreage equivalent'. This figure was the total county assessment divided by the total acreage.³ In Cheshire for instance the acreage equivalent was 10d., in Warwick 1s. 4d., and in Lindsey 1s. In Kesteven the acreage equivalent was 1s. 1d. and in Holland 10½d. However, this method is open to criticism, for as other writers have noted,⁴ there is no constant ratio between the value of land and its acreage. This means that the methods of using the Land Tax Returns outlined in (2) and (3) above are of doubtful validity. The point can be well illustrated by relating the Land Tax Returns of Kesteven and Holland parishes to the annual value of land there.

In most English counties there are regional differences in rent per acre, and certainly in south Lincolnshire at the end of the eighteenth century there were some striking contrasts.⁵ Arthur Young quoted some examples in his book *A General View of the Agriculture of the County of Lincoln*.⁶ Thus, the rent paid per acre of Lincoln Heath averaged 8s., whilst the rich pastures around Boston fetched £2 an acre. Land around Falkingham, in south-east Kesteven, averaged 18s. an acre, whilst in contrast, the undrained fenland to the east had often only a nominal rent of 2s. 6d. an acre. The assessments to the Land Tax had been based on the annual value of land in 1692: annual value was taken to be the current rent. The implications of this for the interpretation of the Land Tax Returns are clear. A comparison of two parishes in Kesteven will illustrate the problem. Cranwell, with 2,535 acres, paid

¹ H. L. Gray, *op. cit.*, p. 110 et seq.; E. Davies, *op. cit.*, pp. 97, 100.

² E. Davies, *op. cit.*, p. 93 et seq.; J. D. Chambers, *op. cit.*, 1940, p. 119, and *op. cit.*, 1947, p. 19.

³ E. Davies, *op. cit.*, p. 105 n.

⁴ E. O. Payne, *op. cit.*, p. 58; H. G. Hunt, *op. cit.*, p. 499; J. D. Chambers, *op. cit.*, 1940, p. 122 n.

⁵ D. B. Grigg, 'Agricultural Change in South Lincolnshire, 1790-1875', unpublished Ph.D. thesis, 1961, University of Cambridge Library, pp. 72-5.

⁶ A. Young, *op. cit.*, 1799, pp. 43, 51, 52, 53.

£34 6s. to the Land Tax in 1808. Stragglethorp, with 729 acres, paid £40. Let us consider the hypothetical example of two occupier-owners, one in each parish, and both paying a Land Tax of 10s. Following Davies, we calculate the acreage equivalent for Kesteven (1s. 1d.); using the equivalent, both occupier-owners would be assigned to the same size group, for both occupier-owners would be assumed to own about 9 acres. But the average rent per acre in the two parishes was very different; Cranwell lay on the infertile Heathland, with rents averaging about 8s. an acre, whilst Stragglethorp lay on the pastures of the west Kesteven clayland, where the rent, on the average, was double that of the Heath.¹ Thus, because of the differences in rent per acre between the two parishes both in 1692 and in 1808, a payment of 10s. would refer to a very different size of holding in the two parishes. Consequently, acreage equivalents must be worked out *separately* for each parish, rather than using a figure for the county as a whole. The acreage equivalent for Cranwell is then 2d. and for Stragglethorp 1s. 1½d. Hence an occupier paying 10s. to the Land Tax would hold about 60 acres in Cranwell, but only 9 acres in Stragglethorp. Thus, before considering occupier-owners by size groups it is essential to work out an acreage equivalent for every parish, unless it can be assumed that all the parishes considered have a similar average rent per acre.

However, even this precaution does not entirely eliminate the possibility of serious error, for it assumes that all land within a parish will have a uniform rent per acre. Many English parishes have boundaries that enclose land of varying quality.² This was so in south Lincolnshire (cf. Figs. I & II). Two examples will illustrate this. The parish boundaries of the row of villages at the foot of the Lincolnshire limestone scarp between Lincoln and Grantham included limestone heathland, pasture on the Lias clays, and land of varying quality and use on the scarp face. Arthur Young recognized these categories of land and noted that they carried contrasting rents per acre: 6s. to 12s., 21s. and 14s.³ In Holland there were even greater contrasts in rent per acre within parishes. Most of the parishes ran at right angles to the coast (Fig. II), and thus included marshland, 'townland', and interior fenland within their boundaries (see below, p. 88). In south Holland Young noted that the marsh was rented at between 10s. and 20s. an acre, and the townland at 30s. an acre. The interior fen varied between 12s. and 21s. an acre, according to the efficiency of drainage.

Now clearly within a parish with contrasts of rent per acre of this order, the

¹ D. B. Grigg, *op. cit.*, pp. 74-5.

² For instance, see C. S. and C. S. Orwin, *The Open Fields*, 1954, pp. 24-6.

³ A. Young, *op. cit.*, pp. 50, 51.



Fig. I. Parish boundaries of south Lincolnshire (parts of Kesteven and Holland).

same payment recorded in the Land Tax returns may refer to very different amounts of land. In a Holland parish, with a rate in the £ of 4s., a payment of £2 may refer to 20 acres if the holding was on the marsh, but only 6 acres if on the 'townland'. One can only conclude that even if acreage equivalents are worked out separately for each parish, the margin of error is still great, unless only parishes with a fairly uniform rent per acre *within* the parish are considered.

THE DISTRIBUTION OF OCCUPIER-OWNERS

Whilst several writers have used the Land Tax Returns to show variations in the numbers of occupier-owners over a period of time, only one, H. L. Gray, has used the Returns to show the geographical distribution of occupier-owners in an area.¹ Yet this approach yields results of great interest, for the

¹ H. L. Gray, *op. cit.*, pp. 301-4.

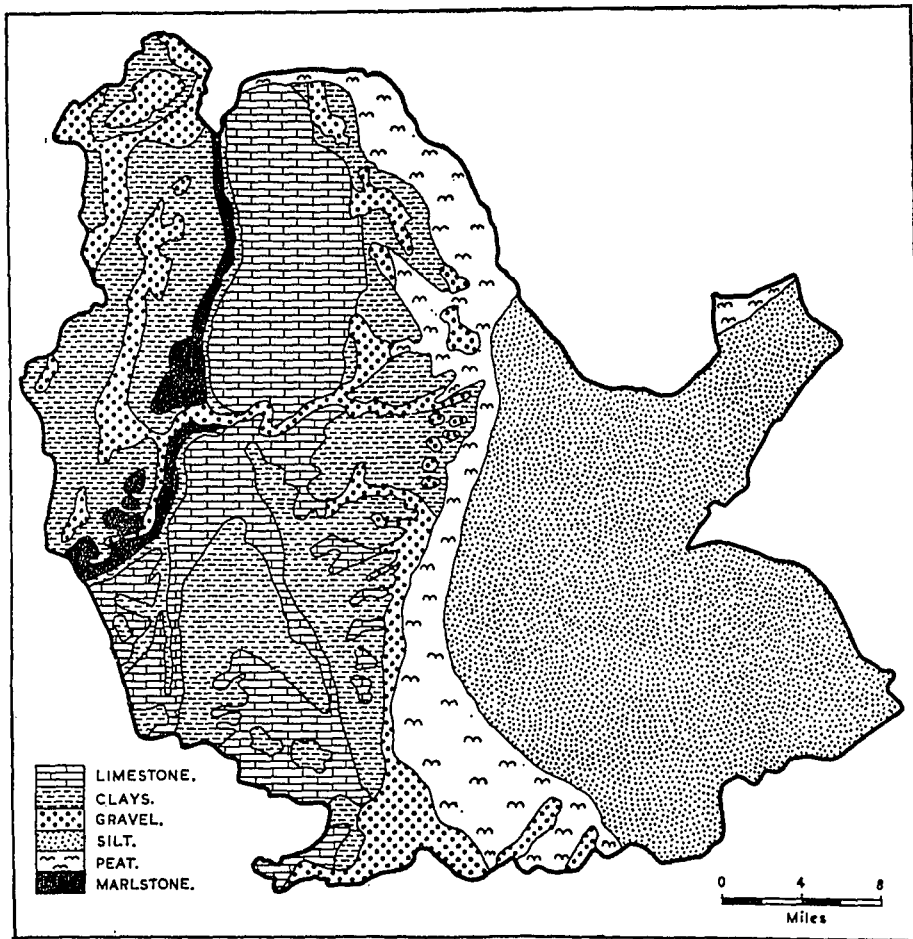


Fig. II. Simplified Geology (solid and drift) of south Lincolnshire.

occupier-owners in a county were not necessarily distributed uniformly throughout the area. The distribution of occupier-owners can be shown in two ways:

1. Occupier-owners can be expressed as a percentage of all occupiers in a parish. As the annual value of land assessed to the Land Tax included the value of some buildings on the land, this method may lead to an exaggeration of the importance of occupier-owners in the farming community. Buildings with a small scrap of land—such as those of tradesmen and innkeepers—cannot always be distinguished from small farmers in the Returns.¹

2. The total tax paid by occupier-owners can be expressed as a percentage of the total tax paid by the parish. This gives an indication of the proportion of land farmed by occupier-owners in a parish. This method is however

¹ J. D. Chambers, *op. cit.*, 1953, p. 329; H. G. Hunt, *op. cit.*, p. 498.

open to the objection that acreage is not directly proportional to value. Thus, if in a parish there are two types of land, of contrasting annual value, and all the holdings of occupier-owners are on the land of lesser value, then their importance will be underestimated. However, there is no reason to suppose that the holdings of occupier-owners were segregated in this way within the parishes, and the percentage of the Land Tax paid by occupier-owners can be assumed to be a fair guide to their geographical distribution.

Both methods are used here to show the distribution of occupier-owners in south Lincolnshire (Figs. III & IV). Unfortunately there are not complete returns for the area in any one year. The maps are based on the Land Tax Returns of 1808 for Kesteven, and 1798 for Holland. This possibly slightly underestimates the importance of occupier-owners in Holland in comparison with Kesteven, but not enough to invalidate their use.¹ Before discussing the distribution pattern, a brief survey of the agricultural regions of the area must be given.

THE AGRICULTURAL REGIONS OF SOUTH LINCOLNSHIRE ABOUT 1800²

At the end of the eighteenth century, farm techniques in south Lincolnshire were still primitive and agricultural regions were closely related to regional variations in soil type. In the fenland relative drainage efficiency was a complicating factor. In an area of low relief, the cuesta of the Lincolnshire Limestone was the only prominent feature (Fig. II). A steep scarp ran south from Lincoln and then south-west through Grantham. East of the scarp the limestone dip slope—Lincoln Heath—was still partly waste land, with some arable land of poor quality. In the south the limestone outcrop had a boulder clay cover, which gave a landscape and type of farming contrasting with that of the Heath proper; most of the boulder clay area was under grass. West of the limestone scarp the heavy Lias clays were poorly drained and largely under grass. However, northwards on this low plain, old river gravels and glacial sands covered a considerable proportion of the area, and waste land and poor arable land replaced grass as the dominant form of land use. East of the limestone dip slope there was a narrow zone of clays and gravels which disappeared beneath the post-glacial deposits of the fenland. In the fenland the main distinction in terms of soil was between the silt and peat areas (Fig. II). However, contemporary writers divided the fenland into three zones, lying roughly parallel to the coast: the marshland, a result of long

¹ There was probably an increase in the numbers of occupier-owners in both Kesteven and Holland between 1798 and 1808.—D. B. Grigg, *op. cit.*, pp. 80–2.

² For details see D. B. Grigg, *op. cit.*, pp. 4–11, 90–110.

accretion and enclosure; the townlands, an area slightly above the level of the interior fenland, and the site of most of the settlement; and the interior fenland, subject even in the late eighteenth century to regular winter flooding, except in the north. The marshland varied in use from arable to rough grazing, the 'townlands' were mainly grassland, and the interior fenland summer grazing, except where improvements in drainage had allowed arable cultivation.

THE DISTRIBUTION OF OCCUPIER-OWNERS IN
SOUTH LINCOLNSHIRE, 1798 & 1808

Both maps (Figs. III and IV) of the distribution of occupier-owners show a threefold division: an eastern zone where occupier-owners were numerous; a central zone where they were almost entirely absent; and a western zone where they were numerous but more irregularly distributed than in the east. This pattern corresponds closely to the division of the area into agricultural regions.

In the east the majority of fenland parishes in Holland and Kesteven had a high proportion of occupier-owners; in most fenland parishes over a fifth of all occupiers were occupier-owners. The central zone, where occupier-owners were of negligible significance, corresponds to the limestone Heath, including the boulder clay sub-region. (It should be noted, however, that in the extreme north parishes stretched a considerable distance east and west, and thus included both Heath and fenland. These parishes have not been considered part of the Heath.) A comparison of Figs. III and IV shows that whereas in a few parishes on the Heath over a tenth of all occupiers were occupier-owners, in only one parish did they pay more than a tenth of the Land Tax. In this region over 90 per cent of the land must have been farmed by tenants. West of the Heathland occupier-owners again became important; this zone included not only the parishes which lay entirely on the Lias clay plain, but also the parishes on the scarp foot between Lincoln and Grantham.

