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WEST CLEVELAND LAND USE, circa 1550 to 1850

ABSTRACT¹

Land use patterns were dominated, circa 1550, by open-field systems comparable with those of the Midlands, but in which grassland probably played a larger part. Diversity was introduced by demesne land, by 'several' farmholds in partially enclosed townships and by land use in depopulated areas. On such farms, grass acreages were proportionally greater than in 'open' areas, but arable cultivation was not unknown. Enclosure was intensified during the seventeenth century, reaching its peak between 1620 and 1670: few open-fields survived after 1700. In the earlier eighteenth century the heavy clay soils of the vale were devoted mainly to butter production for the London market and to quality stock-breeding, especially of cattle and horses. Arable agriculture was areally restricted and conservative - improvement came very slowly. A revival of crop-farming (stimulated by rising prices) was apparent by 1790, increased in tempo during the Napoleonic Wars and, despite unfavourable economic circumstances, continued - to reach a maximum shortly before mid-century. Techniques were inadequate for the extensive arable culture of local soils: only the introduction of sown grasses, of under-draining and the growth of the markets of urban Teeside saved the area from disaster in the later nineteenth century.

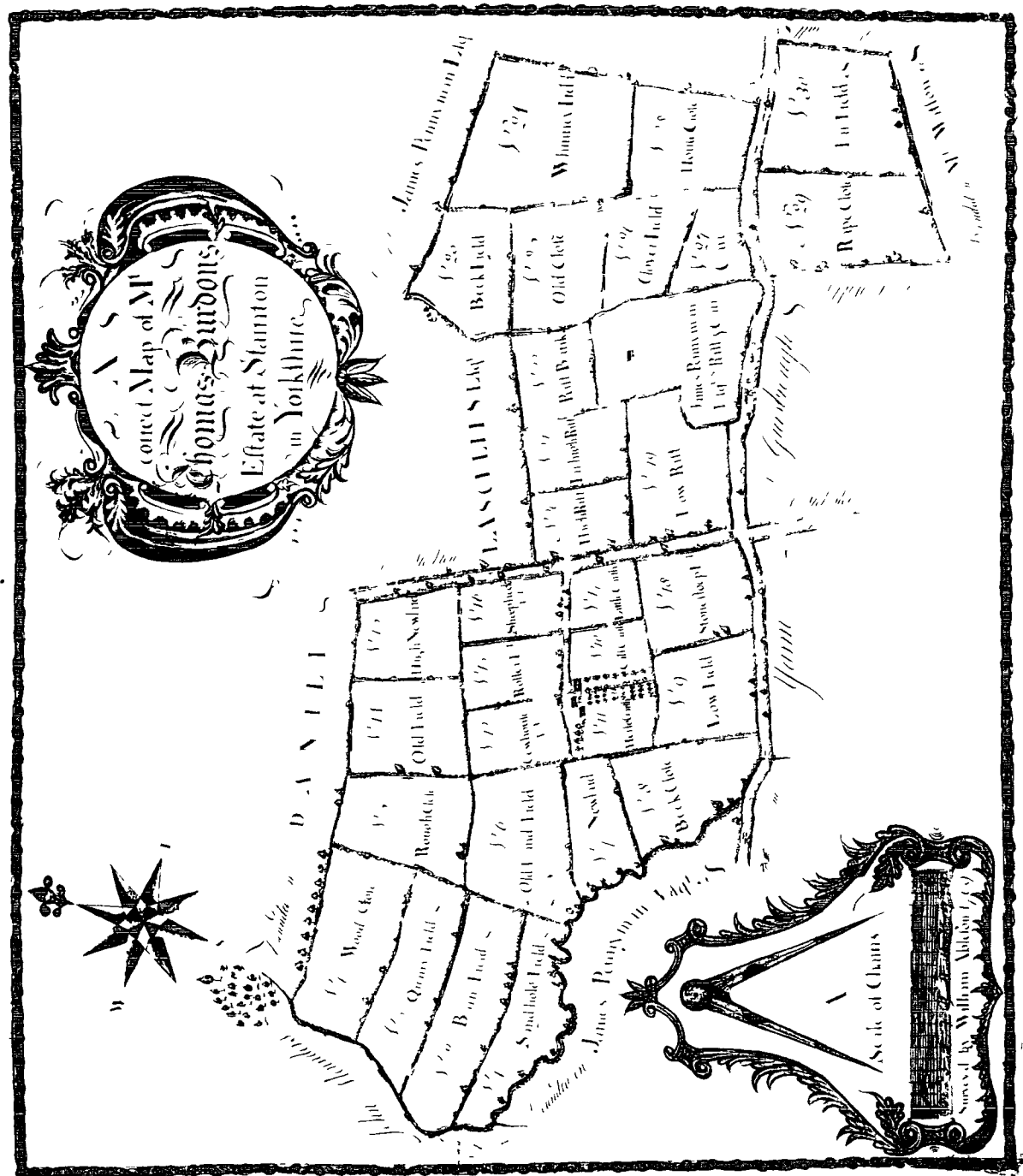
This sequence of changes, and the associated land use patterns, are traced from contemporary documents and illustrated by many sketch-maps. Causal factors - ecological, economic and social - are discussed at each stage in such detail as data permit. Characteristics both of change and continuity are examined, and the area's natural propensity for mixed farming established. During these three centuries, the cattle-orientated economy, which flourished circa 1720, appears to represent the optimum adjustment to the environment. Relative prosperity was greatest during this era, to which are to be dated the principal features of the modern rural landscape.

¹ As required by the regulations for the submission of theses.

WEST CLEVELAND LAND USE,

circa 1550 to 1850

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WEST CLEVELAND LAND USE,
circa 1550 to 1850

Thesis submitted for the degree of
Doctor of Philosophy
of the
University of Durham

Peter K. Mitchell, B.A.

