

# The Combination and Rotation of Crops in East Worcestershire, 1540-1660

By JAMES YELLING

STUDIES of English agriculture in the early modern period have always been much concerned with the nature of common-field farming and the economic significance of enclosure. But the methods of approach have varied, and the last decade has seen a noticeable increase in local studies which utilize the existence of a close and well-defined pattern of farming regions. One purpose of such research is to define open field and enclosed territory more precisely so that each may be studied in some degree of isolation. It is also possible to examine the response of the various systems to specific physical and economic conditions. What might be termed 'the method of regional testing' will no doubt be even more widely employed now that Dr Thirsk's general survey of English agricultural regions has been completed.<sup>1</sup> In the present paper it is used to examine one particular aspect of farming, the production of tillage crops, under the contrasting conditions of champion and woodland country.

The area chosen for study is that of Worcestershire, east of the Severn.<sup>2</sup> This district was divided quite distinctly between two farming regions which were similar to the better-known Arden and Feldon of adjacent Warwickshire. One part, which will be called the 'South', was village territory lying principally in open field,<sup>3</sup> and most of its townships were eventually enclosed by Act. In the other part, the 'North and West', settlement was much more dispersed and common field was never as extensive. By 1540 it had already been subject to a considerable degree of piecemeal enclosure, especially in the north-east, and enclosures of open field by Act were of small importance.

The approximate boundary between these champion and woodland regions is indicated on Fig. I. The map also shows that East Worcestershire contains an interesting variety of physical conditions. The bulk of the area is a clay plain formed from Lower Lias and Keuper Marl, but terrace deposits give rise to soils of lighter character along the river valleys, especially those of the Severn and Avon. North of Worcester itself a more extensive area of light soils

<sup>1</sup> 'The Farming Regions of England' in J. Thirsk (ed.), *The Agrarian History of England and Wales, IV, 1500-1640*, 1967, pp. 1-109.

<sup>2</sup> The modern county boundary is used except in the south where parishes formerly in Gloucester county and diocese are excluded. Few probate inventories survive for these parishes.

<sup>3</sup> Enclosure conditions in East Worcestershire are described more fully in J. A. Yelling, 'Open Field, Enclosure, and Farm Production in East Worcestershire', Ph.D. thesis, Birmingham, 1966.

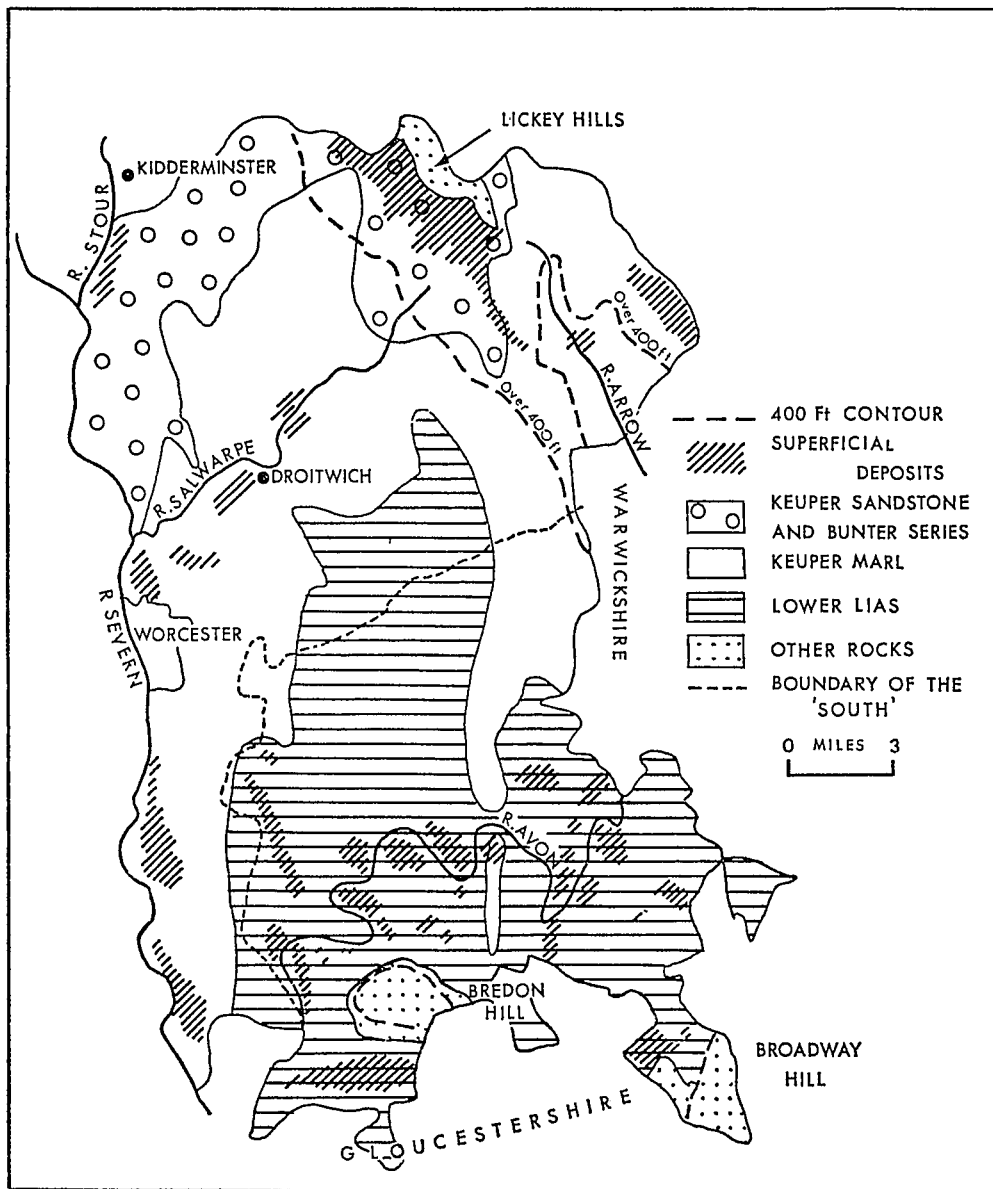


FIG. I

THE STUDY AREA

is based on the outcrop of Bunter and Keuper sandstones, whilst in the north-east higher land associated with the fringes of the Birmingham Plateau introduces a further complicating factor.

The study begins with an overall survey of crop distributions and combinations. This is obtained by statistical comparison of the acreage entries in probate inventories, aggregated by area and period in the manner successfully

adopted by Thirsk, Long, and others.<sup>1</sup> Such a general view serves two main purposes: (i) it provides quantitative material for comparison with other periods and districts; (ii) it provides a framework for more detailed study and suggests themes for further investigation. These are then taken up in the second and main part of the paper (Sections II–V) which uses inventories in a more flexible manner in conjunction with material derived from surveys and terriers.

## I

Probate inventories are now sufficiently well known as source material not to require any extended treatment from the methodological point of view. It may be remarked, however, that their use in regional statistical studies is subject to two sorts of error: (i) that arising from the small number of inventories which supply full quantitative information; and (ii) that arising from periodic and regional variations in farming types. These two factors have to be balanced against one another, but in practice nearly all studies have involved small numbers of inventories relating to relatively large areas of uniform physical character. In the present case, though the approach is similar, the emphasis is placed on the use of relatively small areas, and for this purpose the whole body of available inventories was searched.<sup>2</sup> East Worcestershire itself comprises only 226,000 acres<sup>3</sup>—less than the Lincolnshire Fens or Yorkshire Wolds—and this is divided into seven regions. The boundaries of the regions were determined by preliminary inspection of the inventories parish by parish.<sup>4</sup> Two periodic divisions are used, namely 1540–99, and 1600–60.