Within the three zones there were significant local variations. In the fenland a distinction can be made between Kesteven and Holland. In every Holland parish except one, at least 20 per cent of the occupiers farmed their own land; but in no parish were occupier-owners more than half the total number of occupiers. Few parishes had a high proportion of the land owned by one landlord, and the squire was absent. This however was not so in the Kesteven fenland. There were two differences between the two parts of the fenland. First, in Kesteven the parishes with the highest proportions of occupier-owners were to be found. Eleven of the forty fenland parishes in Kesteven had at least 50 per cent of their holdings owner occupied (Fig. III).

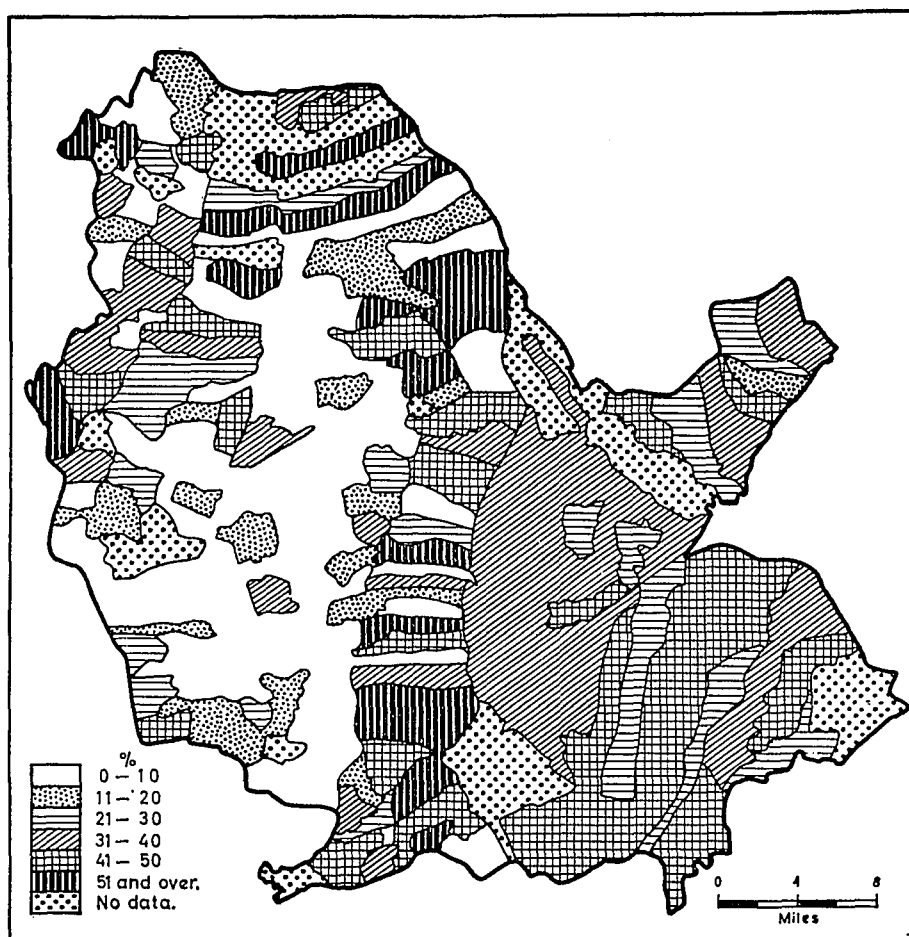


Fig. III. Occupier-owners as a percentage of all occupiers: parishes based on the Land Tax returns, Kesteven 1808, Holland 1798.

Secondly, there was less uniformity; several parishes had no occupier-owners at all. Some of these parishes were owned entirely by one landlord and farmed by tenants. There was a similarly irregular pattern in west Kesteven, for there parishes entirely farmed by tenants alternated with parishes where occupier-owners were over 40 per cent of all occupiers.

It is clear from a comparison of Figs. III and IV that occupier-owners generally held a smaller proportion of land than their numerical strength suggests. In most parishes the percentage of occupier-owners was higher than the percentage of the Land Tax they paid. This is either because of the inclusion as occupier-owners of tradesmen, innkeepers, and other freeholders who owned only a little land, or because occupier-owners tended to have smaller farms than tenants. There is some statistical evidence on farm sizes in

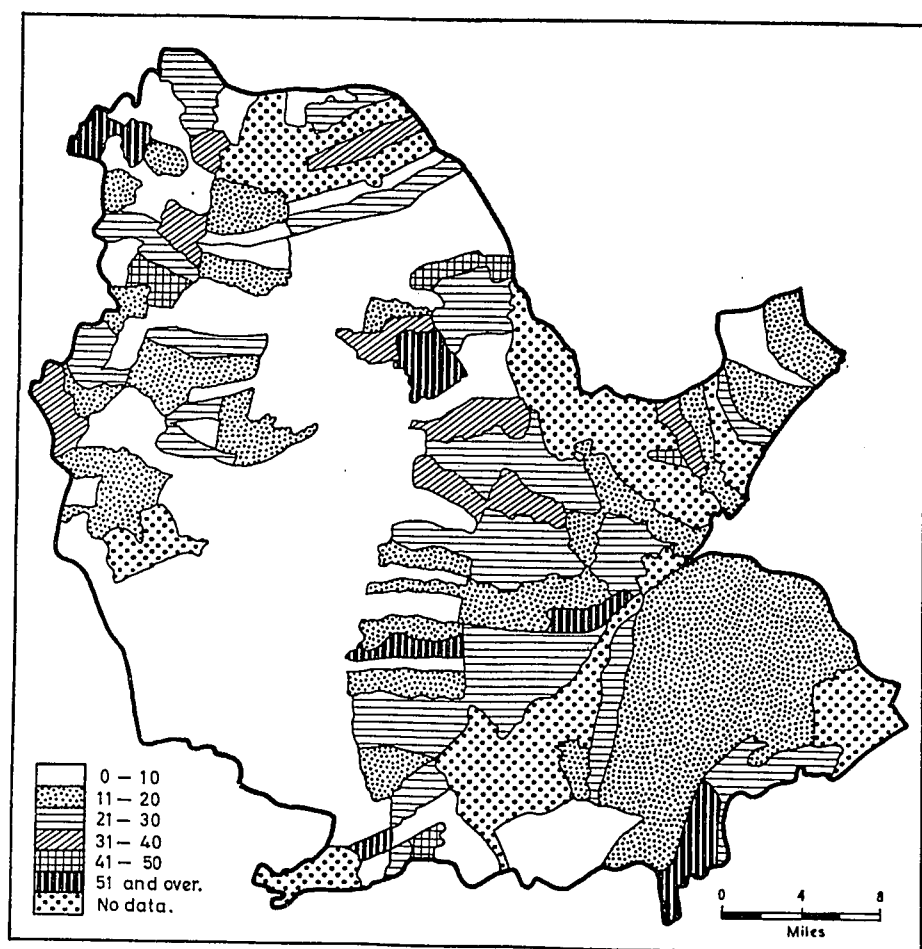


Fig. IV. Percentage of Land Tax paid by occupier-owners: by parishes, Kesteven 1808, Holland 1798.

Holland which suggests that this disparity is due to the occurrence of non-farm holdings in the Land Tax Returns.¹

EXPLANATIONS OF THE DISTRIBUTION PATTERN

It must be admitted that there is no immediate explanation of the distribution pattern. Two methods of approach to an explanation are possible. (a) It is known that at a date prior to the eighteenth century occupier-owners were a greater proportion of the farming community than they were

¹ A Survey exists, made by the Court of Sewers in 1813, showing the size of holding and form of tenure, for half the area of Kirton and Skirbeck Hundreds in Holland. Calculations based on this document suggest that rented farms were not significantly larger than occupier-owned farms.—Holland County Council Muniment Room, Boston. Boston 31/1 & 8.

in the early nineteenth century. It is possible that at that time they were also uniformly distributed throughout the area. The processes that led to the overall decline of the occupier-owner in England may have been geographically selective, with the result that by the end of the eighteenth century occupier-owners were found only as 'residuals' in the more favourable parts of the area. (b) Alternatively, it is possible that there had never been any occupier-owners in the central zone, and thus the general decline of the occupier-owner had simply reduced the numbers in west Kesteven and the fenland.

A. H. Johnson noted that at the end of the nineteenth century occupier-owners were a relict feature in English farming, and only survived in 'favourable' areas, by which he implied either particularly fertile land or an area where the type of farming was suitable for small-scale owner-occupied farming.¹ At first sight this hypothesis seems to explain the distribution in south Lincolnshire. The Heathland was, with the limited techniques of the eighteenth-century farmer, the poorest land in the area, and neither the low-yield grain farming nor sheep farming was particularly favourable to the small farmer's survival. On the other hand, the two regions where occupier-owners were numerous—west Kesteven and the fenland—were primarily under grass for rearing and fattening. Where the land was ploughed in these two regions, better grain yields were obtained than on the Heath. But if this hypothesis is examined more closely, inconsistencies arise. Thus the boulder clay region of south-east Kesteven was a region of good grassland with a prosperous grazing industry. Yet occupier-owners were of no importance. Similarly, in some of the parishes of north-west Kesteven, soils that had developed on the fluvio-glacial sands were as poor as those of the Heath, and gave very low grain yields. Yet in some of these parishes there were very large numbers of occupier-owners. Thus, the argument that occupier-owners were a relict feature in the particularly favoured parts of the area does not seem valid.

An alternative explanation may lie in the relationship between the presence of occupier-owners in a parish and the date of its enclosure. Several writers have examined this relationship. Before A. H. Johnson's work it was held that the Parliamentary enclosures of the eighteenth century caused the decline in the numbers of occupier-owners. Johnson and later workers have shown this was not so. J. D. Chambers and E. Davies have taken this enquiry further, and shown that there was a marked tendency for parishes of 'old enclosure'—that is, those parishes enclosed privately before the era of Parliamentary enclosure—to have fewer occupier-owners than parishes

¹ A. H. Johnson, *op. cit.*, p. 149.

enclosed by Parliamentary Acts.¹ Davies found that the majority of the 'old-enclosed' parishes he studied had no occupier-owners. We may find, then, a relationship between the date of enclosure and the distribution of occupier-owners in south Lincolnshire.

At first sight this does not appear to be a promising line of inquiry. 'Old-enclosed' parishes were found mainly in three regions: west Kesteven, south-east Kesteven, and the fen Townlands. All three regions were areas of clayland, generally more profitable under grass. As in parts of Leicestershire and Nottinghamshire² they seem to have been enclosed at an early date because they were unsuitable for arable land, and efficient stock farming necessitated enclosure. But whilst the three regions were all 'old-enclosed', clayland, and mainly under grass, they differed in their landownership patterns. In south-east Kesteven occupier-owners were rare but in the Townland and west Kesteven they were numerous. In the area as a whole, then, there is no correlation between early enclosure and the absence of occupier-owners. However, if we examine one area in detail there is some indication of a relationship. It will be recalled that there were three distinct landownership zones in south Lincolnshire: the fenland, the Heathland, and west Kesteven. In west Kesteven there was an irregular distribution of occupier-owners; that is, adjacent parishes on the same type of land had very varying proportions of occupier-owners. In Table I, forty-seven parishes in this zone are classified in two ways: according to the percentage of the Land Tax paid by occupier-owners in 1808, and according as they were mainly 'old-enclosed' or enclosed by Parliamentary Act. A number of parishes overlapping the Lias clay plain and the Heathland were approximately half 'old-enclosed', half enclosed by Act. They have been excluded from consideration.

TABLE I

A. 0%		1 to 5%		6 to 15%		16 to 35%		36% & over	
B. O	P	O	P	O	P	O	P	O	P
18	1	7	1	3	5	2	3	5	2

A. Percentage of the Land Tax Return, 1808, paid by occupier-owners.

B. 'Old-enclosed' (O) or Parliamentary Act (P).

It is immediately clear from the Table that occupier-owners were *not*

¹ J. D. Chambers, *op. cit.*, 1940, p. 123; E. Davies, *op. cit.*, 1927, pp. 103, 105.