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September 1965

PREFACE

The material upon which this thesis is based has been collected over a number of years from many sources. When the work was commenced, the author, then a research student, envisaged a full-scale study of the land utilization of an area whose present-day landscape he knew well; of the history of that landscape and of the forces which had fashioned it he was almost totally ignorant. However, agreement with the spirit, if not the word, of Preston James's suggestion¹ that "all Geography is Historical Geography" prompted an investigation of the antecedents of the present land use patterns. For a variety of reasons, of which the paramount consideration has been one's continued residence abroad, these historical studies have come increasingly to the fore and now form the entire content of the thesis. That is not to say that one's interest in twentieth century Cleveland, its agriculture and its land use problems has disappeared, or that many hours of mapping, questioning and discussion on its farms have not proved of great value in the writing of the following chapters; on the contrary, a deep feeling of indebtedness is acknowledged.

A similar indebtedness is felt with regard to those many private and public custodians of documentary material who have given access, and, frequently, great assistance in interpretation. The

list is too long to be given here in full, but the more important sources are given at Appendix A, together with the abbreviations by which they are to be recognized in footnote citation.

For early guidance one would also wish to thank Dr. H. C. K. Henderson of Birkbeck College and Professor M. W. Beresford. Professor W. B. Fisher, my supervisor, whose early faith and constant encouragement have permitted the work to reach this stage, merits my especial thanks. One is also grateful to many colleagues, both in Durham and Sierra Leone, who have provided advice, stimulus and criticism.

In one prosaic, but essential, matter gratitude is also to be recorded. The Minister of Agriculture, Fisheries and Food, the Trustees of the Preston Grammar School Fund, the Trustees of the Skene Bursary Fund, my parents, and later, my wife helped to maintain me as a research student. The Senate of the University College of Sierra Leone awarded a sabbatical term in Michaelmas 1963, thus making possible the return to a long-neglected task.

One hopes that the interest of this work may be sufficient to off-set the considerable inconvenience to others which its writing has involved.

Peter K. Mitchell,

Barnard Castle, July, 1965.

¹ In a paper read to the Twentieth International Geographical Congress, London, 1964.

TABLE OF CONTENTS

	Page
PREFACE	iv
LIST OF TABLES	vii
LIST OF ILLUSTRATIONS	xi
LIST OF APPENDICES	xviii

PART ONE - INTRODUCTORY

Chapter		
I	WEST CLEVELAND AND ITS AGRICULTURAL HISTORY	2
II	THE PHYSICAL ENVIRONMENT	44
III	LOCALITIES AND THE ADMINISTRATIVE SUB-DIVISION OF THE AREA	67
IV	MAJOR SOURCES OF DATA	85
V	DATA UTILIZATION, PRESENTATION AND PROBLEMS	105

PART TWO -

WEST CLEVELAND LAND USE, circa 1550 to 1850

VI	PRE-ENCLOSURE PATTERNS OF LAND USE	138
VII	LAND USE ON ENCLOSED LAND, MID-SIXTEENTH CENTURY TO MID-SEVENTEENTH CENTURY	187
VIII	NEW ATTITUDES AND ORGANIZATION - ENCLOSURE IN WEST CLEVELAND	210
IX	COW AND PLOUGH - FARMING PATTERNS OF THE LATER SEVENTEENTH CENTURY	244
X	A GRASSY VALE AND THE ARABLE REVIVAL - CHANGES IN THE RURAL ECONOMY, 1690 to 1770	262
XI	NEIGHBOURHOOD PRACTICE AND THE IMPROVER - FARMING PATTERNS, <u>circa</u> 1770	289
XII	"SPEED THE PLOUGH" - CHANGES IN ECONOMY AND LANDSCAPE, 1770 to 1820	329
XIII	WHEAT-GROWING CLAYLANDS - CROP PATTERNS AND LAND USE IN THE NAPOLEONIC ERA	354
XIV	MALADJUSTMENT - ECONOMIC CHANGES AND THE LOCAL RESPONSE, 1820 to 1850	412
XV	WATERSHED - LAND USE AND CROP PATTERNS AT MID- NINETEENTH CENTURY	455

PART THREE - THESIS

XVI	LAND USE PATTERNS IN A NORTHERN CLAY VALE - ELEMENTS OF CHANGE AND CONTINUITY	517
APPENDICES		529

LIST OF TABLES

Table		Page
I	Percentage of area occupied by major land use categories in the average West Cleveland open-field township.....	24
II	Proportion of surface area by altitude classes	50
III	Proportion of surface area by slope categories	52
IV	Some climatic elements - mean monthly values interpolated for lowland West Cleveland	56
V	Results of a test of field-name survival	113
VI	Field-names as 'indicators' of pre-enclosure land use	114
VII	Crop percentages in four localities, 1801	131
VIII	Land use in open-field Newton, 1741	139
IX	Distribution of John Jackson's oxgang within Newton's arable open-fields	143
X	Acreage of land exchanged at enclosure for an oxgang right in various townships	146
XI	Major components of open-field Great Broughton	159
XII	Seventeenth century assessments of land value in Great Broughton	160
XIII	Land use proportions in certain townships	169
XIV	Relationship between altitude and pre-enclosure land use	173
XV	Relationship between slope and pre-enclosure land use.	174