The inventory entries show that in East Worcestershire as a whole barley was the most important crop in the sixteenth century, occupying about 26 per cent of the total crop acreage.<sup>5</sup> It was closely rivalled by wheat (22 per cent), whilst pulses (19 per cent), rye (17 per cent), and oats (10–11 per cent) were the other major crops. Muncorn, vetches, and dredge were also mentioned, but only in small amounts. These overall totals, however, conceal the existence of strong contrasts in the pattern of crop production between one part of East

<sup>1</sup> J. Thirsk, *English Peasant Farming*, 1957; W. H. Long, 'Regional Farming in Seventeenth Century Yorkshire', *A.H.R.*, VIII, 1960, pp. 103–14.

<sup>2</sup> The Worcester Diocesan inventories are housed in the Worcester County Record Office (=WRO).

<sup>3</sup> Excluding the former Gloucestershire parishes.

<sup>4</sup> Even so, some important local variations in cropping practice are bound to be concealed if quantitative data alone is used. These variations are described in the more detailed sections which follow.

<sup>5</sup> These figures have been adjusted by weighting the crop proportions found in each region according to its total crop acreage recorded in the 1867 Agricultural Returns. Whilst this is in many ways unsatisfactory, it does help to eliminate error caused by biased regional 'sampling', and produces trends in cropping practice which accord with those found within the individual regions. The crude figures are also given in Tables I and II.

Worcestershire and another—a feature emphasized by the virtual absence of each of the major crops from at least one of the regional divisions employed (Table I, Fig. II).

TABLE I  
REGIONAL CROP STATISTICS, 1540–99  
*Wh*=Wheat, *Mu*=Muncorn, *Ba*=Barley,  
*Pu*=Pulse, *Dr*=Dredge, *Ve*=Vetches, *Ma*=Maltcorn

| <i>Area</i>         |              | <i>Wh</i> | <i>Mu</i> | <i>Rye</i> | <i>Ba</i> | <i>Oats</i> | <i>Pu</i> | <i>Dr</i> | <i>Ve</i> | <i>Other</i>     | <i>Total</i> |
|---------------------|--------------|-----------|-----------|------------|-----------|-------------|-----------|-----------|-----------|------------------|--------------|
| ABE†                | <i>acres</i> | 5         | —         | 35         | 3         | 35½         | —         | 3½        | —         | 8( <i>Ma</i> )   | 90           |
|                     | <i>%</i>     | 6         | —         | 39         | 3         | 39          | —         | 4         | —         | 9                |              |
| C                   | <i>acres</i> | —         | —         | 31         | 27½       | 2           | —         | 1         | 4         |                  | 65½          |
|                     | <i>%</i>     | —         | —         | 47         | 42        | 3           | —         | 2         | 6         |                  |              |
| DF†                 | <i>acres</i> | 55        | 10½       | 5          | 23        | 10          | 77        | 1         | —         | 15½( <i>Ma</i> ) | 197          |
|                     | <i>%</i>     | 28        | 5         | 3          | 12        | 5           | 39        | ½         | —         | 8                |              |
| GJ                  | <i>acres</i> | 121½      | 2         | —          | 122½      | 1           | 105½      | —         | —         |                  | 352½         |
|                     | <i>%</i>     | 34        | ½         | —          | 35        | ½           | 30        | —         | —         |                  |              |
| KL                  | <i>acres</i> | 115½      | 7½        | 20         | 148       | 4           | 93        | —         | —         |                  | 388          |
|                     | <i>%</i>     | 30        | 2         | 5          | 38        | 1           | 24        | —         | —         |                  |              |
| HO                  | <i>acres</i> | 77½       | 16        | 79½        | 145½      | 2           | 90½       | —         | —         |                  | 411          |
|                     | <i>%</i>     | 19        | 4         | 19         | 35        | ½           | 22        | —         | —         |                  |              |
| MN                  | <i>acres</i> | 166       | —         | 2          | 158       | —           | 117       | —         | —         |                  | 443          |
|                     | <i>%</i>     | 37        | —         | ½          | 36        | —           | 26        | —         | —         |                  |              |
| <i>Total</i>        | <i>acres</i> | 540½      | 36        | 172½       | 627       | 54½         | 483       | 5½        | 4         | 23½              | 1,947        |
|                     | <i>%</i>     | 28        | 2         | 9          | 32        | 3           | 25        | —         | —         | 1                |              |
| <i>Adj. Totals*</i> |              |           |           |            |           |             |           |           |           |                  |              |
|                     | <i>%</i>     |           |           |            |           |             |           |           |           |                  |              |
|                     |              |           |           |            |           |             |           |           |           |                  |              |
| N. and W.           |              | 12        | 2         | 30         | 19        | 18          | 13        | 2         | 1         | 3                |              |
|                     | South        | 34        | 1         | 1          | 36        | 2           | 27        |           |           |                  |              |
| <i>Total</i>        |              |           |           |            |           |             |           |           |           |                  |              |
|                     |              | 22        | 2         | 17         | 27        | 10          | 19        | 1         | 2         | 1                |              |

\* These totals are adjusted according to the total crop acreage recorded in each area in 1867.

† Without maltcorn the percentages were: ABE—wheat 6; rye 43; barley 4; oats 43; dredge 4; DF—wheat 30; muncorn 6; rye 3; barley 13; oats 5; pulse 42.

In the case of the winter crops a relatively simple pattern of substitution seems to have occurred. Wheat dominated the south, and rye the extreme north and west, whilst muncorn achieved some importance in the transitional