² J. D. Chambers, *Nottinghamshire in the Eighteenth Century*, 1932, pp. 150-4; H. G. Hunt, 'The Chronology of Parliamentary Enclosure in Leicestershire', *Economic History Review*, Second Series, x, 1957, p. 270.

absent from 'old-enclosed' parishes in west Kesteven. Of the seven parishes with more than 35 per cent of the Land Tax paid by occupier-owners, five were old-enclosed. However, of the twenty-seven parishes with less than 5 per cent of the tax paid by occupier-owners, all but two were old-enclosed. Thus within this one region of south Lincolnshire there does seem to be a relationship between date of enclosure and the presence of occupier-owners; whereas 'old-enclosed' parishes were not necessarily without occupier-owners, those parishes with few occupier-owners were predominantly 'old-enclosed'.

But this does not explain the distribution of occupier-owners within west Kesteven. It is normally assumed that parishes with few occupier-owners could be enclosed at an early date because of the ease with which an award could be acquired in comparison with parishes where the land was divided among a large number of owners. Thus, it seems likely that the parishes with few occupier-owners in 1808 were also parishes with few occupier-owners at the time of 'old enclosure'. This suggests that the distribution pattern of 1808 had already developed in the seventeenth century. Any adequate account of the distribution pattern must clearly investigate conditions at a series of periods prior to the eighteenth century. Unfortunately comprehensive returns of the Land Tax are rarely available before the 1780's, and of course not at all before 1697. Nor is there any adequate substitute for the Land Tax returns.

Whilst no adequate explanation of the distribution pattern can be offered, it is hoped that this brief account of the geographical distribution of occupier-owners demonstrates the value of considering distribution in space as well as time when discussing the changing importance of occupier-owners. Indeed, this is an essential approach, for in the early part of the paper it was shown that regional differences in rent limit the use of the Land Tax Returns, whilst in the second part it was shown that a regional analysis of the occupier-owner in south Lincolnshire is more revealing than a simple consideration of the county as a uniform, undifferentiated unit would be.

Enclosure and Changing Agricultural Landscapes in Lindsey

By S. A. JOHNSON

ENCLOSURE has been the subject of many generalizations. Most writers have dealt with it mainly from a social and economic point of view. The geographer, however, considers it primarily as an agent of landscape modification. It is only when the varied chronology and pattern of enclosure is considered in its relationship to specific environments that some of the essentially geographical facts emerge. Although in Lindsey as a whole physical variations resulted in wide differences in the progress of enclosure, here it is only intended to trace developments in two regions. The Lindsey Heath and the Outer Marsh are two contrasting regions, and a comparison of the progress of enclosure in each reflects the fundamental physical difference.

Lincolnshire is essentially a county of younger sedimentary rocks which outcrop in belts that trend generally north-south and dip gently eastwards. The more resistant rocks have formed *cuestas* the chief of which are the Wolds, composed mainly of chalk, and the Heath, composed mainly of Oolitic limestone, whilst the less resistant clays have been eroded to form vales. The Outer Marsh lies between the Wolds and the sea, separated from the former by an undulating region of boulder clay. It is a very flat, low-lying region composed mainly of silt.

THE LINDSEY HEATH

A two-field system seems to have been general in the open-field townships of this region.¹ This reflects the extreme regularity of the Heath as a physical feature, and we shall see how in turn this gave rise to similarities in the progress of enclosure.

There is little evidence to suggest that much enclosure took place before 1600. Professor Beresford maintains that lost villages were largely the result of enclosure and conversion to pasture for sheep, and there was a considerable concentration of lost villages on the Heath.² But it would be a mistake to infer from this that the region suffered very greatly from enclosure in the second half of the fifteenth century. In all, ten villages were lost, but they were all small, for even the parishes in which they were situated are for the most part only of average size for the region. In 1600 at least thirty-one of the forty-one townships on the Heath had open fields. The glebe terriers and surveys indicate large amounts of open land with relatively small areas of enclosure, whilst sixteen of the twenty-one enclosure Acts for the region affected over 70 per cent of their individual township areas.³ In all, 45 per cent of the region was enclosed by Act of Parliament, largely in the second half of the eighteenth century. But in addition to this it is certain that during the same

¹ L.A.O. Monson 19/6/21; Parliamentary survey C.C. 47; Glebe Terriers, vol. 1, f. 88, Caenby 1577; Andr. 2; Lindsey County Council (Lind. C.C.), Clerk of the Peace, enclosure awards, Brattleby, Fillingham, Glentham, Hibaldstow, Ingham, Normanby by Spital, Bishop Norton.

² M. Beresford, *The Lost Villages of England*, London, 1954, p. 360.

³ Lind. C.C., Clerk of the Peace, enclosure awards, Bishop Norton, Brattleby, Fillingham, Glentham, Hackthorne, Hibaldstow, Ingham, Nettleham, Normanby by Spital, Owmbly, Scawby, Scothern, Spridlington, Welton; Blue Book (H.C.) 50, 1904, enclosure award, Willoughton; Blue Book (H.C.) 399, 1914, Enclosure Acts, Appleby, Broughton, Kirton in Lindsey, Waddingham, Winteringham, Winterton; L.A.O. Glebe terrier bundles, Caenby, Cammeringham, Roxby-cum-Risby; Glebe terriers, vol. v, f. 21, Grayingham 1601, f. 68, Glentworth 1602; Parliamentary survey C.C. 74; Amcotts VI/C/46; Monson 19/6/21.

century much land was enclosed by private agreement, for where the advantages of enclosure were generally desired and could be obtained without the costly procedure of obtaining a private Act, it is certain that enclosure by agreement would take place. Thus at Glentworth a pasture called Stow Hill was enclosed in 1732 "at the Expense of the said Sir Thomas Saunderson." Caenby had common fields in 1745 and was enclosed later without recourse to an Act, and numerous townships that had open fields in 1600, but were not subsequently enclosed by Act, must also have been enclosed in this way.¹ A survey of Lord Monson's lands in North and South Carlton and Burton in 1729 shows that these villages were still open at that time, yet they were not later enclosed by Act. It seems likely that they were enclosed by agreement, and a high proportion of the land was affected.² It would seem safe to assume that more than 60 per cent of the Heath was enclosed between 1700 and 1800.

In trying to assess the extent to which enclosure had affected the landscape before 1600 we must also take into account enclosure that took place in the seventeenth century. On the Heath there is evidence that Cammeringham underwent considerable enclosure between the years 1606 and 1634.³ Certainly there had also been some earlier enclosure, for the Inquisitions of Depopulation of 1607 reported a great depopulation in this township.⁴ Roxby-cum-Risby had its glebe dispersed in open fields in 1606, but a terrier of 1618 suggests that it had been consolidated and enclosed,⁵ whilst a survey of the Duchy of Cornwall's lands in 1616 indicates enclosure at Harpswell, Hibaldstow, Hemswell, and

Redbourne.⁶ However, at least one of these townships was still for the most part open as late as 1803 when the enclosure award for Hibaldstow was made. Out of a total township area of 4,557 acres, 4,232 acres were enclosed in that year.⁷ A terrier for Burton in 1663 refers to "the inclosure of the Low fields" which can be dated as being between 1594 and 1613,⁸ but the township was still largely open in 1729.⁹

The evidence points to the fact that there were only relatively small areas of enclosed land on the Heath before 1600. If any reliance can be placed on the returns of the enclosure commissioners of 1607, they would seem to support this view.¹⁰ Enclosure made some progress in the seventeenth century, but it was generally of a piecemeal nature, and even by 1700 the Heath was still largely an open region. The movement reached its height in the era of the private enclosure Act, particularly between the years 1750 and 1780.

The main reason why so much enclosure on the Heath was delayed until the eighteenth century was the large area of light soil in each township. The enclosure of light soils lagged behind that of the heavy and the damper, more inherently fertile soils, so that although much land was enclosed in the clay and silt regions of Lindsey in the sixteenth and seventeenth centuries, progress on the Heath was much slower.¹¹ On the heavier soils and those with a high permanent water-table, land was readily converted to good pasture and the advantages of convertible husbandry were obvious, for not only did the arable receive a much needed rest, but in times when the market for cattle and sheep was good, the pasture gave good returns. Moreover, in regions where the area

¹ L.A.O. Glebe terrier bundles, Glentworth, Caenby.

² L.A.O. Monson 19/6/21.

³ L.A.O. Glebe terriers bundle, Cammeringham.

⁴ J. Thirsk, *English Peasant Farming*, London, 1957, p. 161.

⁵ L.A.O. Glebe terrier bundle, Roxby-cum-Risby.

⁶ Cambridge University Library, Ff.4.30 (Survey of the soke of Kirton in Lindsey, 1616) cited by J. Thirsk, *op. cit.*, p. 161.

⁷ Lind. C.C., Clerk of the Peace, enclosure award, Hibaldstow.

⁸ L.A.O. Glebe terrier bundle, Burton by Lincoln.

⁹ L.A.O. Monson 19/6/21.

¹⁰ J. D. Gould, 'The Inquisition of Depopulation of 1607 in Lincolnshire', *Eng. Hist. Rev.*, LXVII, pp. 392-6.

¹¹ S. A. Johnson, 'Enclosure and the Changing Agricultural Landscape of Lindsey from the 16th to the 19th Century', M.A. Thesis, Liverpool University, 1952.

of pasture was being extended the advantages of the enclosed field for stock were readily appreciated. The light soils of the Heath could not be converted to good pasture, and the introduction of the grass ley was an attempt to improve soil fertility rather than to extend the area of grazing. The incentive to enclose, which operated in the clay and silt regions, did not carry the same weight here. We must also take into account the fact that the Heath was a region of large farms and generally small villages and thus there was no pressure of population acting as a stimulus to enclose and increase productivity.¹ With satisfactory returns it is likely that the average farmer preferred immediate gain to future prospects. In the second half of the eighteenth century the diffusion of ideas on the rotation of crops and the growing of clover, seeds, and turnips, became more rapid. Turnips were of immense value on these light soils and grew particularly well on the hills which had never been cultivated before; they provided extra winter fodder for the sheep, and as the sheep ate them off the fields the land was dunged without trouble or cost to the farmer. In a period when the more progressive farmer wished to be quite free of his more laggard neighbour, the desire to take advantage of the New Husbandry was inevitably coupled with enclosure.

During the eighteenth century the Heath took on its dominant pattern of regular hedged fields and straight roads. The enclosed fields, new crops, and new farms in outlying parts of the parish, gave the landscape a completely new aspect. By 1850 the region had taken on an appearance much like that of the present day, with most of the land in tillage forming a general pattern of high farming.²

THE TOWNSHIP OF INGHAM

In order to trace changes in the Heath landscape in more detail, it is profitable to examine the township of Ingham which was

typical in many ways. The town lands lay athwart the scarp slope, and the village, which was a strongly nucleated settlement, was sited on the springline at the junction of the Oolitic limestone and Lias clay. Figure I shows the conditions just before 1770 when the enclosure award was made.³

The higher limestone area in the east was almost entirely common pasture, which lay in two parts. The two arable fields lay to the

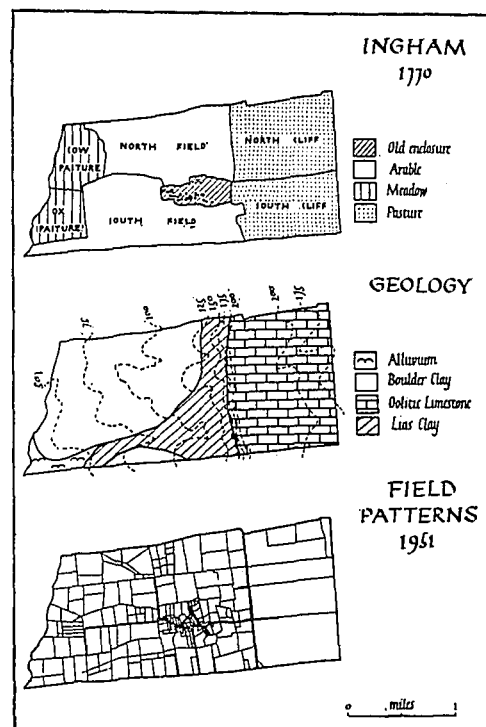


FIG. I

west of the escarpment on the north and south of the village. These fields were composed of Lias clay and the drier boulder clay. The ground slopes gently from the foot of the scarp to the western margin of the township; here, on the low-lying boulder clay adjacent to the stream which forms the western boundary of the parish, were the common meadows,

¹ J. Thirsk, *op. cit.*, pp. 167-70.

² J. A. Clarke, 'Farming in Lincolnshire', *Journal of the Royal Agricultural Society*, 1st ser., XII, part 2, 1851, pp. 338-42.

³ Lind. C.C., Clerk of the Peace, enclosure award, Ingham.

which also lay in two parts. The reason for this pattern of common fields is not difficult to see. Until the eighteenth century the thinner light soils on the limestone were considered infertile and suited only to rough grazing. The stronger soils to the west of the scarp are more inherently fertile, and therefore the higher, better drained, areas of this soil were used as arable land, whilst the low-lying damper parts were used as meadow.