XVI	Relationship between sub-soil and pre-enclosure land use	175
XVII	Relationship between land use and distance from settlement	176
XVIII	Percentage estimates of areas occupied by principal land use categories	182
XIX	Kildale tenements, 1623	202
XX	Relative importance of the various crops grown on enclosed land, early seventeenth century	204
XXI	Redistribution of land at enclosure - Newton, 1742..	234
XXII	Redistribution of land at enclosure - Yarm, 1658 ...	235
XXIII	Consolidation of open-field estates - Faceby	236
XXIV	Crop-farming or stock-farming emphasis in relation to scale of farming enterprise, 1680s.....	251
XXV	Relative importance of the various crops in lowland Cleveland, late seventeenth century	255
XXVI	A comparison of surviving survey material with Young's sample of lowland farms, <u>circa</u> 1770	290
XXVII	Farms at Great and Little Busby, <u>circa</u> 1760	292
XXVIII	Farms at Newton and Nunthorpe, <u>circa</u> 1760	302
XXIX	Distribution of holdings by size in Crathorne Parish, 1780	304
XXX	Crathorne farms, 1780	307
XXXI	Summaries for three sample localities, <u>circa</u> 1760 to 1780	308
XXXII	Two Kildale farms, 1768	310
XXXIII	Crop yields in 1768 (after Young)	311
XXXIV	Crop proportions in Great and Little Busby farms, <u>circa</u> 1770	313

XXXV	Crop proportions in Newton and Nunthorpe farms, <u>circa</u> 1760	315
XXXVI	Stock on Young's sample of lowland farms	318
XXXVII	Stock at Kildale and Ingleby Greenhow	318
XXXVIII	Changes in livestock farming, 1688 to 1768	319
XXXIX	Livestock densities in lowland Cleveland, 1768	320
XL	Changes in crop patterns on Busby Hall Farm, 1760 to 1776	321
XLI	Changes in crop patterns on Crabtree Hill Farm, Busby, 1760 to 1799	323
XLII	National and local wheat prices for certain years	330
XLIII	Principal agricultural exports from the customs Port of Stockton in 1794	334
XLIV	Rent increases on the better sections of the Whorlton Estate, 1806	335
XLV	Busby Hall Estate - rental, 1813	336
XLVI	Cleveland land use, 1799 to 1808	358
XLVII	Land use at Foxton and Hutton Rudby, 1816	360
XLVIII	Meadow and pasture, 1802 to 1816	362
XLIX	Wheat yields at Ingleby Barwick, 1814 to 1818	377
L	Crop proportions at Acklam and Middlesbrough, 1801 ...	387
LI	Oat yields at Ingleby Barwick, 1814 to 1818	389
LII	Land use and cropping patterns at Whorlton, 1806	401
LIII	Land use, rents and cropping patterns at Newton, 1802.	403
LIV	Land use, rents and cropping patterns at Hutton Rudby and Foxton, 1816	404
LV	Changes in the proportion of arable land in certain localities, <u>circa</u> 1805 to <u>circa</u> 1840	415

LVI	Later changes in the proportion of arable land	415
LVII	Stock changes on an Ingleby Greenhow farm, 1777 to <u>circa</u> 1825	421
LVIII	Land use changes on the Whorlton Estate, 1806 to 1842	438
LIX	Relationship between land use and altitude, <u>circa</u> 1845	465
LX	Relationship between land use and slope, <u>circa</u> 1845.	466
LXI	Relationship between land use and sub-soil type, <u>circa</u> 1845	467
LXII	Wheat yields at Linthorpe and Ayrsome, 1833 and 1839 to 1841	483
LXIII	Oat yields at Linthorpe and Ayrsome, 1833 and 1839 to 1841	484
LXIV	Livestock in certain townships, <u>circa</u> 1845	489
LXV	Land use at Kildale, 1847	497
LXVI	Cropping patterns on Kildale farms, 1847	499
LXVII	Land use and crop patterns at Hutton Rudby and Foxton, 1840	502
LXVIII	Land use at Newton and Nunthorpe, 1847 and 1843	503
LXIX	Crop proportions on Nunthorpe Farms, 1843	504
LXX	Land use at Great and Little Busby, <u>circa</u> 1840	507
LXXI	Crop proportions on some Busby farms, 1843	509

LIST OF ILLUSTRATIONS¹

Figure		Page
1.	West Cleveland in North-East England - the spatial context	5
2.	The distribution of Domesday villis	15
3.	Settlement pattern in the early fourteenth century ..	22
4.	Surface geology of West Cleveland	45
5.	Physiographic sub-regional division of West Cleveland	47
6.	Distribution of altitude classes	49
7.	Distribution of slope categories	51
8.	A physical classification of the land	62
9.	Crathorne parish, showing field names and other evidence indicative of the existence of a former independent territory of Foxton	71
10.	Reconstruction of the pre-enclosure field systems in Acklam	75
11.	The townships and localities of West Cleveland	79
12.	Fields and field-groups having boundaries which are parallel and 'reverse-S'-shaped in plan	111
13.	Field-names incorporating elements indicative of arable openfield	116
14.	Field-names incorporating elements indicative of common pastures	117
15.	Field-names incorporating elements indicative of specialized meadowland	119

¹ Many illustrations bear a shortened form only of the full title given in this table.

16.	Comparison of frequency spectra for 828-point and 2090-point samples of the West Cleveland environment	128
17.	Pre-enclosure land use and some edaphic factors at Newton	139
18.	Evidence of former open-fields in West Cleveland	148
19.	Some edaphic factors and land use patterns at Faceby before enclosure was completed in 1749	152
20.	Land use at Middlesbrough, 1618	154
21.	Pre-enclosure land use at Great Broughton (with an inset showing area enclosed in 1811)	156
22.	Edaphic factors at Great Broughton (with an inset showing seventeenth century assessments of land value) ...	157
23.	Elements of the pre-enclosure field pattern, Marton and Battersby	161
24.	The common pastures of Kirkleavington	163
25.	Great Ayton : relief and geology	166
26.	Pre-enclosure land use at Great Ayton	167
27.	West Cleveland - the accumulated evidence for pre-enclosure land use	170
28.	Model to illustrate the spatial relationship of the mean lowland West Cleveland township and its controlling settlement	177
29.	Models illustrating the area/distance relationships of sub-soil types and land use categories within the mean West Cleveland lowland township	178
30.	Models illustrating the relationship between land use, sub-soil type and position within the mean West Cleveland lowland township	179
31.	A quantitative model of pre-enclosure land use	181
32.	Kildale, relief and drainage	190
33.	Kildale, geology and slopes	191