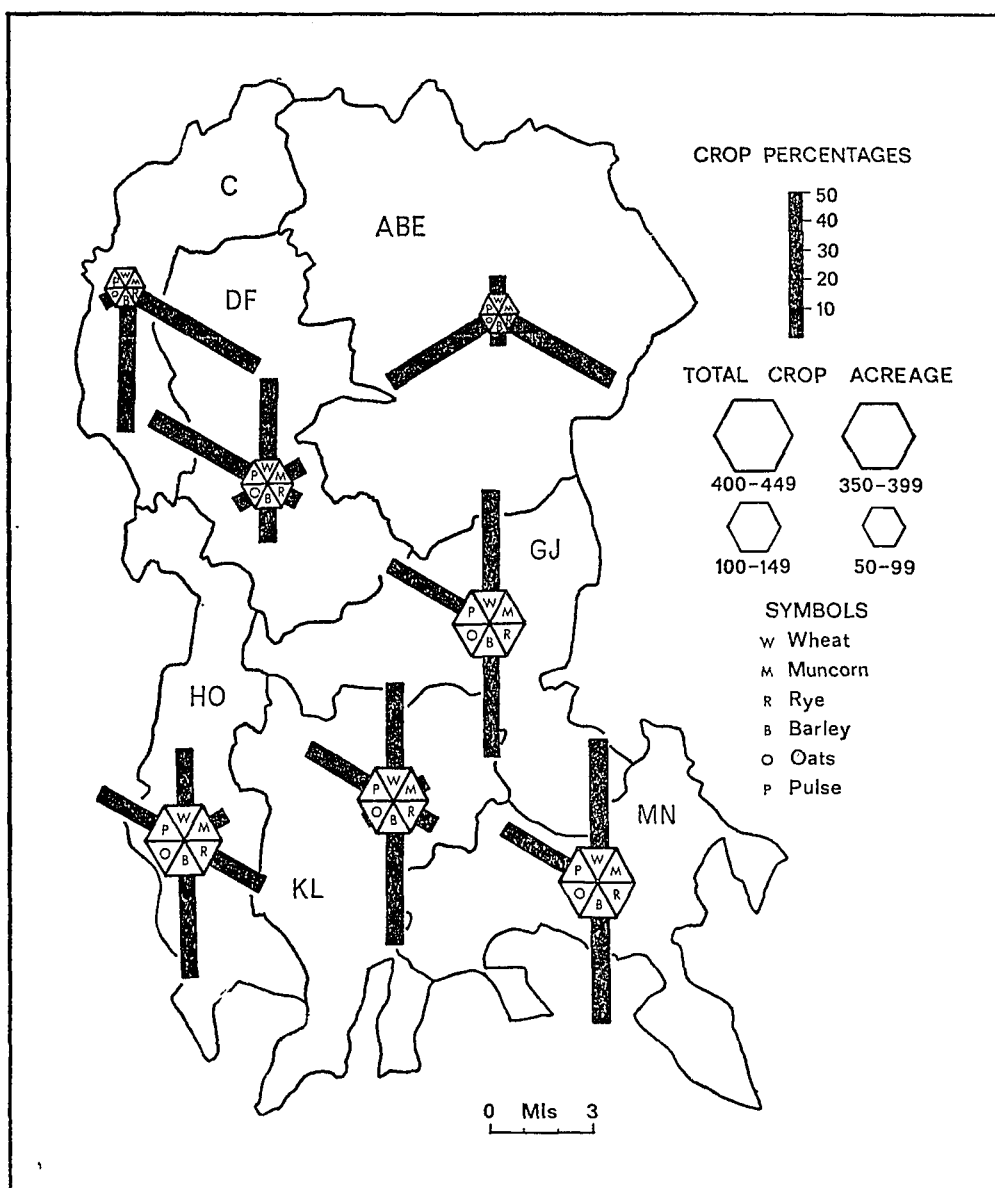


FIG. II

CROP DISTRIBUTIONS, 1540-1599

zone. There is the expected strong correlation between the use of rye and the presence of light soils—on the sandstone outcrop and Severn terraces—whilst the higher relief of the north-east seems also to have favoured this crop. The most widespread of the spring crops was barley, which was important everywhere except in the north-east, where it was largely replaced by oats. Pulses were also virtually absent from this district and also from the sandstone

outcrop, whilst oats was little grown outside its stronghold on the plateau fringes.

Certain easily recognizable physical factors seem, therefore, to be the major determinants of all these distributions. Indeed, it is reasonable to allow that the significance of physical variations for land use has probably been reduced since the sixteenth century by improved crops and cultivation practices. Even so, there is much else to explain. The clear-cut regional distinctions in choice of crops are still surprising, and there is also within many regions a noticeable simplicity and balance in the crop combinations. This is especially true of the South, where the three constituent regions each favoured wheat, barley, and pulses, and in significantly equal proportions. The reason for many of such features undoubtedly lies in the mechanism by which crops and rotational systems were selected. Communal organization or tradition could reduce the range of crop combinations in local areas, and so accentuate regional variation by producing a 'step-like' distributional change rather than a gradual one. It is hoped to demonstrate this in the more detailed sections which follow.

The crop statistics for the second period (Table II) are similar in broad terms to those of the sixteenth century, and many of the minor changes represented no doubt arise through 'sampling error' in the material available for analysis. Stability is especially noticeable in the South, whilst the major changes which were to revolutionize cropping practice in the North and West were not yet fully under way. The beginnings of two important adjustments can, however, be discerned. In some areas rye was beginning to give place to wheat, although this trend was not yet very pronounced. Again, the spring crops were becoming relatively more important, and oats and pulses were more widely distributed. This was a reflection of the growing importance of arable in the economy, and of the increased use of tillage crops in livestock feeding.<sup>1</sup>

In spite of this, it is generally true to say that the period under review was one in which the market was biased towards pastoral products. It was under these circumstances that contrasts in farming between champion and woodland districts were most pronounced, and the study of crop statistics immediately helps to make it clear that this was not a simple matter of 'advanced' or 'backward' farming, but of two specialist systems. The champion region possessed a crop combination which was suitable to a mainly arable economy. Conversely, the choice of crops in the woodland district resulted not only from the relative absence of high-yielding arable soils, but also from the pre-

<sup>1</sup> The relative importance of livestock and crops in East Worcestershire at this time is described in J. A. Yelling, *op. cit.*, pp. 205-35. Spring crops were also becoming more important in Leicestershire during this period.—W. G. Hoskins, 'The Leicestershire Farmer in the Seventeenth Century', *Agric. Hist.*, 25, 1951, pp. 11-14.

dominant interest in livestock farming which reduced the incentive to improve crop rotations or to overcome physical deficiencies through beneficial cultivation practices.

## II

Cropping systems are easiest to study in the South where communal organization was strongest. In consequence, survey evidence is of more value in this district, and may be used to supplement information derived from the inven-

TABLE II  
REGIONAL CROP STATISTICS, 1600-60  
Abbreviations as in Table I

| <i>Area</i>         | <i>Wh</i> | <i>Mu</i> | <i>Rye</i> | <i>Ba</i> | <i>Oats</i> | <i>Pu</i> | <i>Dr</i> | <i>Ve</i> | <i>Other</i> | <i>Total</i> |
|---------------------|-----------|-----------|------------|-----------|-------------|-----------|-----------|-----------|--------------|--------------|
| ABE <i>acres</i>    | 14        | 1½        | 72         | 10        | 133         | 5½        | —         | —         |              | 236          |
| <i>%</i>            | 6         | ½         | 31         | 4         | 56          | 2         | —         | —         |              |              |
| C <i>acres</i>      | —         | 1         | 67½        | 29        | 17½         | 11½       | 4         | 1½        |              | 131          |
| <i>%</i>            | —         | 1         | 52         | 22        | 13          | 9         | 3         | 1         |              |              |
| DF <i>acres</i>     | 26½       | 20        | —          | 23½       | 4           | 62½       | —         | —         | 7(Ma)        | 143½         |
| <i>%</i>            | 19        | 14        | —          | 16        | 3           | 43        | —         | —         | 5            |              |
| GJ <i>acres</i>     | 52        | 1½        | 1          | 60½       | 2           | 62½       | —         | 2         |              | 181½         |
| <i>%</i>            | 29        | 1         | ½          | 33        | 1           | 35        | —         | —         |              |              |
| KL <i>acres</i>     | 115½      | 7½        | 20         | 148       | 4           | 93        | —         | 1         |              | 389          |
| <i>%</i>            | 30        | 2         | 5          | 38        | 1           | 24        | —         | —         |              |              |
| HO <i>acres</i>     | 59        | 5         | 15         | 87        | 7           | 85½       | —         | —         |              | 258½         |
| <i>%</i>            | 23        | 2         | 6          | 34        | 3           | 33        | —         | —         |              |              |
| MN <i>acres</i>     | 23½       | —         | 7          | 24        | —           | 29        | —         | —         |              | 83½          |
| <i>%</i>            | 28        | —         | 9          | 29        | —           | 35        | —         | —         |              |              |
| <i>Total acres</i>  | 290½      | 36½       | 182½       | 382       | 167½        | 349       | 4         | 4½        | 7            | 1,423        |
| <i>%</i>            | 20        | 3         | 13         | 27        | 12          | 25        |           |           |              |              |
| <i>Adj. Totals*</i> |           |           |            |           |             |           |           |           |              |              |
| <i>%</i>            |           |           |            |           |             |           |           |           |              |              |
| N. and W.           | 11        | 4         | 25         | 16        | 28          | 18        |           |           |              |              |
| South               | 28        | 2         | 5          | 27        | —           | 33        |           |           |              |              |
| <i>Total</i>        | 18        | 3         | 16         | 24        | 15          | 24        | 0.4       | 0.3       | 0.6          |              |

\* These totals are adjusted according to the total crop acreage recorded in each area in 1867.

tories. For 1584-5 there are sixteen terriers of glebe holdings<sup>1</sup> in the South which describe in some way the layout of common field arable, and, of these, eight mention the existence of four fields. Most are very simple in style; for example, at Flyford Flavell there was recorded, "One yardland containing by estimation 40 acres or thereabouts, lying in the four fields of Flyford Flavell aforesaid by eight or ten acres in every field." In addition, twenty terriers deal with common arable either for 1616 or for 1634-5, and, of these, eight again describe four fields. The existence of such four-field layouts clearly correlates with the crop combinations noted from the inventories, namely wheat, barley, and pulses in roughly equal proportions. To these three crops may now be added a fallow to make up the fourth shift in the rotation.