Judging by the lay-out of the fields, there is no reason to suppose that Ingham worked anything other than an orthodox two-field system throughout the medieval period, one field being fallowed each year. By the sixteenth century, however, open-field practice had generally become less rigid and it was becoming common for strips in the arable fields to be put down to grass for a few years to combat soil exhaustion. The first mention of "leys" or "leas," as these grass strips were called, is in a glebe terrier for Ingham of 1671.¹ It is likely, however, that they were being used to some extent at a considerably earlier date. Despite changes of this type, the landscape of the village must have changed relatively little between 1500 and 1770, and the main characteristics of the farming persisted. With its large open fields and commons, Ingham had a predominantly arable economy closely associated with the rearing of large numbers of sheep. The large area of light soil provided grazing for sheep rather than cattle, and barley was the main crop.

Before 1770 enclosure was a very inconspicuous element in the landscape of Ingham, for out of a total township area of 2,126 acres 2,000 acres were enclosed under the award of that year, the Act of Parliament having been passed the previous year. There were only ten people who received land, but three quarters of it was shared between Sir Cecil Wray and Christopher Nevile who was lord of the manor. The result was that the open lands were replaced by a regular pattern of large

fields and straight roads (Fig. I). The common pasture was nearly all divided between three proprietors, and the very large rectangular fields to be found in this area today show that the original allotments were not subsequently sub-divided to any great extent. Along with these changes the introduction of new crops altered the agrarian scene, and subsequent years saw the building of farms away from the village, whereas previously this had not been possible. However, despite such revolutionary changes in the landscape a few fossil features remained. The old pre-Parliamentary enclosure around the village and between it and the scarp slope still shows as an area of small irregular fields, and the road running eastwards from the village proved to be one of the few stretches of road that the enclosure commissioners were unable to straighten, because it ran through an area of old enclosure. It is also interesting to note how the original boundary between the South Field and the Cow Pasture, which continued as the boundary between the two arable fields, can be picked out as the one long curving line in the present-day pattern of fields.

THE OUTER MARSH

Both the pattern and chronology of enclosure in the Outer Marsh of Lindsey make a striking contrast with those of the Heath. In this region the movement started early, and there are references to enclosure in the late twelfth and early thirteenth centuries.² Progress seems to have been fairly continuous up to 1600, by which date there were large areas of enclosed land. A survey of the manor of Croft in 1576 reveals a great deal of enclosure and there is no suggestion that any open field remained. It also shows that there was a considerable area of enclosed pasture in Thorpe St Peter.³ In 1618 the townships of Anderby and Sutton-le-Marsh were enclosed to a considerable extent,⁴ and glebe terriers suggest that such conditions were general at this

¹ L.A.O. Glebe terrier bundle, Ingham.

² L.A.O. 2 Anc. 1/10/1, 1/12/6, 1/12/18; F. M. Stenton, *Danelaw Charters*, Nos. 14, 536, 547.

³ L.A.O. Monson 8/8. ⁴ L.A.O. Misc. Don. 73.

time.¹ Despite the progress of enclosure, however, the great majority of townships in the region still had open fields in 1600.²

Much of the land enclosed before 1600 was pasture, and enclosure continued in the seventeenth century with progressively greater emphasis on grass farming. There was considerable enclosure of glebe in Saltfleetby St Clements between 1606 and 1712. An indenture of bargain and sale of land in this township in 1662 refers to "all those three Acres of Land Arable lately-converted into pasture."³ Two years later there is reference to five selions of "late converted pasture lying in the said North field."⁴ This tendency is in keeping with the findings of Dr Thirsk, who has noted the increase in numbers of sheep kept by the larger farmers in this period.⁵ In some townships, if changes in the glebe lands were any reflection of changes in other holdings, there appears to have been a slowing down in the progress of enclosure between about 1630 and 1700.⁶ This may reflect the general depression in the seventeenth century, when not until 1690 did numbers of stock approach their late sixteenth-century level on the average peasant farm in the Marsh.⁷ Under these conditions one would not expect such farmers to embark on so many schemes for enclosure.

It seems likely that enclosure took place in the Outer Marsh throughout the eighteenth century. Part of the glebe in Theddlethorpe St Helen lay open in 1664, but it was all enclosed by 1822; whilst the open lands of Gayton-le-Marsh were enclosed by agreement in the early years of the century.⁸ The result of all this early enclosure was that only 15 per cent of the region remained to be enclosed by

Act of Parliament. Although many townships were affected by Acts, they usually only applied to a very small proportion of the township area, and were merely rounding off the work of several centuries by enclosing a small area of common field or pasture that had survived. It is significant that most of the awards were late, particularly between the years 1825 and 1850, there being only four prior to 1800. Many of them were made under the General Act of 1836 which obviated the necessity of a more costly private Act. Here, therefore, Parliamentary enclosure was considerably later than on the Heath and most other regions, and can be explained in terms of the facility with which piecemeal enclosure took place. The more progressive farmers could take advantage of favourable agricultural trends whether small areas of open field persisted or not. Moreover, the improvement of the light soils for arable farming gave the main impetus to Parliamentary enclosure in the eighteenth century, but this carried little weight in the Outer Marsh where grass farming was all important.

The long-standing and widespread acceptance of individual enclosure arose from several closely related factors. In the first place, there was the early recognition of the advantages of enclosure for stock rearing, whilst the piecemeal reclamation of salt-marsh was automatically coupled with enclosure. Furthermore, the abundance of good grazing that was available made the loss of shackle, that resulted from the encroachment of enclosures on the open fields, much less serious. On the Heath, where common grazings were highly prized, piecemeal enclosure met with more resistance. Even in

¹ L.A.O. Glebe terrier bundles, Conisholme, Saltfleetby All Saints, South Somercotes; Glebe terriers, vol. II, f. 417, Saltfleetby St Clements, 1577; vol. VI, f. 294, Addlethorpe, 1612.

² Lind. C.C. Clerk of the Peace, enclosure awards, Anderby, Burgh-le-Marsh, Great Carlton and Castle Carlton, North Coates, North Cockerington and South Cockerington, Conisholme, Grainthorpe, Hogsthorpe and Mumby, Huttoft, Mablethorpe, Markby, Marsh Chapel, Orby, Saltfleetby St Peter, Skidbrooke-cum-Saltfleetby, South Somercotes, Sutton-le-Marsh, Trusthorpe and Hannah-cum-Hagnaby, Withern with Stain; L.A.O. Glebe terrier bundles, Gayton-le-Marsh, Saltfleetby St Clements, Theddlethorpe St Helen.

³ L.A.O. Glebe terrier bundle, Saltfleetby St Clements; Emeris 12/11.

⁴ L.A.O. Emeris 12/12.

⁵ J. Thirsk, *op. cit.*, pp. 152-53.

⁶ L.A.O. Glebe terrier bundles, Anderby, Conisholme, Huttoft, South Somercotes, Sutton-le-Marsh.

⁷ J. Thirsk, *op. cit.*, p. 153.

⁸ Glebe terrier bundles, Theddlethorpe St Helen, Gayton-le-Marsh.

early times the Outer Marsh adopted a pastoral economy closely adapted to the physical conditions, and this was an important influence on the enclosure movement. A series of twelfth-century charters, relating to Huttoft, Sutton-le-Marsh, Grainthorpe, and Saltfleetby, point to an economy based on meadow and pasture rather than arable land.¹ This continued with increasing emphasis, which was in part related to a growing tendency to let Marsh grazings to upland farmers,² until the final disappearance of common fields in the nineteenth century. Thus we find in 1794 Arthur Young praising the rich grazing lands of the region which would let for thirty to forty shillings per acre and would carry a cow or a bullock to two acres and two sheep to the acre.³ As a result of this concentration on grass farming, arable farming seems to have been in a backward state, and there was little attempt at systematic cultivation.⁴

The distinctive farming and enclosure history of the Outer Marsh has imposed upon the region a characteristic landscape. Large areas have an irregular pattern of fields as a result of piecemeal enclosure, and ditches and drains are an important element in the field boundaries. The pattern of roads is also irregular, some of them marking the line of old embankments, whilst early enclosure gave rise to an early dispersion of settlement that is still marked today. All this stands in contrast to the Heath.

THE TOWNSHIP OF MARSH CHAPEL

This township is situated in the Outer Marsh region and the land is almost entirely silt. Figure II shows the lay-out of the open fields just before enclosure in 1846, the award being made under the General Enclosure Act of 1836.⁵ By this date the open fields and commons represented only a small propor-

tion of the total township area, the greater part being enclosed. It would seem that piecemeal enclosure had proceeded steadily in Marsh Chapel during the previous three centuries. A map of the township in 1595 shows considerable areas of enclosed pasture immediately east of the sea-bank along which

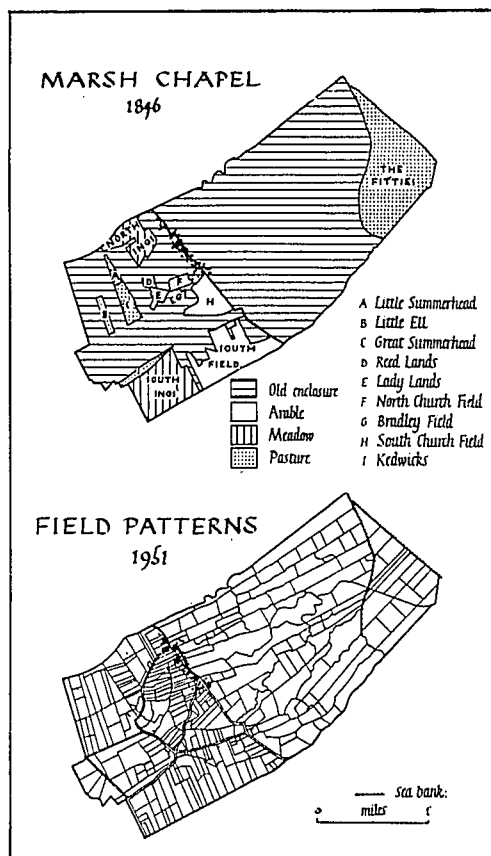


FIG. II

the present main road through the village runs.⁶ Today this is still an area where the field patterns are very irregular as a result of piecemeal reclamation and enclosure of the

¹ F. M. Stenton, *Danelaw Charters*, Nos. 56, 57, 170, 541, 542, 544, 545, 546, 549.

² J. Thirsk, *op. cit.*, p. 237.

³ A. Young, *General View of the Agriculture of the County of Lincoln*, Report to the Board of Agriculture, London, 1799, p. 179.

⁴ T. Stone, *General View of the Agriculture of the County of Lincoln*, Report to the Board of Agriculture, London, 1794, p. 47.

⁵ Lind. C.C., Clerk of the Peace, enclosure award, Marsh Chapel 1846.

⁶ G. B. Walshaw, 'An Ancient Lincolnshire Map', *Lincolnshire Magazine*, II, No. 7, 1935, pp. 199-201.

salt-marsh. The original winding streams have remained as an important element in the field boundaries.

Reclamation of the salt-marsh seems in some instances to have been closely connected with salt-making. Two of the most easterly of the enclosures on the map of 1595 contained houses; and in a survey of part of the Holywell estate made in the mid-seventeenth century, there is reference to "a Maure called Middlecotholme (with 2 Saltcoats)" and "a Maure (with a Saltcoat)."¹ It is quite possible that these "Saltcoats" are the buildings on the map. The "maures" were round islands in the marsh where salt was made, and they were created artificially by embanking part of the marsh. The precise methods used for obtaining the salt are somewhat obscure, but it seems that the islands gradually grew in size as a result of the accumulation of mud from which salt had been extracted, until they became too large for the saltmakers' purposes. At this stage they were abandoned and used as pasture.²

That part of the township to the west of the sea-bank was largely in open field, common, and meadow. Although much of this land was pasture it seems to have been the practice to have it divided into strips and furlongs in a fashion that is usually associated with open arable fields.³ The strips were, however, generally larger than the arable strips. As much of the pasture was divided in this way, but not enclosed, considerable numbers of stock must have been tethered.

The arable fields which lay entirely to the west of the village were much smaller in area than the pasture and enclosed land, but considerably more extensive than those shown on the award plan of 1846. It has not been possible to ascertain whether Marsh Chapel worked a two-field system in 1595, but certainly this system was common in the rest of the Marsh. By the time of the enclosure

award the arable fields were six in number, but relatively small. This fragmentation of the original fields was due to the gradual encroachment of enclosures. There were still two areas of common meadow, but apart from four small pieces, the land that had previously been open pasture was enclosed. After the enclosure in 1846 the open lands were divided into regular fields much smaller than the fields to the east of the village, which had their origins in the reclamation of the waste. The former pattern reflected the large number of people owning small areas of common land, the latter the work of larger land-owners or joint enterprise. It is interesting to note that because the open lands were bounded on all sides by old enclosure, their outline had been almost perfectly fossilized in the present-day field pattern (Fig. II).