34.	Landownership, commons, buildings and recent <u>intacks</u> at Kildale in 1612	194
35.	The Park and hedgerow trees at Kildale - 1612 (with an inset showing glebe rights within the former meadows)	198
36.	Arable and meadow (1612) and changes of land use 1612-1623, at Kildale	199
37.	Data on the progress of enclosure, 1530 to 1750	219
38.	Enclosure status of townships in the sixteenth century	221
39.	Townships with open-fields certainly surviving to 1600	222
40.	Townships with open-fields possibly existing in 1600, but certainly enclosed by various dates	223
41.	Eighteenth century survival of openfield townships .	224
42.	Regional farming in northern Yorkshire during the 1680s	245
43.	Farming patterns of the 1680s in west Cleveland	252
44.	Land use on the Acklam Estate in 1716	263
45.	Dispersed settlement at Stainsby in 1757	273
46.	Farmholdings and homesteads at Crathorne in 1780 ...	275
47.	The 'garth and field' small holdings of early post-enclosure Middlesbrough	277
48.	Busby - some elements of the environment	291
49.	The occupation of land at Busby, <u>circa</u> 1760	293
50.	Valuation for rent in Great and Little Busby, <u>circa</u> 1760	294
51.	Land use in Busby, <u>circa</u> 1760	296
52.	Busby homesteads, <u>circa</u> 1760	297

53.	Newton and Nunthorpe - some edaphic factors	299
54.	Holdings in Newton and Nunthorpe, <u>circa</u> 1760	300
55.	Land use on farms at Newton and Nunthorpe, <u>circa</u> 1760	301
56.	Crathorne - some aspects of the environment	303
57.	Valuation for rent at Crathorne in 1780	305
58.	Land use at Crathorne in 1780	306
59.	Crop patterns in Busby, <u>circa</u> 1770	312
60.	Crop patterns in Newton and Nunthorpe, <u>circa</u> 1760..	314
61.	Parish Crayke Farm, Little Busby - crop patterns , 1760 to 1843	321
62.	'Improvements' at Kildale, 1785 to 1806	339
63.	Woods and plantations at Whorlton, <u>circa</u> 1810	343
64.	Great Broughton village - morphological evolution..	343
65.	Tuke's estimates of the proportion of tillage in the various regions of the North Riding in 1793 ...	355
66.	Proportion of farmland under tillage in West Cleveland, 1799 - 1808	356
67.	Kildale - distribution of arable, meadow, pasture and moorland, 1806.....	361
68.	Whorlton - some physical features	363
69.	Whorlton - distribution of meadow, arable and moorland, 1806	364
70.	Newton - crop distribution in 1802, land use in 1837 and the history of land use changes (1740- 1837) in part of the township	367
71.	Land use and rent valuation on an estate in Hutton Rudby, 1816	368
72.	Foxton Farm - land use, crops and valuation at various dates	369

73.	Physical features and land use in 1808 in part of Thornton	371
74.	Ormesby Hall Estate in 1808	372
75.	The relative importance of wheat throughout West Cleveland between 1799 and 1818	375
76.	Bare fallow as a proportion of total arable throughout West Cleveland, 1795 to 1816	379
77.	Ratio of bare fallow to total area of productive crops throughout West Cleveland, 1795 to 1816	380
78.	The relative importance of oats throughout West Cleveland, 1799 to 1818	382
79.	The relative importance of mixed corn throughout West Cleveland, 1802 to 1818	383
80.	The relative importance of the pulses throughout West Cleveland, 1799 to 1818	384
81.	The relative importance of peas and beans throughout West Cleveland, 1801	388
82.	The relative importance of barley throughout West Cleveland, 1799 to 1818	390
83.	The relative importance of clover throughout West Cleveland, 1795 to 1818	391
84.	The relative importance of turnips throughout West Cleveland, 1799 to 1818	392
85.	The relative importance of potatoes throughout West Cleveland, 1799 to 1818	394
86.	Crop-combination patterns, <u>circa</u> 1808	396
87.	Agricultural sub-regions, <u>circa</u> 1808	397
88.	Crops on an estate at Hutton Rudby, 1816	400
89.	Crops on some Whorlton farms, 1806	400
90.	Sub-soil types and the distribution of wheat, oats and pulses on Brown's estate in Ormesby, 1792	405

91.	The distribution of tithable crops and crop yields on Brown's estate in 1792	406
92.	Rotational practice in West Cleveland, <u>circa</u> 1845.	423
93.	Middlesbrough in 1853	433
94.	Landscaping at Kildale, <u>circa</u> 1835	434
95.	Industrial Thornaby (<u>alias</u> South Stockton) in 1849	434
96.	Warren House farm, Kildale in 1806 and 1847	437
97.	Woodland in part of West Cleveland - changes from 1817 to 1853	439
98.	Farm and smallholding occupations at Newby in 1837	442
99.	The distribution of arable in West Cleveland during the 1840s	456
100.	Landholdings in Hilton in 1840	458
101.	Land use and crops at Hilton, 1840	459
102.	The distribution of grassland (except rough grass) in West Cleveland during the 1840s	460
103.	Parks and woodland in 1853	462
104.	Marsh, moor and other rough grass, 1853	463
105.	The relative importance of arable land (by tithe district), <u>circa</u> 1845	468
106.	The relative importance of wheat throughout West Cleveland, <u>circa</u> 1845	470
107.	The relative importance of bare fallow, <u>circa</u> 1845	471
108.	The relative importance of oats, <u>circa</u> 1845	473
109.	The relative importance of pulses, <u>circa</u> 1845	474
110.	The relative importance of barley, <u>circa</u> 1845	475
111.	The relative importance of seeds, <u>circa</u> 1845	477