Large numbers of terriers, however, refer only to furlongs, or sometimes use a mixture of field and furlong names. The exact significance of this cannot be proved, but it is unlikely to mean that the four-course system was absent. Most of the townships involved are known from documentary sources to have possessed a four-field layout at some other time within the study period. But there is no clear pattern of historical development. Usually, an early terrier listing land only by furlongs is followed by a later example giving both fields and furlongs, but in some cases the sequence is reversed. The most important evidence, however, comes from inventories, examined parish by parish. For despite the small numbers of returns available, four-course cropping characteristics may be recognized for the vast majority of Southern townships.

Some examples of inventories for particular parishes are given in Table III. These returns, of course, highlight the differences which occurred between farms, but on the whole the regularity of their crop combinations is impressive. In most cases the irregularities which do occur are within the limits compatible with the normal layout of holdings, even in those parishes, such as Church Honeybourne, which were to be enclosed before the period of Parliamentary awards. In these examples the wheat and barley shifts were more or less equal; only slight differences are observable between their acreages, giving a bias sometimes to the one and sometimes to the other crop. The acreage in the pulse shift, however, was not infrequently out of line with that of the other two, and, unlike the minor irregularities just mentioned, this seems to have arisen from cropping practice, and not from the layout of holdings. Indeed, in these cases the acreage sown in the pulse field often represented about half the amounts in the other two fields, as at Bretforton in the two inventories for 1558 tabulated below. This feature was widespread in the South, and continued into the early eighteenth century, but only in a minority of the returns for any particular parish. It is probable that the land not sown with pulses

<sup>1</sup> These terriers are contained in WRO 2358 and 2735. They are described in more detail in J. A. Yelling, *op. cit.*, pp. 329-35.

was left uncropped, but it is just possible that grass seeds were sown with the preceding barley crop, producing a one-year ley which passed unrecorded in the inventories. If such grassland existed, however, it could not be correlated with the 'leys' mentioned in surveys which were of a much more permanent nature.

TABLE III

## INVENTORIES FOR SOUTHERN PARISHES

L=Lands. Other abbreviations as in Table I.

Other figures in acres.

The symbols \* and † mean that the acreages given apply to all the crop types indicated.

|                    | <i>Wh</i> | <i>Mu</i> | <i>Rye</i> | <i>Ba</i> | <i>Oats</i> | <i>Pu</i> | <i>Ve</i> | <i>Total</i> |
|--------------------|-----------|-----------|------------|-----------|-------------|-----------|-----------|--------------|
| Bretforton         |           |           |            |           |             |           |           |              |
| 1557/112†          | 18        |           |            | 20        |             | 3         |           | 41           |
| 1558/442           | 10        |           | 2          | 10        |             | 6         |           | 28           |
| 1558/498           | 26        |           |            | 26        |             | 12        |           | 64           |
| 1598/61d           | 24*       |           | *          | 32        |             | 26†       | †         | 82           |
| Church Honeybourne |           |           |            |           |             |           |           |              |
| 1557/109           | 13        |           |            | 11        |             | 11        |           | 35           |
| 1592/28            | 18        |           |            | 20        |             | 15        |           | 53           |
| North Piddle       |           |           |            |           |             |           |           |              |
| 1597/72            | 2L        |           |            | 1         |             | 1         |           |              |
| 1618/383           | 2L        |           |            | 4L        |             | 3L        |           | 9L           |
| 1619/62            | 1         |           |            | 1         |             | 1         |           | 3            |
| 1623/5             | 20        |           |            | 20*       | *           | 20        |           | 60           |
| 1640/195           | 29L       |           |            | 27L       |             | 27L*      | *         | 83L          |
| Bishampton         |           |           |            |           |             |           |           |              |
| 1615/172           | 2         |           |            | 2         |             | 3         |           | 7            |
| 1616/263h          | 3         |           |            | 4         |             | 3         |           | 10           |
| 1619/35b           | 2½        |           |            | 2½        |             | 2         |           | 6¾           |
| 1620/9             | 5*        |           | *          | 7         |             | 6½        |           | 18½          |
| 1623/35            | 24*       | *         |            | 18†       | †           | 17        |           | 59           |
| 1642/50            | 10        |           |            | 7*        | *           | 7         |           | 24           |

† The inventories are referenced by number within each year, i.e. 1560/1 denotes the first inventory in the collection for 1560.

These occasional shortfalls in the acreage under pulses may in fact be a lingering reflection of the manner in which the four-field system was originally introduced. It seems likely that it developed from the two-field system by 'hitching' part of the fallow field for pulses. Certainly, many townships in the

South possessed two-field systems in the thirteenth and fourteenth centuries; for example, Upton Snodsbury, which had four-course cropping by the end of the sixteenth century and four fields in 1771.<sup>1</sup> The glebe terrier of Naunton Beauchamp (1585) makes the derivation even more explicit. It mentions 24 acres of arable in North Field (46 lands) and South Field (41 lands) and continues "which said two fields are divided into four parts or fields according to the course of husbandry for three crops of corn to be had and taken thereof and for the fourth to lie yearly fallow." Two other townships—Bishampton and Peopleton—persisted in two-field nomenclature in their glebe terriers,<sup>2</sup> but from the inventories it seems most likely that they followed the four-course cropping pattern (Table III).

The transition from two fields to four fields in the South therefore seems to have been completed by about the middle of the sixteenth century. This means that it occurred rather earlier than the general dates given by Gray who remarked that "a four-field system making its appearance in the English Midlands in the sixteenth and early seventeenth centuries, was employed more and more in the course of the latter century and in the early eighteenth."<sup>3</sup> It also means that it must have occurred some time between 1350 and 1550, when elsewhere there was widespread conversion of arable to pasture, and when the desertion of villages was at its height. In the face of the same market pressures, it looks as though the villagers of the South chose instead to retain their arable system and to improve its efficiency.

### III

In contrast to the uniformity of the champion district, the North and West possessed several distinct cropping systems, and these may be dealt with in turn. Conditions were most closely similar to those of the South around Droitwich (Area DF), and the major crops were the same, although grown in different proportions. Here, too, a considerable amount of common field was still present in the study period, especially in the southern part, and, although there were also many piecemeal closes, these were probably used mainly for pasture. Even in 1777, although only 49 per cent of the improved land in Himbleton lay in common, this included 78 per cent of the arable; similar figures are available for neighbouring Tibberton at the same date.<sup>4</sup> Two centuries earlier, when the proportion of closes was probably not so great, and the market less favourable to arable products, the correlation between enclosure and pasture would have been even more pronounced.