There was still one area that remained unenclosed after 1846. The Fitties was a region of salt-marsh, lying to the east of the outer sea-bank, which was subsequently reclaimed and enclosed by a separate award in 1857.⁴ The resulting field pattern was much more regular than that immediately to the west because of the systematic reclamation and enclosure of the area. The reclamation resulted in straight drains and ditches and the erection of the most easterly embankment.

Enclosure in Marsh Chapel was a long and gradual process that began in the medieval period. The enclosure Acts of the nineteenth century were merely a convenient way of enclosing the small areas of open land that remained at this time. Coupled with this long enclosure history was a predominantly pastoral economy, for we have seen that there were large areas of pasture in 1595, and it is certain that a pastoral economy was well established much earlier. During the medieval period gifts made to the Cistercian foundation of Louth Park were chiefly sheep-gates.⁵ Such an economy helps to explain the

¹ L.A.O. H 97/2.

² M. Beresford and J. K. S. St Joseph, *Medieval England*, Cambridge, 1958, pp. 238-42.

³ L.A.O. H 97/2.

⁴ Lind. C.C., Clerk of the Peace, enclosure award, Marsh Chapel and Grainthorpe 1857.

⁵ D. M. Williamson, 'Some Notes on the Medieval Manors of Fulstow', *Lincolnshire Architectural and Archaeological Society Reports and Papers*, IV, Part 1, New ser., 1948-51, p. 45.

facility with which land was enclosed, for the advantages of enclosure for stock farming were obvious at an early date. Specialization seems to have become more pronounced as time went on, so that the tithe award made in 1839 shows that there were 883 acres of arable, 1,681 acres of pasture and meadow, and 127 acres of common grazing in Marsh Chapel.¹ Added to this, however, is the fact that some of the land recorded as arable would be in ley. By the nineteenth century open-field practice had become very flexible, strips being put down to grass probably without even the necessity for any sort of agreement. Thus a schedule of the lands of James Kirby in 1808 mentions one ley in Lady Lands, three leys in Reed Lands, and thirty-four leys in the South Church Field. A very high proportion of the township must have been in grass.²

The agricultural landscape of Marsh Chapel, unlike that of Ingham, was changed slowly by piecemeal enclosure. This process reflected the nature of a physical environment that allowed pasture of good quality to be developed, and it has left its mark on the field patterns of the township. Early enclosure also facilitated a spread of settlement away from the village at times when most of the Heath villages were still strongly nucleated. At the same time, irregular enclosure

gave rise to an irregular pattern of roads.

CONCLUSION

Enclosure was the physical manifestation of changing farming conditions and has been one of the main agents in changing the landscape. We have traced its progress in two very different physical regions and have seen how it gave rise to contrasting landscapes. At any point in historic time, the landscape represents an adjustment between man and his environment, and the precise nature of this adjustment depends on the availability of techniques by which the physical environment can be modified and the economic exigencies of the time. The agricultural landscapes of the Heath and Outer Marsh of Lindsey at times changed rapidly and at others remained much the same for long periods, but the processes that modified the face of the land never completely obliterated the conditions which preceded them. Just as the siting of the open-field townships was influenced by the nature of the terrain, so the progress of enclosure was influenced by the disposition of the open fields and the type of agriculture practised. Enclosure has never been able to destroy every vestige of the open fields, and by its very nature it provides us with a document from which the pre-enclosure landscapes can be reconstructed.

¹ L.A.O. Tithe award, Marsh Chapel E196.

² L.A.O. B.R.A. 898/x1/2.

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The response of agriculture in Staffordshire to price changes in the nineteenth century.
- SUTTON, J. E. G., *c/o 209 Loddon Bridge Road, Woodley, Reading.*
A survey of ridge and furrow and a deserted medieval village at Gosford and Water Eaton, Oxon.
- SWALES, T. H., "*The Jolly Farmers*," *Yaxham Road, Dereham, Norfolk.*
The sequestration of monastic estates in Norfolk and its effect on the position of the gentry and nobility, 1535-65.
- SYLVESTER, Miss DOROTHY, *School of Geography, Manchester University.*
Rural settlement in the Welsh borderland.
Woodland reduction and settlement in the Dark Ages.
- TAVENER, L. E., *Department of Geography, Southampton University.*
Dorset Farming, 1900-1950.
Mid-twentieth century agriculture.
Land use in Hampshire.
- THIRSK, Mrs JOAN, *Department of English Local History, Leicester University.*
The agrarian history of England in the sixteenth century.
The social and economic organization of the forest areas in England.
- TITOW, J. Z., *Department of Economic History, Nottingham University.*
The estates of the Bishops of Winchester in the thirteenth century.

- THOMAS, A. C., *Department of Archaeology, 19 George Square, Edinburgh, 8.*
Celtic and medieval fields with associated settlements from prehistoric to present times at Gwithian and Camborne, Cornwall (in collaboration with others).
- THOMAS, DAVID, *Department of Geography, University College, London.*
Agriculture in Wales during the Napoleonic Wars.
- THOMAS, DAVID, *Bittons, Ipplepen, near Newton Abbot, Devon.*
Rural transport.
- THOMPSON, F. M. L., *Department of History, University College, London.*
Nineteenth-century English landed estates.
- THORPE, H., *Department of Geography, Birmingham University.*
Comparative studies of forms and patterns of rural settlement in the British Isles and Europe.
The evolution of settlement and land use in the West Midlands generally, and in Warwickshire in particular.
- TUBBS, C. R., *The Nature Conservancy, c/o Furzebrook Research Station, Wareham, Dorset.*
See under JONES, E. L.
- TURNER, A. D. J., *Oriel College, Oxford.*
The population of England in the sixteenth and early seventeenth centuries, 1520-1642.
- VOLLANS, Miss E. C., *Department of Geography, Bedford College, London.*
Agriculture and settlement in the Chilterns in the fourteenth century and later periods.
- VOSE, E. K., *30 Avenue Road, Great Malvern, Worcs.*
The administration and economic development of the estates of Worcester priory.
- WEST, F., *Department of English Local History, Leicester University.*
Social and economic conditions in the East Fen villages of Lincolnshire from 1660 to 1760.
- WHETHAM, Miss EDITH, *School of Agriculture, Cambridge.*
History of British agriculture, 1846-1950.
- WHITEHAND, J. W. R., *Department of Geography, Reading University.*
The settlement geography of the Chilterns.
- WHITTINGTON, G., *Department of Geography, University of St Andrews.*
Changes in the Agricultural Geography of the Upper Nairn Valley.
- WIBBERLEY, G. P., *Wye College, near Ashford, Kent.*
Agriculture and land-use planning in Kent, with particular reference to recent changes and trends in the agricultural structure of the county (in collaboration with Ruth Gasson and Robin H. Best).
- WILKS, W. I., *School of History, Birmingham University.*
Jesse Collings and the Back-to-the-Land movement.
- WILLIAMS, Professor GLANMOR, *Department of History, University College, Swansea.*
Ecclesiastical landholdings, c.1500-1640.
- WILLIAMS, MOELWYN, *Department of English Local History, Leicester University.*
The agrarian history of Glamorgan, 1660-1760.
- WOOD, P. D., *Department of Geography, Reading University.*
Early fields in central Berkshire, particularly those at Perborough Castle and Ardington.
See also under HARDY, J. R.
- YOUNGS, Miss JOYCE, *Department of History, Exeter University.*
The disposal of monastic lands in England.

Letters to the Editor

MECHANIZED FARMING

SIR,—In the article by Mr W. Harwood Long on 'Mechanization in English Farming' (AHR XI, p. 15) the statement is made that "English farming is probably the most highly mechanized in the world." In support of this generalization the author cites the fact that more than £10 capital investment per acre is required on most present-day English farms. The £10 figure closely approximates to the capital investment per acre in machinery and equipment on the average farm in the Mid-western region of the United States, on farms producing cereal grains, maize, swine, dairy and beef cattle, oil seeds, and root crops.

Yet a comparison of investment on a per-acre basis is misleading, in my opinion. Figures on the investment per farm worker would, I think, point to greater mechanization in the United States. The author enumerates details concerning a 200-acre Yorkshire farm operated by tenants and hired labourers. A farm of twice that size, in the neighbourhood of 400 acres, would, in the black soil region of the United States, be regarded as a family-sized farm, operated, and most likely also owned, by the farmer and his family, consisting most commonly of his son. The two men, with machinery and equipment valued at £4,000, can handle 400 acres of arable land. Thus the investment per worker, excluding land and buildings, is £2,000, or considerably higher than in most industrial enterprises. The value of the land and buildings, conservatively estimated, is £50,000. Some farms where the farmer and his immediate family manage the farm and also do most of the work, have investments in land and buildings as high as £70,000, and up to £25,000 additionally invested in machinery and equipment.

Unfortunately, the author fails to indicate the investment per worker on English farms, but I would guess it to be substantially less. I might add that comparisons of this kind are perilous because of the great variety in type of farming operation and other factors which

complicate the problem of comparison. The high capital investment per acre in England perhaps indicates more intensive land utilization than in the United States where large-scale powered equipment enables the individual farmer to farm a larger acreage.

Yours sincerely,

FRED W. KOHLMAYER
Editor, *Agricultural History*

Mr Harwood Long writes:

By drawing attention to an *obiter dictum* in my article Professor Kohlmeyer highlights one of the best-known distinctions between British and American attitudes towards farming, namely the relative importance of land and manpower as resources in production. The following figures, although they are confined to tractors, also show this:

Tractors	Arable acres per tractor	Arable acres per person in agriculture	Tractors per person
U.K.	45	15	0.33
U.S.A.	96	62	0.65

Each country will pay most attention to the resource which is in shortest supply. Therefore, writing in the REVIEW of the British Agricultural History Society I emphasized the relationship of equipment to land rather than manpower, and gave Professor Kohlmeyer the opportunity to point out that the emphasis is different in his country.

In saying that "more than £10 an acre" was invested in machinery, I did not say how much more. Some recent Yorkshire 'type of farming' figures indicate investment ranging from £12 to £27 per acre.

SETTLEMENT IN EARLY BRITAIN

SIR,—In his recent paper, 'The Pattern of Settlement in Roman Britain' (AHR XI, 1963, pp. 1-14), Dr Applebaum elevates my views on settlement in early Britain into a doctrine and, no doubt because of pressure of space, presents them with a rigidity I would be reluctant to adopt. This may have the un-

fortunate effect of prematurely clouding new horizons; so a clarification on my part may not be inappropriate.

In essence, what I set out to do was to project backwards some elements of the territorial organization and settlement pattern recorded in North Wales in the thirteenth century "for the formulation, if only as a working hypothesis, of a general theory on the evolution of settlement in Britain." Among the important elements I deemed to be of early origin were settlement in small hamlets occupied by the bond majority of the population, the frequent, but by no means exclusive, siting of these hamlets in the lowlands, and the organization of these hamlets into groups (*maenors* or *maenols*) best described as discrete estates. In North Wales the headquarters of such groups (*maerdrefs*) were frequently located near important prehistoric or proto-historic sites. For this and other reasons I postulated the existence of a similar discrete organization in prehistoric times and suggested that this was the means whereby the labour resources of wide areas could be mobilized for various purposes, including the construction of hill-forts. Since clan settlements (*gwelyau*) appear to have emerged in Wales only after A.D. 1100 and therefore were younger features than the hamlets, I wished to imply that the latter, rather than any so-called 'tribal' settlements, provided the uniform basis of settlement throughout Britain. This however does not mean that all bond settlements in early Wales were hamlets. Indeed, in two of the papers cited by Dr Applebaum, I emphasized that many bond homesteads, though forming part of *maenors*, were scattered about the countryside to take advantage of the limited cultivable areas.