112.	The relative importance of turnips, rape and tares, circa 1845	478
113.	The relative importance of potatoes, circa 1845	479
114.	Wheat yields in certain localities during the 1840s	480
115.	Oats yields in certain localities during the 1840s	482
116.	Bean yields in certain localities during the 1840s	485
117.	Crop-combination patterns in West Cleveland, <u>circa</u> 1845	487
118.	Agricultural sub-regions of West Cleveland, <u>circa</u> 1845	491
119.	Land use at Kildale in 1847	495
120.	Crop patterns at Kildale in 1847	496
121.	Land use and crops on an estate at Hutton Rudby ...	501
122.	Great and Little Busby - land use, <u>circa</u> 1840	505
123.	The occupation of land at Busby, <u>circa</u> 1840	506
124.	Land valuation at Busby, <u>circa</u> 1840	508
125.	Crop patterns on the Ormesby Hall Estate in 1853 ..	510
126.	Land drained shortly after 1853 at Thornton and Ormesby	511
127.	Land use changes on certain farms between 1750 and 1910	518
128.	Changes in land use by tithe area and parish from the 1830s to 1915	519

LIST OF APPENDICES

Appendix		Page
A.	Alphabetical list of abbreviations used in footnote citation of published and manuscript source material	529
B.	Standard notation for expressing crop combinations and rotations	531
C.	Data on the enclosure of West Cleveland townships - a checklist	532
D.	Conversion factors for livestock units.	539

PART ONE - INTRODUCTORY

CHAPTER I
WEST CLEVELAND AND ITS AGRICULTURAL
HISTORY

This chapter attempts to place the present study in its spatial and historical context.

When Arthur Young, during the course of his six months tour of Northern England, reined in his horse on the crest of the Jurassic escarpment overlooking West Cleveland, he was struck by the contrast between what he saw before him and the heath-covered Blackamore over which he had just passed. Later he wrote:

But the most exquisite prospect is seen just before you go down into Swainby You look ... upon an immense plain, comprehending almost all Cleveland, finely cultivated, the verdure beautiful.¹ (*Italics mine.*)

Marshall, whom Smith² was prepared to consider as the founder of modern agricultural geography, was less picturesque: "Cleveland is, in general appearance, a continuation and appendage of the Vale of York."³ Both authors, however, clearly considered Cleveland to be a distinct regional entity, essentially lowland in character. This view was shared by the local cultivators, whose doggerel saying, quoted by Camden,⁴ ran:

Cleveland in the clay,
Bring in two soles,
And carry one away.

This usage ran contrary to the origins of the name, which meant "cliff land" or "steeply sloping district."

In the later nineteenth century there was a return to this more ancient practice with the emphasis being given, on the one hand, to the topographic feature of the Cleveland Hills, and on the other, to the orographically fragmented eastern area then being developed as the Cleveland iron-ore field. As the limits of the modern parliamentary constituency indicate, by "Cleveland" began to be understood the mining area, while for the drift-floored lowland, the term "Vale of Cleveland" was coined.⁵

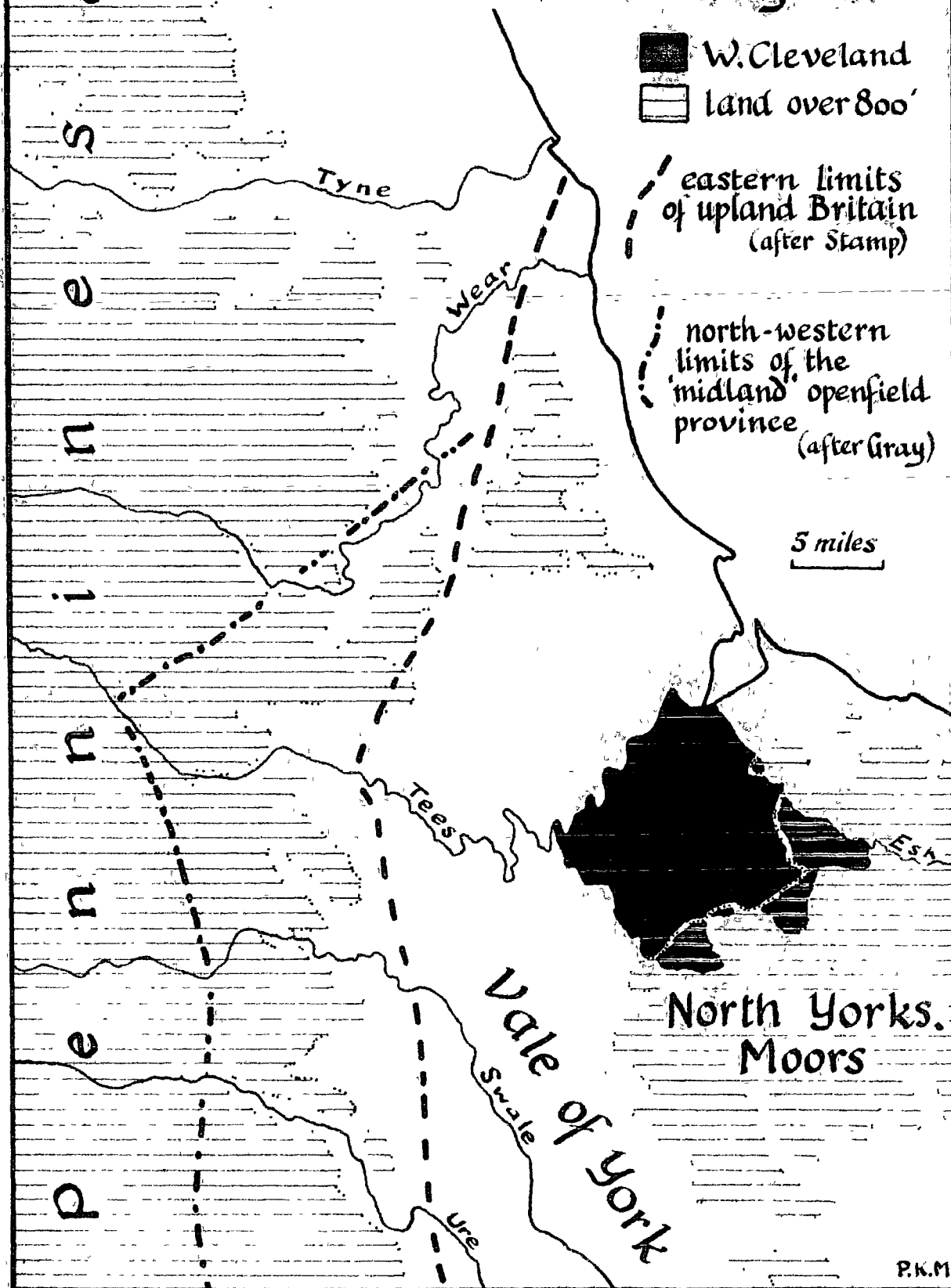
Historically, the mining districts and the vale had been united in the Wapontake of Langbaurch, though its historians, the majority of whom have been clerics, have usually preferred to write of "Cleveland," this being the name of an almost co-terminous deanery.⁶ For present purposes, it seems appropriate to write of the western, mainly lowland, section (which Young found so attractive) as "West Cleveland." This would include the area served by the centrally-placed market town of Stokesley and part of the hinterland of the former river-port of Yarm.⁷ For the period in question, East Cleveland's market centre was Guisborough, and its main outlet, Cargo Fleet.