<sup>1</sup> Birmingham Reference Library, Calendar of Manuscripts relating to Worcestershire in the Shrewsbury (Talbot) Collection of the British Museum, Worcs. M16; WRO 1861.

<sup>2</sup> Glebe Terriers—Bishampton, 1616, 1670, 1714; Peopleton, 1585, 1616.

<sup>3</sup> H. L. Gray, *English Field Systems*, 1915, Reprint 1959, p. 136.

<sup>4</sup> WRO 1691/14; 1691/32.

The distribution of common arable was in itself, however, often complex. The surveys and terriers fall mainly into two groups. The first type, of which Himbleton, Salwarpe, and Rushock<sup>1</sup> provide examples, mentions a large number of small fields. The glebe at Himbleton, for instance, in 1616 included lands in six fields—Ladiaker (4), Inning (9), Mill (9), Stocking (3), Blackpit (8), and Hill (12 and 2 layes). It is known from later evidence that such a distribution was not peculiar to the glebe, that all the arable lay in one township, and that the fields were not always separated from each other by enclosures. Such features, however, may account for some of the irregularities in other terriers. In contrast, certain surveys seem to refer to a three-field allocation of land. Examples of this type relate to Hadsor, Bredicot, Westwood, and Huddington<sup>2</sup> where the fields were Shatherlong (36 acres), Badney or Windmill (20 acres), and Hill (30 acres). All these townships are small, but their field descriptions are of added significance in that they are the only ones in this district which might conceivably correspond with a regular rotation practice.

In view of the presence of piecemeal closes and some complex field divisions, the entries in the inventories appear surprisingly regular. In several parishes to the south of Droitwich, including Himbleton (Table IV), the acreage of pulses frequently equates with the acreage of winter cereals and barley combined. These same parishes also followed the practice, not found elsewhere, of grouping the winter cereal and barley acreages in many of the inventories. This cropping regularity was undoubtedly followed in the common fields, since in many parishes most of the arable lay open at this time, and the Oddingley inventory 1625/239 specifically mentions that both wheat and barley were growing in the common field there known as Old Field.<sup>3</sup> It may be added, too, that the rotation wheat or barley, pulses, fallow, was frequently found in Leicestershire common fields during this period.<sup>4</sup>

Another cropping regularity can be recognized in the parishes of Salwarpe, Elmley Lovett, and Rushock. There, the acreage under winter cereals was roughly equal to that of all the spring crops (Table IV). Again, this certainly reflects a common-field rotation. Indeed the Salwarpe inventory 1603/13 names the fields involved. In Copcote Field there were 5 acres of rye, in Postell Field 1 acre of barley, and 4 acres of oats, and in Little Field 6 kine and 3

<sup>1</sup> Himbleton, Glebe Terrier 1616, WRO 1691/14; Salwarpe, Glebe Terrier 1617; Elmley Lovett, Glebe Terriers 1585, 1635.

<sup>2</sup> Hadsor, Glebe Terrier 1585, Bredicot Glebe Terrier (no date); Parliamentary Survey—T. Cave and R. Wilson, *The Parliamentary Surveys of the Lands and Possessions of the Dean and Chapter of Worcester*, c. 1649, 1924, pp. 14–17; Westwood, PRO E 315/400; Huddington, PRO E 317, Worcs. 6.

<sup>3</sup> Old Field is mentioned as a common field in the Calendar of Shrewsbury (Talbot) MSS., *op. cit.*, Worcs. K 37 (1619).

<sup>4</sup> W. G. Hoskins, *op. cit.*, p. 11.

calves. In most cases, however, the chief crops continued to be wheat or rye, and pulses, as in the parishes mentioned in the last paragraph. Compared with these latter parishes there was simply a slight shift in production from pulses to winter cereals. This shift was, in fact, part of a general trend from spring to winter crops which was encountered in moving northwards in East Worcestershire to more pastoral districts with grass feeding. In the South winter cereals accounted for one-third of crop production. To the south and west of Droitwich this proportion rose probably to about 40 per cent, and further north-east to one-half.

TABLE IV

## THE DROITWICH DISTRICT

Abbreviations as in Table I; symbols and references as in Table III.

|               | <i>Hard<br/>Corn</i> | <i>Lent<br/>Corn</i> | <i>Wh</i> | <i>Mu</i> | <i>Rye</i> | <i>Ba</i> | <i>Oats</i> | <i>Pu</i> | <i>Other</i>    | <i>Total</i> |
|---------------|----------------------|----------------------|-----------|-----------|------------|-----------|-------------|-----------|-----------------|--------------|
| Himbleton     |                      |                      |           |           |            |           |             |           |                 |              |
| 1555/43       |                      |                      | 10*       |           | *          | 4         |             | 15        |                 | 29           |
| 1556/113      |                      |                      | 14        |           | 2          | 5         |             | 12½       |                 | 33½          |
| 1557/156      |                      |                      | 4         |           | 3          | 2½        | 4*          | 8         | *(Ma)           | 21½          |
| 1560/40       |                      |                      | 13        | 4         |            | 8         |             | 22*       | *(Ve)           | 47           |
| 1561/92a      |                      |                      | 6         |           |            | 2         |             | 5         |                 | 13           |
| 1563/93       |                      |                      | 8*        |           |            | *         |             | 10        |                 | 18           |
| 1570/317      |                      |                      |           |           |            | 1         |             | 1         |                 | 2            |
| 1587/65a      |                      |                      | 13*       |           |            | *         |             | 14        |                 | 27           |
| 1623/186      |                      |                      | 4*        |           | *          | 7         |             | 6         |                 | 17           |
| 1628/139      |                      |                      | 1*        |           |            | *         |             | 1         |                 | 2            |
| 1633/175      |                      |                      | 10*       |           |            | *         |             | 8         |                 | 18           |
| 1634/121      |                      |                      |           | 3*        |            | *         |             | 6         |                 | 9            |
| 1643/37       |                      |                      | 1½        |           |            | 7         |             | 9         |                 | 17½          |
| 1649/92       |                      |                      | 24*       | *         |            | *         |             | 21        |                 | 45           |
| Elmley Lovett |                      |                      |           |           |            |           |             |           |                 |              |
| 1582/20c      | 5                    | 5                    |           |           |            |           |             |           |                 | 10           |
| 1619/25       | 5                    | 12                   |           |           |            |           |             |           |                 | 17           |
| 1622/68       |                      |                      | 13*       |           | *          | 4         | †           | 9†        | †(Ve)           | 26           |
| 1630/154      |                      | 8                    | 9*        |           | *          |           |             |           |                 | 17           |
| 1639/15       | 12                   | 12                   |           |           |            |           |             |           |                 | 24           |
| Salwarpe      |                      |                      |           |           |            |           |             |           |                 |              |
| 1558/848      | 6                    |                      |           |           |            |           |             | 8*        | 3½(Ma)<br>*(Ve) | 17½          |
| 1560/60       | 10                   | 11                   |           |           |            |           |             |           |                 | 21           |
| 1594/84       |                      |                      | 14*       | *         | *          | †         | †           | 16†       | †(Ve)           | 30           |
| 1601/181      |                      |                      |           | 2         |            | 3         | *           | 4*        | 2(Ma)           | 11           |
| 1603/83       |                      |                      |           |           | 5          | 1         | 4*          |           | *(Ve)           | 10           |

The main problem in dealing with common-field agriculture in this district lies, therefore, not so much with the pattern of production, which seems reasonably clear, but with the methods of field management in those townships where complex divisions were recorded. Collective management must have persisted in at least some spheres, since common pasture stints are recorded in glebe terriers, and one can only assume that most fields were grouped for rotation either on the basis of the entire township or in sectors. The other main problem is to assess the impact of piecemeal enclosure on production, and this is extremely difficult because one cannot be sure that any township lay wholly enclosed during this period, and there was certainly no sharp boundary beyond which farms with a large enclosed sector could be recognized from their crop combinations. It appears from later evidence,<sup>1</sup> however, that the general result of enclosure was to break down the pre-existing symmetry of production, and to emphasize spring crops to a greater extent. But no township can be said with certainty to have been dominated by this type of cropping pattern within the study period.