On the basis of Dr Applebaum's findings at Figheldean Down I suggested that the arable lands of Iron-Age communities, like the commonable arable sharelands of medieval bond hamlets, lay in open field. In North Wales there are, of course, 'Celtic' fields, tentatively ascribed to the Roman period, in areas characterized by bond settlement in the Middle Ages. But even if we accept that these

were originally enclosed, my views can be more readily adjusted to their existence than Dr Applebaum appears to think. The open-field strips which survived in North Wales into the nineteenth century, like those which still exist at Llanynys, were of small dimensions by English standards. Many were only about 100 yards in length and about 10 yards in breadth. At Criccieth, late surviving Welsh 'customary acres' are 90 yards in length. Plough ridges in an arable 'field' at Gwithian in Cornwall, tentatively ascribed by Mr Charles Thomas to the period A.D. 850-1100, are about 180 feet in length by a mean of about 10 feet in breadth. Bundles of strips of these dimensions could well have been established within the larger 'Celtic' fields. As Mr H. C. Bowen has recently stressed, ploughing within and over 'Celtic' fields in historic periods is much more frequent than is perhaps generally appreciated. At Cregennan in Merionethshire an area of former arable land in the vicinity of a medieval platform house, and believed to have been demesne, still betrays traces of 'Celtic' fields. Some of these are rectangular in shape, measuring about 100 yards by 20 yards, and the remainder are sub-rectangular, but in addition the latter contain remains of what appear to be lazybeds. Clearly therefore a dovetailing of new into old must be taken into account in the evolution of field systems.

As Roman villas have not been discovered in North Wales, my emphasis was placed on hill-forts and Roman forts, and especially the former, since they are the more numerous and some were used or re-used in the Dark Ages. For the English lowlands I suggested, but did not develop, the view that the discrete estate which had made feasible hill-fort construction later served to make possible the Roman villa and the hall of many a medieval barony. For this a flexible continuity of organization seems likely to have been much more frequent than continuity in immediate siting. In this general context it is appropriate to recall that Gildas, when describing the subjection to which the Britanni were reduced by the Romans, referred to *praepositi* who

were scourges for the backs of the natives. At the end of the seventh century a reeve (*prae-fectus*) could serve as an intermediary between Bishop Wilfrid and people of British race living near Walton Head in the West Riding of Yorkshire. In the Welsh medieval laws the *praepositus* (*maer*) was a 'notable' (*uchelwr*), one of the commote officials who regulated the king's bondmen on their bond

lands and had custody of the king's wastes. An important official—not to be confused with the land-*maer* who regulated the cultivation of the demesne land at the *maerdref*—the *praepositus* was allocated for his own support one whole *maenor*, which though smaller than the earlier *maenors* was nevertheless a substantial estate.

GLANVILLE R. J. JONES

Notes and Comments

THE BRITISH AGRICULTURAL HISTORY SOCIETY

The annual conference of the British Agricultural History Society was held from 3 to 5 April 1963 at St Mary's College, Durham. On the first evening a paper was given by Dr A. G. Lunn of the Department of Extra-Mural Studies, King's College, Newcastle-upon-Tyne, on 'The historical factor in contemporary land-use and vegetation patterns on the Anglo-Scottish border'. The following day the conference was taken on an excursion to Cockle Park, Wooler, and Chillingham. In the evening Dr Constance M. Fraser of the Department of Extra-Mural Studies, King's College, gave a paper entitled 'Husbandry and the Convent of Durham'. The conference concluded on Friday morning with two papers, the first by Mrs Helena H. Clark of the School of Agriculture, King's College, on 'The migratory routes of the cultivated barleys', and the second by Mr Mark Hughes of the Extra-Mural Department, University of Manchester, entitled 'Agricultural techniques and rent changes in Northumberland 1750-1850'.

At the annual general meeting held on Thursday, 4 April, Mr R. V. Lennard was

re-elected President of the Society. Professor Edgar Thomas was re-elected Treasurer and Mr J. W. Y. Higgs, Secretary. Three members of the Committee—Mr G. B. Bisset, Dr W. H. Chaloner, and Dr W. G. Hoskins—retired, and the meeting elected in their place Dr A. M. Everitt, Miss L. Pearson, and Dr M. L. Ryder. Mr Harwood Long, in presenting the report of the executive committee, said that membership had risen from 631 to 645. The December conference had had to be cancelled owing to the severe weather, and arrangements were being made for the same programme to take place in December 1963. The committee were exploring the possibilities of a joint conference with the Economic History Society to be held at Reading from 3 to 6 April 1964. In the absence of the Treasurer, the Acting Secretary presented his report. The loss for the year was £40 2s. 9d. as opposed to £55 9s. 3d. the year before. It was hoped that the adjustments made by the committee a year ago would soon stem the loss completely.

At a meeting of the executive committee held later in the day, Mr Harwood Long was elected chairman.

(continued on p. 125)

Book Reviews

H. E. BRACEY, *English Rural Life*. Routledge & Kegan Paul, 1959. xiv+272 pp.

Any rural area is an amalgam of social and economic activities and institutions. These can, superficially, appear to be few and clear-cut. But if these activities and institutions take place in a long settled country with an increasing tempo of general change and a very large and widely scattered urban population, the teasing out of the resultant involved situation is intricate.

Dr Bracey has, therefore, been faced with a difficult task in this book as he has attempted to give a fairly detailed account of village activities, organizations, and institutions against a background of the dominant forces now at work in rural areas everywhere—the increasing tempo of change in occupations, communications, and attitudes to living. This has given rise to a rapidly increasing mobility and migration of goods, services, and people. It can, in fact, be argued that a basic problem of today in many parts of the British countryside is how to create conditions under which people will be happy to live and work despite the fact that the majority of them have developed essentially urban attitudes and values. The author has handled this complex task by giving brief but comprehensive descriptions of many rural institutions—their history, present organization, strains, and stresses, together with the author's own impressions and judgements. No village or rural activities of any size or importance are omitted and the factual accuracy of description appears to be very good. Agricultural matters occur throughout the book as the author has, refreshingly, dealt with this industry through the attitudes and activities of the people engaged in it rather than by a description of its physical and economic structure.

This book, therefore, has great value in that it is an excellent description of the social fabric of village and open countryside. It does not pretend to deal with the country town and its subtitle makes this clear. It does not dis-

cuss the Celtic areas of Britain—which possess a settlement pattern very different in its historical evolution and experience and problems. This is unfortunate as many foreign readers of the book will assume that the title *English Rural Life* deals with the whole of Great Britain.

The author has aimed his book, according to his preface, at an audience who need, according to his own judgement, to be better informed about country matters, especially “the day-to-day background to the rural way of life.” It is not a social history, though it contains many historical comments. It is not an integrated view of rural society as such. This would need much more of a cohesive matrix, with the section at the end of the book—Chapter 19, Prospect—expanded. This section has only 13 pages and so can handle only the two problems of declining local loyalties and the weaknesses of rural local government.

Looking at this section on ‘Prospect’ in the light of changes going on in the early '60s in Britain what might the author now consider? The mobility and migration of goods, services, and people have increased their tempo, though the back-flow from urban areas into country village and hamlet has shown a healthy increase as the countryside receives the dormitory dweller and holiday maker who have been made more mobile through the spread and relative cheapening of private car transport. The economic trends towards increasing farm size and reducing farm employment operate even more strongly and are only lightly checked by the emphasis on the *status quo* and the smaller farm engendered by the present pattern of British agricultural subsidies. Agricultural fundamentalism, at least in the countryside, continues to weaken as a philosophy though its strength in the corridors of Whitehall and amongst Members of Parliament remains surprisingly great.

This book, as a part of the International

Library of Sociology and Social Reconstruction, fills a big gap in the written description of modern England. Thanks to the author's skill in description and diagnosis, the reader is provided with an encyclopedia of rural knowledge in a relatively slim volume.

G. P. WIBBERLEY

B. R. MITCHELL, with the collaboration of Phyllis Deane, *Abstract of British Historical Statistics*. Cambridge University Press, 1962. xiv+514 pp. 52s. 6d.

Statistics, for so long the opium of economists, are fast becoming the standard fare of economic historians. Theirs is a discipline that has come to be regarded in the last twenty years as concerned, above all, with the study of economic processes which persisted over long periods of time: their studies have been focused less on the particularity and uniqueness of historical events than on the general processes of change to which they may be said to belong. Understandably, one of the natural allies of economic historians working within this frame of reference has been the statistician, and it is this alliance which has produced the present laborious and pregnant volume.

Characteristically enough, it is the offshoot of an enquiry, begun by Miss Deane and Dr W. A. Cole almost ten years ago, into the long-term economic growth of the United Kingdom, itself a contribution to an internationally organized series of similar studies in other countries which is being supported by the Social Science Research Council. The grain of this theme shows plainly in the raw material presented here in what is virtually a statistical appendix to the authors' *British Economic Growth, 1688-1959*, which has also just issued from the Department of Applied Economics in Cambridge: Dr Mitchell's present *Abstract* presents, in an almost entirely raw and unprocessed form, "the major time series for the United Kingdom over as long a historical period as possible," though most of them do not begin before 1800, nor many after 1900, and few go beyond 1938. They are grouped under population and vital statistics,

labour, wages and the standard of living, national income and expenditure, public finance, overseas trade, banking and insurance, prices, agriculture, and seven other industrial headings: the statistics are, of course, thickest on overseas trade and public finance, though agriculture gets treated better than the average. Each instalment is prefaced by explanatory and cautionary notes about the material, and is buttressed by bibliographies of books, government publications, and articles which either add statistical commentary or locate further data. Most of the material has been dug from Parliamentary Papers or from other well-known sources, but there is also a considerable amount of information published here for the first time, such as Lord Beveridge's valuable legacy of the London bread prices between 1545 and 1747 and the Eton wheat prices from 1594 to 1820, several long-hidden production series put together from MS. accounts in the Library of H.M. Customs and Excise, and Dr C. H. Feinstein's estimates of capital formation in the nineteenth and twentieth centuries.

This is, without question, an invaluable work of reference which, though it is bound to be supplemented, is unlikely to be replaced for at least a generation. As a work of historical scholarship it has had to be selective; yet, with all its riches, there is more room for disappointment than ought perhaps to be there. The chief compiler and his formidable team of advisers can at times be seen wrestling with their doubts over what to put in—as, for example, with the rather ragged statistics of bankruptcies, which were omitted—and coming at others to emphatic (but occasionally equivocal) decisions, like that to exclude 'social statistics'. There were clearly some possibilities which must have appeared unthinkable to them, like the inclusion of random quantitative measurements of particular phenomena of the kind that once stuffed out the various editions of Mulhall's *Dictionary of Statistics*, but on an otherwise unmarked map some such spot-heights would have been welcome. Some of the relatively shorter series in existence might also have been indicated:

for example, the Windsor wheat and malt prices between 1646 and 1745 printed in the *Gentleman's Magazine* for 1751, or the series on Exchequer Bills between 1828 and 1857 included in Scratchley's *Practical Treatise on Savings Banks* (1860). It is less churlish perhaps to regret that the opportunity was not taken to bring together some of the most important annual figures covering long periods which are available on housing, building and friendly societies, insurance companies, individual banks, foreign capital issues, tramways, municipal transport, docks, port traffic, coastal shipping, and internal migration.

A still more justified complaint must be that some of the bibliographies—deliberately “limited to works which have a direct bearing on the statistics themselves”—are seriously deficient, for comprehensiveness here would have gone a long way to redress the omissions in the statistical material. One curious omission, for example, is Bowden's index of wool prices between 1490 and 1610 and the subsequent discussion of it in the *Yorkshire Bulletin* for 1952 and 1955; another, in the field of general prices, is Phelps-Brown's index of ‘consumables’ from the thirteenth to the nineteenth century, printed in *Economica* for 1956, and the valuable commentary on this by R. G. Lipsey in the *Lloyds Bank Review* for October 1960; another is Ernst Kneisel's statistical challenge to Professor Gras's well-known thesis on the evolution of English grain markets before the sixteenth century, which was printed in the *Journal of Economic History* in 1954. These are not isolated shortcomings. To take one field alone, references to important statistical work on internal migration are conspicuously meagre: there is, for example, no reference to John Saville's *Rural Depopulation in England and Wales, 1851-1951* (1957), to A. K. Cairncross's study of migration in his *Home and Foreign Investment, 1870-1913* (1953), or to E. G. Ravenstein's path-finding work in the *Journal of the Royal Statistical Society* for 1885; the mid-Victorian statistics of regional movements worked out by Brinley Thomas, H. C. Darby, C. T. Smith, and R. Lawton in

Economica for 1930 and the *Geographical Journal* for 1943, 1951, and 1958, respectively, are all omitted; H. A. Shannon's valuable monograph, *The Population of Bristol* (1943) is not included; and there are a number of other more esoteric examples that could be quoted. Among the items of considerable statistical interest which have been omitted from the bibliographies in this general field are G. F. Plant's *Oversea Settlement* (1951), which has a more useful break-down of the Board of Trade returns from 1899 to 1949 than is printed here; W. A. Carrothers' *Emigration from the British Isles* (1929), and J. C. Russell's *British Medieval Population* (1948).