Although one is thinking, therefore, of this study primarily as an analysis of the changing patterns of land use in a clay vale region, the surrounding upland margins, especially to the south, cannot be totally neglected. Many of the basic territorial units, and even individual farm units, extend strip-like from the banks of the meandering

Leven to the upland summits of the North York Moors.⁸ It would be difficult, and often meaningless, to subdivide these. In any event, the inclusion of some upland areas permits comparisons and contrasts which add to the understanding of the rural economy of the truly lowland areas.

With these considerations in mind, West Cleveland has been broadly delimited in the following manner; the boundaries of modern civil parishes are followed in detail. To the north, the River Tees, and to the south, Blackamore, present limits as clearly defined in the landscape as one could hope to find, although the upland margin of cultivation has fluctuated somewhat and minor changes have also taken place in the course of the Tees over the years in question. To the west, Cleveland changes imperceptibly into the northern part of the Vale of York, "there being no other natural division between them than what is given by an unperceived elevation of surface."⁹ Across this no-man's-land an arbitrary demarcation has been struck from Arncliffe, at the western end of the Cleveland Hills, to the point of furthest tidal penetration on the Tees at Low Worsall. This last criterion is symbolic rather than practical, but it is nevertheless true that the line so established effectively separates a north-to-south trending inland Vale of York from an east-west oriented Vale of Cleveland; the latter having a navigable outlet to the sea. On the east, the main line of the Jurassic escarpment is followed as it curves northward to include the Eston fault block, and projected to meet tidewater in northern Normanby. Two lowland

Fig.1 W.Cleveland in N-E England



annexes, the Guisborough valley and the coastal plain (centred on Kirkleatham), are thereby excluded from West Cleveland. Occasionally, as in figure 11, it has been necessary to diverge slightly from a modern civil parish boundary, but these have generally answered well.

The area thus circumscribed proved to be of convenient size (approximately 131 square miles), to be compact, to include a sufficient range of environments as to give diversity, but not to comprise so many territorial units (i.e. townships, parishes) as to make archive researches difficult. Also, it was readily accessible for field investigation.

Something of the regional context of West Cleveland is indicated in figure 1. The area is seen to lie close to the western limit of the lowland zone of the traditional two-fold division of Britain. Also, on the basis of Gray's work,¹⁰ it is seen to lie within the 'midland' province of open field systems. So far as institutions are concerned, Cleveland lies at the northern extremity of the Danelaw shires, of King William's Domesday Inquest, and of the See of York. For the practical agriculture of the period this may not have been highly significant: for its reconstruction from documentary sources it certainly is. Also, given its geographical situation, it is possible, on the basis of the generalizations of the standard works, to visualize a threefold division of the area's agricultural development, against which the detailed reconstruction of evolution between 1550 and 1850 may be viewed.

This threefold subdivision comprises the following phases:

1. A settlement phase, extending from some unknown prehistoric date, probably into the tenth century and, locally, perhaps later. During the later years of this phase most of the known hamlets and villages of mediaeval times were established, while concurrently, many of the surrounding lands were taken in from the forest, brush, moor and marsh to be improved for permanent farming. Even were conscious improvement not attempted, the intensive occupation of land by man and his animals must have had considerable impact on the pre-existing ecological balances and great changes been wrought.
2. An open-field phase - probably reaching its climax in the early fourteenth century - when most of the improvable land was managed in township units under some measure of communal control.
3. From the seventeenth century on, but with origins very much earlier, the modern phase of separate enclosed farmholds. In this final phase, land management decisions are normally worked out over a relatively restricted, and often compact, area of land as a matter of individual - rather than communal - choice: though the choice may not always lie with the actual occupier of the land.