## IV

The next district to be considered is the Severn Valley, beginning with the section north of Worcester where almost all the arable was located on light or very light soils. Here common field was still present in many parishes before 1660, but was of very varying importance. It was probably of greatest extent in Ombersley where piecemeal closes were relatively few in 1605, and mainly in the outer parts of the parish, whilst the central part definitely possessed a three-field system.<sup>2</sup> Three fields are also mentioned in a glebe terrier (1585) of Churchill near Kidderminster, which lay on sandstone soils immediately to the north of the present study region. Again, a court roll of Hartlebury (1649)<sup>3</sup> was concerned with regulating common pasture in the "campos siligenos" and "campos hordeos" of Charlton and Torton hamlets. In short, where large amounts of common field remained they were almost certainly cropped in a three-course pattern, and examination of individual inventories must be concerned to reveal the details of this practice, and to see if it dominated crop production as a whole.

The inventories of the two largest parishes, Chaddesley Corbett and Ombersley, have been selected for more detailed study (Table V). It is noticeable that during the study period the crop choice changed more radically in these parishes than in those previously encountered. In both cases, however, the sixteenth-century entries relate mainly to rye and barley, a feature which is equally true if one looks beyond the acreage statistics to the far larger number

<sup>1</sup> J. A. Yelling, *op. cit.*, p. 381.

<sup>2</sup> WRO 3190/29.

<sup>3</sup> Court Roll, 5 April 1649, WRO 2636 (92373).

of inventories which recorded their crops in some other way. In Chaddesley pulses and wheat were not specifically mentioned in an inventory until 1627, but oats and pulses were quite common in the second quarter of the seven-

TABLE V

## THE SEVERN DISTRICT

L=Lands. Other abbreviations as in Table I; symbols and references as in Table III.

|                       | <i>Winter<br/>Crops</i> | <i>Spring<br/>Crops</i> | <i>Wh</i> | <i>Mu</i> | <i>Rye</i> | <i>Ba</i> | <i>Oats</i> | <i>Pu</i> | <i>Other</i> | <i>Total</i> |
|-----------------------|-------------------------|-------------------------|-----------|-----------|------------|-----------|-------------|-----------|--------------|--------------|
| Chaddesley<br>Corbett |                         |                         |           |           |            |           |             |           |              |              |
| 1545/23               |                         |                         |           |           | 16         | 16        |             |           |              | 32           |
| 1598/53               |                         | 6                       |           |           | 8          |           |             |           |              | 14           |
| 1598/54               |                         | 3½                      |           |           | 3          |           |             |           |              | 6½           |
| 1601/47               |                         |                         |           |           | 5          | 1         |             |           |              | 6            |
| 1614/226              |                         |                         |           |           | 8          | 5         | 3           |           |              | 16           |
| 1624/24               |                         |                         |           |           | 3          |           |             |           | 4(Dr)        | 7            |
| 1627/25               | 4                       |                         |           |           |            | 3¾        | ½           | 1         | 1½(Ve)       | 10¾          |
| 1627/142              |                         |                         |           | 1         |            |           | 2           |           |              | 3            |
| 1644/90               |                         |                         |           |           | 3          | *         | 4           | 7*        |              | 14           |
| Ombersley             |                         |                         |           |           |            |           |             |           |              |              |
| 1568/64               |                         |                         |           |           | 6          | 13*       | *           |           | *(Ve)        | 19           |
| 1593/31               |                         |                         |           |           | 8          | 9         |             |           |              | 17           |
| 1614/70               |                         |                         |           |           | 2          | 1         |             |           | 3L(Ve)       |              |
| 1614/204              | 6                       | 6                       |           |           |            |           |             |           |              | 12           |
| 1619/16               |                         |                         |           |           | 10         |           | 2           | 3         |              | 6            |
| 1620/70               | 3                       | 3                       |           |           |            |           |             |           |              | 9            |
| 1625/130              | 4                       |                         |           |           |            | 1         | 4           |           |              | 43           |
| 1625/198              |                         |                         |           |           | 23         | 13        | 4           | 3         |              | 20           |
| 1638/129              |                         |                         | *         |           | 8*         | 6         |             | 6†        | †(Ve)        | 9            |
| 1641/115<br>(1656)    |                         |                         |           |           | 5          |           | 1           | 3         |              |              |
| 794/33                |                         |                         | 16*       |           | *          | 16†       |             | †         |              | 32           |
| Severn Stoke          |                         |                         |           |           |            |           |             |           |              |              |
| 1565/51               |                         |                         |           |           | 8          | 5         |             | 1         |              | 14           |
| 1574/30               |                         |                         |           |           | 6          | 4         |             |           |              | 10           |
| 1574/73               |                         |                         |           |           | 7          | 5         |             | 3         |              | 15           |
| 1587/91               | 30                      |                         |           |           |            | 16        | *           | 22*       | *(Ve)        | 68           |
| 1589/52               |                         |                         |           |           | 7½         | 6½        | 1           | 1         |              | 16           |
| 1596/34               |                         |                         | 7*        |           | *          | 2         |             | 10        |              | 19           |
| 1603/76               |                         |                         |           |           | 4          | 7         |             | 1½        |              | 12½          |
| 1614/10               |                         |                         | 4*        |           | 10*        | 5         |             | 8         |              | 27           |
| 1643/100              |                         |                         |           | 2         |            | 2         |             | 2         |              | 6            |
| 1643/103              |                         |                         | 7*        |           | *          | 5         | 1           | 4         |              | 17           |

teenth century. At Ombersley, too, wheat was not recorded until 1626, but half the sixteenth-century inventories mentioned pulses, and these together with oats were normal crops after 1600.

A key feature in these returns is the presence or absence of balance between the acreages of spring and winter crops. During the sixteenth century, when rye and barley dominated, such a regularity does in fact occur in many inventories. Taken in conjunction with the survey evidence already recorded, including that relating to Ombersley itself, this strongly suggests that the current common-field rotation in this district was rye, barley, fallow. The next point to determine is what happened to this balance when oats and pulses became increasingly popular. Here, some contrast is noticeable, more especially after 1620, between Ombersley where regularity was preserved, and Chaddesley Corbett where it was not. The small number of inventories involved, however, make it necessary to go beyond the boundaries of the study period in order to reinforce this point.

INVENTORY CROP ACREAGES

|          | <i>Chaddesley Corbett</i> |               | <i>Ombersley</i> |               |
|----------|---------------------------|---------------|------------------|---------------|
|          | <i>winter</i>             | <i>spring</i> | <i>winter</i>    | <i>spring</i> |
| Pre-1620 | 40                        | 34½           | 32               | 35            |
| 1620-50  | 11                        | 23¾           | 59               | 60            |
| 1660-99  | 59¾                       | 133           | 65½              | 57½           |
| 1700-50  | 53                        | 108           | 102              | 153½          |

It seems reasonable to suppose that the balance between winter and spring crops at Ombersley, found throughout the seventeenth century, was connected with the strong survival of common field in that parish. The degree of enclosure was small in 1605, and although piecemeal enclosure developed strongly after the Civil War, a substantial amount of open land was still present in 1695.<sup>1</sup> Only after this date did spring crops attain the ascendancy. This means that pulses and oats were introduced into the common fields in the barley shift, which is theoretically logical, and in accord with the evidence of individual inventories. In effect, it brought common field practice in Ombersley very close to that of adjacent Elmley Lovett and Salwarpe (Table IV). The change may well be connected with the introduction of horses as plough animals instead of the oxen which predominated in the sixteenth century.