Agricultural historians, forewarned by the writings of G. E. Fussell and J. T. Coppock on the deficiencies and treacheries of agricultural statistics, may find this volume useful rather than revealing, but to scholars at work on a particular locality or in a pre-Victorian, pre-statistical period its contribution to their work cannot be more than marginal. In general, this unique (and relatively low-priced) work deserves the warmest welcome and the most thorough use. There are some blemishes, but what might now be anticipated is the due reward of the pioneer, a supplementary volume of wider interest and more variegated contents. When the second volume of *Historical Statistics of the United States* appeared in 1960 it was double the size of the first which had been published eleven years before. There are some grounds for hoping that another instalment of more broadly historical statistics might now be planned to follow Dr Mitchell's present *Abstract*.

H. J. DYOS

PETER J. BOWDEN, *The Wool Trade in Tudor and Stuart England*. Macmillan, 1962. xviii+242 pp. 35s.

The conduct and regulation of the home wool trade has hitherto escaped the careful attention which has been given to the organization of the cloth industry in various parts of the country. Dr Bowden has filled this gap for two centuries when the changing fortunes of the industry had repercussions throughout En-

lish society, not least among the agricultural community. Until the mid-sixteenth century the growing manufacture of cloth absorbed ever-increasing supplies of wool which was no longer exported in any quantity to continental weavers. After the mid-century the industry's foreign markets contracted and its workers were faced with unemployment. In good times and bad both government and conflicting private interests were concerned that the supply of wool should be subject to continual regulation. The agricultural historian will find much to interest him in Dr Bowden's unravelling of the problems which these changes posed and of the measures with which they were met.

In a chapter on sheep farming and wool production, Dr Bowden has added much fresh evidence to that collected from published material to give a broad account of the sheep farmer's aims, methods, and problems. He is doubtless right to stress that wool production was the primary object, in many mixed farming as well as in pastoral districts. He seems, however, to under-emphasize the sheep's fundamental rôle in providing dung on light soils. In the chalk country of Wiltshire, for example, it has been argued that the order of priorities was wheat, barley, lambs, malt, and—last—wool. There is perhaps a need for agricultural historians to give the attention to the income and profits of the sheep-corn farmer that they have given to his methods of husbandry. Dr Bowden discusses the varying influence of the cloth industry's demand for wool on the enclosure and conversion of arable land to pasture, and gives a valuable account of the relative movements of wool and corn prices. Enclosure affected the quality as well as the quantity of wool produced, for richer pastures produced a longer and coarser fibre. English wool lost its reputation for fineness not only in Europe but eventually in the home broadcloth industry too, and the new wools were increasingly destined for the manufacture of worsted cloths.

The importance of the changing nature of English wool in promoting the growth of the worsted branch of the industry at the expense

of the woollen is fully discussed in an account of the industry and its sources of wool supply. Home wool, moreover, was increasingly unable to meet the needs of the industry and in the seventeenth century the import of Irish and Spanish wool played a vital part. And as local specialization developed within the industry, so middlemen assumed important functions as sorters of the wool they carried. Dr Bowden analyses the methods used by middlemen in their dealings with farmer and clothier and throws much light on this aspect of the farmer's business.

Studies of the agrarian economy of different parts of England will make it possible to test many of the arguments expounded in this book, and agricultural historians will frequently benefit by setting their work against Dr Bowden's backcloth.

K. J. ALLISON

F. W. STEER, *A Catalogue of Sussex Estate and Tithe Award Maps*. Sussex Record Society, Volume LXI, xvi+240 pp. Published jointly by the Sussex Record Society and the County Councils of East and West Sussex, 1962. No price stated.

"To the student of history and geography, to the artist, surveyor or mathematician, old maps can be both delightful and profitable," remarks the Sussex County Archivist in the introduction to this admirable catalogue. Mr Steer's knowledge and experience gained from many years of careful study of maps and their makers is everywhere apparent in his excellent introduction and the lists that follow. He has examined personally over eight hundred estate maps, together with surveys of the Goodwood Estates and Tithe Award Plans, in the preparation of the present volume. The earliest map dates from the beginning of the seventeenth century; the rest of the estate maps are listed in chronological order and cover the period up to the middle of the nineteenth century.

The system adopted in the presentation of the catalogue is that already well-tried by Mr F. G. Emmison in the earlier publications from the Essex Record Office. It has been

found that this system is equal to the demands of many types of student. Considerable detail about each map is given, including the title in its original form, the size, catalogue mark (if held in official archives), or the ownership (if in a private collection), and the position and area shown in the parish. Where the surveyor or cartographer's name is not given, it has been possible sometimes to ascribe penmanship on documentary or stylistic grounds. A brief description of the map's appearance and content follows each entry.

Two further sections follow, one describing the Goodwood Estate surveys taken between the years 1781 and 1791 for the duke of Richmond, and the other listing the Tithe Award maps which are now held in the two County Record Offices.

The catalogue allows the student to follow the development of the map-maker's art. He can trace the changing styles of decoration, elaborate borders and cartouches executed to please wealthy clients, or the methods of representing features on the ground. Many maps distinguish types of field boundary; buildings are often drawn in perspective view; and clapper bridges and windmills can be traced. Sussex has been the field of many skilled practitioners. John Norden's work is represented by examples from Littlehampton and Climping, Middleton, and Petworth. At a later period the joint work of Thomas Yeakell and William Gardner can be seen in the Goodwood surveys.

In preparing these surveys Yeakell and Gardner used their engraved maps of West Sussex (1778-83) at a scale of 2 in. to 1 mile to show the general site of the village or lands under examination. These fine county maps are extremely interesting in themselves, providing a valuable and accurate picture some years before the first Ordnance Survey sheets appeared. They are specially remarkable for the striking presentation of the relief in the South Downs by the 'woolly caterpillar style', whereby the smallest dry valley resembles a chasm. Having shown the general pattern of the village, the two surveyors set out a series of tables and plans showing first

the properties in the villages and then the individual holdings. In nearly all cases the proprietors had strips in common arable fields. Ownership in the common fields is distinguished by colour and a series of reference numbers. It is a pity that it has not been possible to reproduce some of these fine plans; in Strettington, for example, one could distinguish as many as thirty strips being worked by one tenant in the East Field alone, an area of only seventy-seven acres divided into six furlongs.

The whole question of colour reproduction of maps for publication or reference is one that deserves much more attention. If some satisfactory, cheap, and permanent method could be devised it would benefit writers, students, and archivists alike. A national archive of map data would then become a serious proposition instead of a pleasant idea as it is at the moment.

The section on Tithe maps has been indexed with a series of reference numbers indicating special features in addition to the usual information that can be gained by comparing the plans with the Tithe Award schedules themselves. Thus the basic information of names of owners and occupiers, names and descriptions of premises, state of cultivation, acreage, and rent charge apportioned on the land, is supplemented by details under twenty-one subject headings. These heads are numbered against each entry and cover detached portions of the parishes, marshes, and saltings (a valuable entry for the study of coastal changes), names of heaths and commons, strips in 'open' arable fields, meadow doles, insets of towns and villages at larger scales, railways, archaeological sites, and many other features.

By preparing this catalogue of maps held in public and private hands Mr Steer has done a great service to all those interested in the evolution of the landscape and in map-making. Of particular value is the list of those maps in private custody which are not easily accessible or even known. It is to be hoped that many more similar publications will appear for other counties, so that this often neglected source of information may be fur-

ther exploited. A second Sussex volume is planned to include enclosure award maps, plans prepared in connection with public schemes, and fifty more estate maps that came to light too late to be included in the present catalogue.

B. LOUGHBROUGH

H. M. COLVIN, *A History of Deddington*. S.P.C.K., 1963. x+132 pp. 12s. 6d.

It is matter for congratulation when a historian of Mr Colvin's recognized eminence turns his attention to parochial history, and does so, moreover, without feeling impelled to apologize for engaging in what is still sometimes thought to be a trivial pursuit. His careful researches, and the enterprise of the S.P.C.K. in publishing them at what for these days is a very modest price, should earn the gratitude of all who care about the English local community and its past.

Deddington is a parish of some 4,000 acres in north Oxfordshire, containing the market town of the same name, two hamlets, and the site of another hamlet which has dwindled to a solitary farm. The town, standing where the main Oxford-Banbury road crosses the highway from Buckingham to Chipping Norton, was well placed to develop into an agricultural market centre. By the end of the thirteenth century it was being taxed as a borough. Between 1302 and 1305 it enjoyed or suffered the privilege of sending two burgesses to parliament. But with Banbury only six miles away, the competition was too keen. Deddington failed to keep up with its thriving neighbour, and though its cattle markets were still well attended in the nineteenth century, only the little Town Hall now commemorates its former urban status. Outside the town the inhabitants cultivated their yardlands in common fields, of which there seem to have been two, subsequently divided into four. Enclosure came in 1808; there are now fifteen farms in the parish, some of them still known by the names of their unenclosed predecessors.

Mr Colvin began his work as a contribution to the *Victoria County History of*

Oxfordshire. Separate publication has enabled him, as he says, "to diverge somewhat from the established conventions of the *V.C.H.*," but perhaps the result would have been even more satisfactory than it is if he had availed himself more fully of this freedom. The formal categorization of the subject-matter under such headings as The Manors and their Lords, Local Government, Church History, Schools, Charities, and so forth, typical of *V.C.H.*, tends to obscure the developing pattern of communal life. Still, the essential facts are there, carefully assembled, and presented in manageable compass. We could do with many more such local histories.

H. P. R. FINBERG

PHILIP WRIGHT, *Old Farm Tractors*. A. and C. Black, 1962. x+78 pp., illustrated. 25s.

This book seems to have been written partly as a result of the great interest which was shown in veteran tractors when they were paraded at the Suffolk Agricultural Show in 1957. It is good to learn that "a large number of these ancients" have been preserved in various parts of the country and are "being given the same lavish care as is bestowed on veteran and vintage cars." The author illustrates twenty-five of them in his plates. These are perhaps the most interesting part of the book, and include some of the earliest English light petrol tractors, such as the Ivel designed by Dan Albone and made by his company, Ivel Agricultural Motors Ltd, at Biggleswade, Beds., in 1902; and an experimental 20 h.p. tractor, looking rather like a motor-car of those days, made by Ransomes, Sims, and Jefferies Ltd, in the same year.

There is also a list of the owners of old tractors and of the models they possess (some of which are still in use) and this should be most useful to any one who wishes to see the rarer models.

However, although individual tractors are well illustrated and described, it is a pity that the author decided to limit himself to what he calls "a note on the evolution and progress of the farm tractor," because much of the infor-

mation about the early history of tractor design and production which he has gathered from personal contact, or correspondence, with the pioneers is of considerable interest; but a rather confused method of presentation, and a style of writing which is not always clear, make it hard work to sift the relevant general information from the details of individual tractors. One of the difficulties is that the author does not seem to have been clear what audience he wished to address: the book is clearly meant for the general reader and yet many of the descriptions, while too imprecise for the engineer, assume a knowledge of technicalities which not every reader will possess—nor are the author's attempts to enlighten them in the chapter called 'The Tractor Mechanism' as helpful as they might have been.

The descriptions of the tractors which were demonstrated at various early tractor trials, such as those held by the Royal Agricultural Society of England at Bygrave, Baldock, Herts., in 1910, at Aisthorpe near Lincoln in 1920, and at Wallingford, Berks., in 1930, are interesting; but would have been even more so if the results of the trials and their influence on future designs had been discussed.

The influence of American manufacturers is rightly stressed, because after a promising start, British tractor-makers fell behind American. In general the pre-1914 British tractors were too heavy and too expensive to win widespread acceptance (the Saunderson and Mills 45-50 h.p. model cost £450 in 1910); and after the war American tractors, with a far larger domestic production behind them, were able to undercut British prices. For instance at the Motor Manufacturers' and Traders' Trials held at South Carlton, Lincoln, in 1919 seventeen English and nine American companies entered models, but only one of the English models, the Austin 25 h.p., was really competitive with its chief American rival, the Fordson, which was being made in Ireland at Cork. The Austin weighed 1 ton 8 cwt and cost £300, while the Fordson weighed 1 ton 3½ cwt and cost £280. Many of the English models cost more than their main American rivals by as much as £100.

Mr Wright has included much useful information and some rare photographs in his book. It is a pity that he gives few references and no bibliography, because this is an important as well as an interesting subject.

M. A. HAVINDEN

A. E. WILSON (translator and editor), *Custumals of the Manors of Laughton, Willingdon, and Goring*. Sussex Record Society, 1961. 102 pp.