Each of these phases might be expected to have yielded a land use pattern with a characteristic texture. In phase one, there would be a series of centres of agricultural activity, small in area, within a matrix of undeveloped or extensively and spasmodically utilized

semi-natural landscape. Phase two would see the virtual disappearance of the waste and the dominance of the landscape by an overall spread of contiguous cellular units. Within each cell, the various land use classes necessary to a largely subsistent peasant economy would occur in relatively large blocks, the disposition of which reflected the community's best solution of the utilization problems within the rather rigid framework of the land resources available to it. The third phase inevitably led to a pattern at once more varied and finer in texture. Individual choice and a commercial environment permitted each holding to go its own more or less specialized way. At the same time, a balance of land use types, once chosen, had to be fitted into the limited area of a single farmhold. Examples of each of these classes of pattern will be illustrated in the course of this work.

This simplified sequence of phases of development can, at best, like the stages of the Davisian cycle of landscape evolution, be but a broad generalized framework within which may be ordered an infinitely more complex pattern of events. To place the detailed material of this thesis in its historical context, it will be useful to outline what is known of the history of West Cleveland agriculture from its origins to the present day, thus adding substance to the skeletal outline. Against this background, the significance of the period 1550 to 1880 may be judged.

Even with due allowance for its partial destruction, the prehistoric evidence is so scanty as to suggest very small agricultural populations in the lowlands, with somewhat greater activity on the

bordering uplands of the Cleveland Hills.¹¹ The general argument, that the deciduous forests of the lowlands presented too great a challenge to potential colonisers of the Bronze and Iron Ages, might be valid here, had not recent excavations in East Denmark demonstrated the great capabilities of these peoples.¹² More valid perhaps, is the suggestion that they were essentially pastoralists who, while finding readily cultivable garden plots on the sands of the Middle Lias bench (as at Wayworth), concentrated more of their attentions on the grassy heaths of intermediate altitudes. Since their mesolithic predecessors had been able to colonize the forested uplands,¹³ it seems likely that they ignored the lowland forests rather through lack of incentive than of technique.

Elgee has tried to suggest quite an intensive Romanisation of lowland Cleveland,¹⁴ but his work on this period was less satisfactory than his analyses of earlier occupation, and the past thirty years have brought little new evidence to support his views. Indeed, east of the relatively minor road which crossed the Tees at Dinsdale only one cluster of finds suggests a sizeable settlement of this period, and Whorlton may have been Romano-British rather than Roman.¹⁵

Likewise, material evidence of significant British settlement of the lowlands is largely lacking, but recently, Glanville Jones has put forward an ingenious argument in support of his contention that a significant element of Celtic culture and territorial organization survived the Germanic settlements, leaving traces as late as the eleventh century.¹⁶ Jones's reconstruction would indicate a

broadly-spread British occupation of the lowlands - though at low densities - and would give the Celt (rather than the Anglo-Saxon) credit for the first large-scale forest clearance. He sees, in the federal manors of the Yorkshire Domesday, a close reflection of both the mansio and the shires of northern Northumbria, and, through them, of the llys, maerdref and maenor of Wales. In terms of his theory, the settlements at Acklam, Kildale, Marton, Ormesby, Hutton, Seamer, Stainton and Stokesley would each have been the focus of a network of appendant hamlets. The hamlets were populated by unfree 'bondmen' who grazed stock both on the outfields belonging to the hamlet and upon the inter-commons shared with other hamlets of the federal manor. But quite as important, was the open arable 'shareland' in which communal cultivation and occasional redistribution of plots was practised. It is suggested that these Brittonic settlements were re-named on the assumption of lordship by conquering English and Scandinavians, but that the peasant population and organisation remained. It may be significant that some of the earliest archaeological evidence of the invasions is at Kildale,¹⁷ the focus of one of these federal manors; but direct evidence of this 'infield-outfield' system of land use, though widespread to the north, is not found in West Cleveland.¹⁸ It may well be that the Germanic invaders did not find a virtually uninhabited and largely virgin forest, as the orthodox view tends to hold; but the extent of their settlement and the degree to which the landscape was re-moulded by them cannot be doubted.

Apart from the rather general observations of the preceding

paragraph, knowledge of the landscape into which the Germanic newcomers moved depends mainly upon the names which they applied to their settlements and lands. Anglo-Saxon place-names are numerous, and some (Hemlington, Newham) may be early.¹⁹ Of these early names, Newham, with its combination of a particle suggesting secondary settlement with the early term for farmstead (ham), would, in terms of a completely pioneering settlement, present a slight paradox, but the name may not be very early. Ekwall²⁰ has stated categorically that "a village founded at the time of the first Anglo-Saxon settlements would not be called 'new village'." However, his argument loses its validity if an intensive British occupation is visualised and the paradox disappears. This may have been a new farmstead within the estate of Marton - the other components having been taken over intact by the Anglian invader from some British aristocrat.²¹

It may also be significant that there is remarkably little indication in the body of Cleveland place-names of contemporary forest clearance. Acklam (dative plural of acleah - "oakwoods") and Stokesley (in which the second element is leah - variously translated as "wood", "woodland glade", "piece of open land" or "meadow") are the only direct references. That both these were the capitals of Domesday feudal manors might, however, be regarded as damaging to the hypothesis of Celtic survival.

Other Anglian names giving indications of existing conditions are. Marton ("marsh", but possibly "boundary"); Morton ("moor" or "marsh"); Seamer (which may be tautological, with both elements

meaning "lake" - but "marshpool" appears to be a possible translation); Thornton, and Crathorne ("farm at the hawthornes", and 'crow's hawthorn"). Since Seamer and Morton townships retained their moors and marshes throughout the mediaeval period, and the reference at Crathorne is to a single tree, it is clear that these names are too few to form the basis of any adequate description of the landscape before the Anglian invasions.