At Chaddesley Corbett, the proportion of spring crops—no more than half before 1620—was never less than two-thirds thereafter. This parish was cer-

<sup>1</sup> PRO E 134, 5W. & M., Mich., 54.

tainly wholly enclosed in 1745,<sup>1</sup> and in 1635 the vicarage had "five fields of arable, all which contain three score and twelve acres." It is likely, therefore, that the cropping practice observed after 1620 related mainly to enclosed arable; thus there was some contrast with the production in common fields in the same district. Whether common land was present in any quantity in Chaddesley Corbett before 1620 is a matter for speculation, but it seems a strong possibility.

Lastly, the crop region delimited to the south of Worcester on Fig. II can be shown by more detailed analysis to consist of two distinct parts. To the east most parishes followed the practice of the South, their arable being mainly open and cropped according to the four-course arrangement. Only the parishes actually bordering the Severn, where much of the arable was located on light terrace soils, followed a distinctive practice similar to that of the Severn district north of Worcester. Severn Stoke is an example (Table V). The crop choice appears similar to that further north except that pulses were more common and oats less so. From the reasoning of the last paragraph, most of the arable in the seventeenth century would seem to have been enclosed, because spring crops dominate. On the other hand, in the sixteenth century the arable, even if enclosed, was cropped according to the prevailing common-field pattern.

## V

The final region, the north-east, was the most enclosed part of East Worcestershire, and predominantly pastoral in character. Although subject to continuing piecemeal enclosure, some common field persisted around most of the main nucleations, but these lay far apart. Although collective management still continued in some cases, there is no evidence of any regular common-field divisions during the study period. One solitary piece of evidence points to the previous existence of a three-field system.<sup>2</sup> In any event, closes must soon have come to dominate the arable in most parishes as crop production rose from 1540 onwards.

The early inventories for Bromsgrove and Tardebigge (Table VI) show that rye and oats were the main crops in this district with barley playing a lesser role. At Bromsgrove rye remained virtually unchallenged by wheat before 1650, and the main change was the gradual adoption of pulses. The inventory record is not satisfactory before 1600, but after this date spring crops certainly predominated. Wheat was much more important at Tardebigge where the presence of common field in substantial quantities also seems more likely. There were certainly farms in the north-east during the sixteenth century where most of the arable lay in common field—the glebe at Belbroughton in

<sup>1</sup> WRO 844.

<sup>2</sup> At Shurnock (Feckenham) in 1237.—H. L. Gray, *op. cit.*, p. 504.

TABLE VI

## THE NORTH-EAST

*Fl*=Flax, *de*=days earth (i.e. work). Other abbreviations as in Table I; symbols as in Table III.

|                 | <i>Winter</i> | <i>Spring</i> | <i>Wh</i> | <i>Rye</i> | <i>Ba</i> | <i>Oats</i> | <i>Pu</i> | <i>Other</i>   | <i>Total</i> |
|-----------------|---------------|---------------|-----------|------------|-----------|-------------|-----------|----------------|--------------|
| Tardebigge      |               |               |           |            |           |             |           |                |              |
| 1560/85         |               |               |           | 3de        | *         | 4de         | *         |                | 7de          |
| 1563/35         |               |               |           | 4          | 1         | 5           |           |                | 10           |
| 1587/31         |               |               |           | 6          |           | 5           |           |                | 11           |
| 1591/74         |               |               | 9*        | *          | 8         | 6           |           |                | 23           |
| 1603/113        |               |               | 2         | 11         |           | 19          |           |                | 32           |
| 1641/12         |               |               | 1         |            | 4*        | 2           | *         |                | 7            |
| 1642/28         |               |               | 6         |            |           | 4           |           | 1( <i>Fl</i> ) | 11           |
| Bromsgrove      |               |               |           |            |           |             |           |                |              |
| 1552/95         |               |               |           | 1          |           |             |           | 1( <i>Dr</i> ) | 2            |
| 1552/98         |               |               |           | 1          |           | 1           |           |                | 2            |
| 1567/85         |               |               |           | 1de        | 1de       |             |           |                |              |
| 1569/34         |               |               |           | 18         |           | 20          |           | 8( <i>Ma</i> ) | 46           |
| 1602/56         |               |               |           | 5          |           | 21          |           |                | 26           |
| 1603/44         |               |               |           | 14         |           | 42          |           |                | 56           |
| 1614/164        |               |               |           | 14         | 4         |             |           |                | 18           |
| 1616/17         |               |               |           | 2½         | *         | 5½*         |           | *( <i>Ve</i> ) | 8            |
| 1616/29         |               |               |           | 7          | 3         | 5           |           |                | 15           |
| 1617/1          |               |               |           | 2          |           | 3½          | ½         |                | 6            |
| 1625/103        |               |               |           | 5          |           | 4           | 2         |                | 11           |
| 1628/142        | 4             |               |           |            | 16        |             |           |                | 20           |
| 1642/63         |               |               |           | 2          | 3         | 5½*         |           | *( <i>Ve</i> ) | 10½          |
| 1644/21         |               |               |           |            | 3         | 3           | 3         |                | 9            |
| 1646/83         |               |               |           |            | ½         | 3           |           |                | 3½           |
| 1648/40         |               |               |           | 6          |           | 6           |           |                | 12           |
| Feckenham       |               |               |           |            |           |             |           |                |              |
| 1592/80         | 10            |               |           | 2½         | 6         | *           | 18*       |                | 36½          |
| 1632/20         |               |               | 9*        | *          | 1½        | 7           | 7         |                | 24½          |
| (1634) 821/3874 |               |               | 3         |            | 2         | *           | 6*        |                | 11           |
| 1646/52         |               |               |           |            | 3         | 2½          | 1         |                | 6½           |
| Stoke Prior     |               |               |           |            |           |             |           |                |              |
| 1552/94         | 7de           | 2de           |           |            |           |             |           |                | 9de          |
| 1576/1          | 7             |               |           |            | £1        | *           | 6*        |                |              |
| 1593/5d         | 12            | 6             |           |            |           |             |           |                | 18           |
| 1624/6          |               |               |           |            | 3         | 2           | 4         |                | 9            |
| 1638/162        |               |               | 16*       | *          | 2         | 13†         | †         |                | 31           |
| Hanbury         |               |               |           |            |           |             |           |                |              |
| 1579/304        |               |               | 29*       | *          | †         |             | 34†       |                | 63           |

1585 is one example. Although there is no proof, it may well be that the cropping pattern on such common land was similar to that suggested in the early inventories for Tardebigge, namely, one shift of rye, one of oats with a little barley, and a third fallow. Such an arrangement would be similar to that practised immediately to the west, except that oats was substituted for barley because of the higher altitude and wetter climate of the plateau region.

The inventories show that the parishes of Feckenham, Hanbury, and Stoke Prior possessed crop combinations which were rather distinct from those of the rest of the north-east. All those places lay off the plateau itself, just to the south, and grew less oats in favour of pulses, whilst wheat was also more prominent (Table VI). Unfortunately, there are not enough inventories to describe the pattern in more detail, but the three-course framework found elsewhere in the North and West is discernible. In many ways the choice of crops appears similar to that of the Droitwich district, but the entries show a greater degree of irregularity.