This is the third volume of manorial custumals to be issued by the Sussex Record Society—the first being devoted to manors belonging to the bishop of Chichester and the second to those of the archbishop of Canterbury. The present volume is all the more welcome because the documents it contains relate to lay estates, for which information is usually harder to obtain. Moreover, these particular manors, though few in number, "stretched over all the main soil regions of Sussex." Three of the documents belong to the last decade of the thirteenth century and all the others were made in 1321. In an appendix we are given a statistical summary of an extent of 1325 and an inquest of 1338 for Laughton which provides material for a comparison with the conditions described in the extent of 1292, a translation of which is one of those published in the body of the volume. A useful Introduction and four illustrative maps facilitate the study of what is a distinctly valuable collection of material for agrarian historians.

F. H. HINSLEY (ed.), *The New Cambridge Modern History*, Vol. XI. *Material Progress and World-Wide Problems, 1870-1898*. Cambridge University Press, 1962. xii+744 pp. 40s.

Co-operative exercises in writing history are hazardous enterprises; and the more comprehensive and interconnected the team strives to be, the more difficult the task becomes. When each volume has to fit into a series, which has to knit together in chronological sequence, the task of each editor, and even more that of the general editors, is at its most

teasing. These difficulties should be remembered (as they often seem not to be) when books in a series are being appraised.

Considered merely as a collection of articles on various topics, there is much solid fare and some stimulus in this compilation. The chapters I found most stimulating were those by Mr Howard on the armed forces and by Professor Fitzgerald on China. In general, this volume closely follows the pattern set by Mr Bury's distinguished Volume x in the same series, though it just fails to maintain a similarly high level of individual performance and of overall unity of theme and treatment. Following a broad-ranging introductory chapter by the editor there are eight subject chapters, one each on economic conditions, science and technology, social and political thought, literature, art and architecture, education, the armed forces, and political and social developments. Then there are fourteen chapters devoted to particular countries or regions, and one chapter entitled 'International Relations'. A reader of this journal will probably be disappointed to learn that agriculture gets two inches of the double-column 48-page index, and a few cursory references as sub-items elsewhere.

Considered as a composite work presumably intended to portray a whole period comprehensively in the light of recent scholarship, and considered too as one work in a series, this volume has some serious shortcomings. Tighter editorial control could have cut down the amount of repetitive overlapping and drawn out controversial and conflicting interpretations more sharply. But what is most perplexing about the volume, and the series as a whole, is the policy about bibliography and footnotes. Very often chapters are, understandably enough, summary statements of what the author has written at length elsewhere. But there is never a reference to these previous works. Yet, surely, the general reader could be helped by being referred to these longer works, and the specialist would like to know what principles govern the inclusion of sporadic footnotes, when apparently (and unhappily) extensive biblio-

ographies are virtually all to be lumped together in a separate volume—presumably in Volume XIII, the announced *Companion to Modern History*.

PETER LYON

BRINLEY THOMAS (ed.), *The Welsh Economy, Studies in Expansion*. Cardiff, University of Wales Press, 1962. xvi+218 pp. 30s.

"The aim of this book is to assess the performance of the Welsh economy since the Second World War, and as background we have outlined its growth and fluctuations over the last century in relation to the international community of which it is a member"—so begins the preface. It is an admirable aim; and so far as an amateur economist living in the industrial desert of northern West Wales can judge, it has been admirably attained—for industrial South Wales.

Industrial South Wales is naturally the focus of interest for this Cardiff team, and Professor Thomas has done well to point out how much the life and culture of Wales have owed to the fact that the natural increase of the rural population in the nineteenth century could be absorbed by this expanding industrial community, though it is hardly "a commonplace of the nationalist creed that the economic growth of Wales in the last century was seriously inimical to the nation's language and culture." English-minded education, not industrialization, is the nigger in the orthodox nationalist's woodpile; and a not-so-orthodox nationalist may suggest that Professor Thomas could have carried his argument further, for if industrial development could have been as strong in the north-east as in the south-east, Wales might have been spared the Liverpoolian contamination which is the curse of the northern coast and much of its hinterland.

The first three general chapters (by Professor Thomas), then, and those on Coal (by Mr Leslie Jones) and Steel (by Mr James Driscoll), give a clear factual picture which shows how great has been the change from the familiar inter-war pattern in South Wales. On the one hand there has been change in the scale and in the techniques of the coal and

steel industries which are still the most prominent; on the other, change from an almost colonial pattern dominated by these two primary industries to a much more diversified economy. The team could perhaps have told us more about the prospects of the new economy, for too little attention seems to have been given to the fact that so many of the new Welsh factories are appendages of large organizations with headquarters in England; we have already had reminders that the extremities suffer first when the circulation of an economic organism grows sluggish. This reluctance to prophesy may be a sign of purist concentration on fact; so too the acceptance (in Mr J. Hamish Richards's chapter on Transport) of the Ministry of Transport's rejection of arguments for a new North-South trunk road. But if these points were allowed to pass without comment, it was surely carrying caution too far to speak of the ample surplus of water in the central area of Wales as though there were no reservoir being built in the Tryweryn valley.

We may sometimes suspect that the team has not been quite diligent enough in pursuit of material: thus the reference to "the published data" of the 1954 Census of Production (p. 157) suggests that no attempt was made to have access to unpublished data. Suspicion hardens into certainty when we turn to Miss Anne Martin's chapter on Agriculture, which claims the greatest attention in this REVIEW. Better material than some of that used for the chapter was certainly accessible; and some of the material which was used has been clumsily handled. It would be tedious to go into detail: examples would be on the one hand the use of 1955 figures for agricultural co-operation when 1959 figures were accessible, and on the other the confused discussion of the average size of holdings which has resulted from uncertainty about how to deal with rough grazing.

This unsatisfactory use of figures is the more serious because the whole chapter gives so strong an impression of having been extracted and assembled from reports and tables of statistics at an infinite distance from the

farms to which they refer. To call the Fatstock Marketing Corporation "a non-profit-making company which organizes the slaughter and sale of fatstock on the farmer's behalf" does not suggest much familiarity with the agricultural scene, and does the Corporation both less and more than justice. Or again, a writer who had personal contact with post-war Welsh farming would surely have mentioned improved varieties as a factor quite as important as "increased use of lime and fertilizers and . . . improved methods of harvesting" in raising cereal yields. To Miss Martin's credit it must be recorded that though she quotes from the *Mid-Wales Investigation Report* the view that to have a tractor on the farm has often meant gross over-capitalization in machinery, she goes on to say that "in an area of high rainfall and restricted periods of good weather at harvest-time, a tractor in individual ownership may represent a very sound insurance." But why could she not have made an equally wise comment on the same Report's reference to farms "on wet land not suited to dairying"?

Perhaps she ought not to be blamed for accepting that nonsensical reference on the authority of the Welsh Agricultural Land Sub-Commission; and when she tacitly accepts the view that a small farmer is badly off if he does not receive a net income "which, after reasonable provision for the return on his capital, will not be less than that of a farm worker," she is adopting the orthodox standard of British agricultural economics. But it needs to be said as often as possible (since that standard is now used so often in determining official policy) that this view is an ill-informed one. The present occasion is not a proper one for developing the theme at length, but two points can be made very shortly. First, a small farmer having a given income (as calculated for income tax) can have a higher standard of living than an employed worker having the same income, if only because he lives on his farm and because he produces some of his own food. Secondly, he has greater security: one important factor in encouraging the flight of employed workers from the land is the fear

of redundancy caused by technical advance, but the small farmer does not become redundant even when he reduces his standard of living during a depression in order to avoid bankruptcy.

There is still room for a book which will assess the performance of Welsh agriculture since the Second World War against the background of its growth and fluctuations over the last century.

DAFYDD JENKINS

J. H. SMITH, *The Gordon's Mill Farming Club 1758-1764*. Aberdeen University Studies, No. 145, 1962. viii+156 pp. 30s. Of all the many institutional features of eighteenth-century Scottish agriculture, the innovating rôle of the improvement societies is not yet perhaps fully appreciated, although most textbooks at least refer to the national societies. As Mr J. H. Smith remarks, the smaller local farming clubs were probably most important for they had closer contacts with practical men; but few records remain, and it will be very useful to have these printed extracts of the Gordon's Mill Club minutes which the author has selected from the manuscript volume now lodged in the Library of King's College, Aberdeen University.

Mr Smith's introduction to the extracts provides a brief account of Aberdeenshire farming during the period, as well as highlighting some of the features of the Club's activities. Much of the ground will inevitably be familiar to those who know the literature, but there are a sufficient number of significant local developments to make this a helpful reference work for agricultural historians. The Club received visits from Grant of Monymusk and Barclay of Ury, and the minutes include comments on the Norfolk system, on Tullian husbandry, on cheese and butter making, on the ox versus horse controversy, and on other questions of more than antiquarian interest. Data on farm costs are also valuable evidence although economic historians will find them tantalizing rather than conclusive.

Questionnaires were in use in Aberdeen-

shire 200 years ago, and the details provided are instructive, even if some of the main questions which interest us today were not asked. The management of the arable ground was apparently the major interest of the members of the Club. I could find no trace of advice on breeding. Under-developed countries interested in expanding their livestock production may well conclude that some Scots farmers apparently put feed before breed—at least in the eighteenth century!

GEORGE HOUSTON

MARTIN RIDGE, *Ignatius Donnelly, Portrait of a Politician*. University of Chicago Press, 1962. xii+428 pp. 59s. 6d.

Ignatius Donnelly was one of the "ragged élite", as they have been so aptly called by Richard Hofstadter, who largely made up the leadership of the Populist movement in the United States in the eighties and nineties of the last century. Although Populism was basically an uprising of the farmers against their own depressed condition and the power of banks and business, all sorts of cranks and failed politicians flocked to the banner.

Donnelly went to Minnesota from his native Philadelphia as a young man and there forsook his Irish-American allegiance to the Democrats. He had a rapid early success in state and national politics as a Republican but threw it all away to become successively Anti-Monopolist, Granger, Greenbacker, and Populist. On the whole, it is fair to say that he was animated by ambition rather than by principle and more of the perpetual third-party man than the professional reformer.

There is a temptation to ask why such a big book should have been written on so small a subject. The answer probably lies in unwillingness to sacrifice much from the vast collection of Donnelly MSS. preserved in the Minnesota Historical Society and so far only skimmed by American historians. Greater brevity and a lighter touch would seem to have been more appropriate, especially in dealing with Minnesota politics and with Donnelly's literary work.

E. R. R. GREEN

S. LA ANYANE, *Ghana Agriculture: its Economic Development from Early Times to the Middle of the Twentieth Century*. Oxford Univ. Press, Accra and London, 1963. xiv+228 pp. 25s. (in U.K. only).

Agricultural histories of tropical countries are so rare that this one is much to be welcomed. The author is a Ghanaian who has served successively the Department and the Ministry of Agriculture, and to whom the study of their history has obviously been a labour of love. A professional historian might find the treatment of some parts of the story a little sketchy, and there are a few misspellings and awkwardnesses of English in the text; but the record is fairly presented, and most aspects that are relevant have been included.

The book is particularly instructive because the agricultural history of Ghana is so typical of a tropical country. The early records are slight, and provide little temptation for author or reader to linger over them. The greater part of the book is concerned with happenings from the late nineteenth century onwards, and the picture is of course soon dominated by cocoa. Here again we have a classic case of a successful export crop reducing the farmers' interest in food produc-

tion. At the same time the attractions of cocoa rendered almost nugatory all the attempts of the agricultural authorities to diversify the economy by the encouragement of oil palms, cotton, coconuts, and other crops. Rubber had its blaze of glory in the eighteen-nineties, and a brief resuscitation in the Second World War. From about 1930 onwards the spate of official pronouncements and policies to be recorded becomes so great that it sometimes tends to obscure what farmers were actually doing.

As a Ghanaian agricultural economist, Mr Anyane seems to have no great overall criticisms to make of the agricultural policy or lack of it under colonial rule, though he is critical on particular issues as we all might be. He does not enter into the controversies of the nineteen-fifties on the pros and cons of marketing boards. The book hardly includes any happenings since independence, though some of the statistical tables are taken down to 1961. This is a pity because the author ends by discussing prospects for the future of Ghana agriculture, in which some of the decisions taken in the last few years may prove to be highly significant.

G. B. MASEFIELD

NOTES AND COMMENTS (continued from page 114)

FUTURE CONFERENCES

The December conference of the Society will be held jointly with the Association of Agriculture at the London School of Economics on Saturday, 7 December. The main paper will be given by Mr R. V. Lennard, on 'Agrarian History: Some Vistas and Pitfalls (with special reference to medieval England)',

and Professor R. H. Hilton and Dr W. G. Hoskins will take part in the discussion in the afternoon. The annual general meeting and conference will be held jointly with the Economic History Society at St Patrick's Hall, University of Reading, from lunch-time on Friday, 3 April, to 5 p.m. on Sunday, 6 April 1964.

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