## VI

The cropping arrangements revealed by these more detailed investigations are conveniently summarized in Fig. III. Perhaps the most surprising feature is the extent to which farms in many parts of the North and West followed regular cropping systems similar to those of their neighbours. In most cases these systems were the ones used in the common fields, and the regularity prevailed despite the frequent presence of piecemeal closes and complex field divisions. Especially in the early part of the study period, when pastoral products received most attention, the bulk of the arable in many parishes lay open, and in others farms with a mixture of open and enclosed land may have continued to use the normal rotation of the district in which they lay. This does not mean that cropping practice was inflexible. Indeed, it is clear that the communal system was capable of accommodating marked changes in crop combinations within limited areas where physical or economic conditions required these. If the probable rye-oats-fallow of the north-east is allowed, there were at least five different regional cropping systems in East Worcestershire's common fields.

There is also no reason to believe that common-field practice remained static for a very long time in the face of decisive economic trends. In the study period arable products were becoming more profitable, and in the North and West oxen were being replaced by horses. The economy of the South was already well-suited to take advantage of these new conditions. In the North and West, too, many districts used a wide variety of crops with some choice within the principal shifts. It was the two-crop districts of the mid-sixteenth century which underwent most alteration in cropping practice before 1650, including,

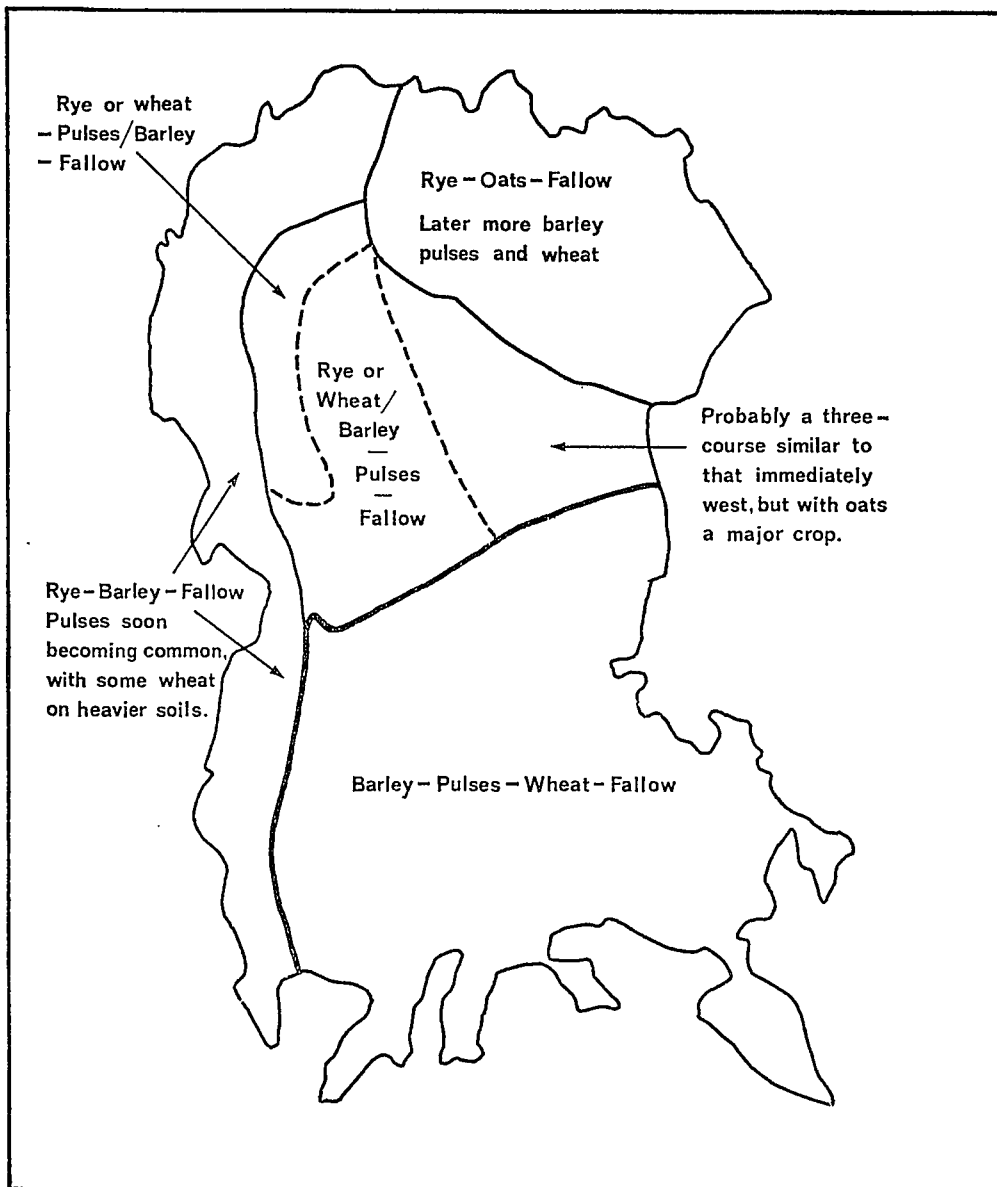


FIG. III

TENTATIVE MAP OF DOMINANT CROPPING TYPES

on common-field land, the introduction of a wider range of crops into the Spring Field. It may be added that, since the economy of the medieval period was by no means static, none of the rotations prevalent in the sixteenth century can be regarded as necessarily of great antiquity.

A more stable element appears in the boundary between four-course and three-course cropping, which more or less coincided with the edge of the

champion district. This association of the most intensive rotation with the area most dependent on arable seems logical, but it was almost certainly of relatively recent origin. The boundary itself is not easy to explain in purely physical and economic terms, except on the Severn side. To the north the coincidence with the edge of the Lias is only approximate and not very convincing. Modern accounts of soil and land use<sup>1</sup> give no emphasis to such a boundary, and it is not apparent in the crop and fallow distributions revealed by the early Agricultural Returns. On the other hand, this same line of division is significant in the enclosure history of the area and in the distribution of settlement types,<sup>2</sup> features which may have been shaped in character at a relatively early stage of colonization. In sum, there are strong reasons to suspect that this is an inherited boundary, but there can be no proof until the limits of the medieval two-field system and the date of origin of the Northern three-course are established.

Finally, there is the problem of enclosed arable in the woodland district. As already mentioned, this does not appear to have had much direct impact on cropping arrangements in the early part of the study period, but the indirect effect, through the creation of a more pastoral economy, may have been considerable. In any case, enclosed arable came into greater prominence as time progressed, both as the result of contemporary enclosure activity and the conversion of land previously under pasture. The relative flexibility of the communal system ensured that there was no dramatic contrast between the cropping of such enclosed land and that of neighbouring common field; for instance, the same crops were used on each. But there were recognizable differences, at least in the seventeenth century. In particular, the equivalence in the acreages of specific groups of crops, denoting a regular shift structure, was not characteristic of enclosed ground. Related to this was the dominance of spring crops, comprising two-thirds or more of the total output. In this respect, production became similar to that of the South, and, although there is no evidence, there may also have been some lengthening in the fallow interval. In any event, the main impact of enclosure was probably to upset the regional three-shift arrangements formerly characteristic of Northern cropping. This meant the rejection of an aspect of communal cropping which seems to owe more to historical inheritance than to current needs.

<sup>1</sup> For example K. M. Buchanan, *The Land of Britain, Part 68, Worcestershire*, 1944.

<sup>2</sup> J. A. Yelling, *op. cit.*, pp. 23-63.