Much the same might be said of the later Danish settlement, except that it is fully clear that Anglian settlements survived the conquest. Not only has there been a significant survival of Anglian names in an unaltered form (contrast, for example, Broughton, where both elements are Anglian, with Ayton and Marton where first elements have been affected by Danish or other Scandinavian usage), but the duplication of Ingleby (Danish - "homestead of the Anglians") is incontrovertible evidence of continuity. Of the Scandinavian names, only Busby (the first element is buski - "shrub") suggests a 'natural' vegetation, though an expansion of settlement is clear from Newby and the three 'thorpes' (Linthorpe, Nunthorpe and Pinchinthorpe). 'Normanby' is evidence of Norwegian settlement, which in this case might well have been direct; though the broader regional evidence suggests small-scale settlement by Norwegian-Irish at a late date, to which Huthwaite and possibly Airyholme belong.²² Both these latter names suggest a pastoral rather than arable tradition: the second may be evidence of transhumance, though it is equally likely that no more than "upland pasture" is indicated. Neither lies on land pre-eminently

suited to arable cultivation. to suggest the widespread re-introduction of a live-stock economy from the west is therefore unnecessary.

Robert Latouche has recently re-affirmed the view that it was the Germanic peoples who introduced the open-field (as distinct from the 'infield - outfield') system to Western Europe.²³ Further, Smailes has argued that the rarity of open-fields in North England owes as much to the continuity of British cultural influence as to the generally unfavourable physical environment.²⁴ Hence there is the implication that the beginnings of the system in West Cleveland would be contemporary with the arrival of the Anglians.

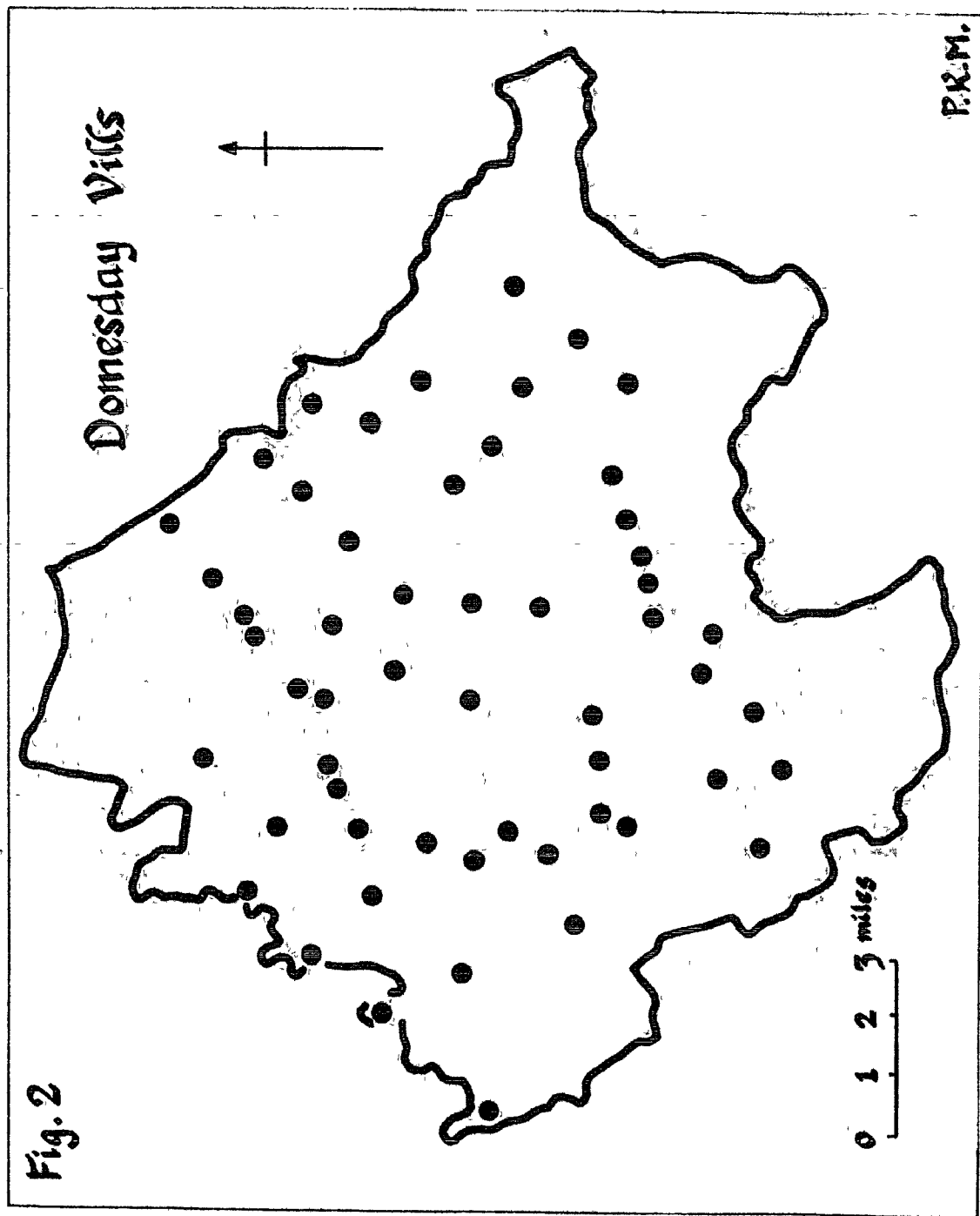
A rather different interpretation of the evidence becomes possible when consideration is given to the adjacent parts of Durham county. South-east Durham differed from the north and west in that it, too, had open-fields comparable with those of the English midlands during the Middle Ages.²⁵ It also shared with areas south of the Tees a settlement history which is remarkable, not so much for its Anglian colonization, as for the strength of a later wave of conquest - that of the Danes. Were Smailes's argument as to the force of cultural factors accepted, it would be possible to argue that the establishment of the open-field landscape in the lower Tees basin, including West Cleveland, awaited the reinforcement of Germanic traditions by Danish colonists, and should therefore be dated to the ninth rather than to the seventh century. This hypothesis would be especially acceptable in the context of a pre-existing British 'infield - outfield' pattern, and might also help to explain the strength of the surviving

Celtic arrangements which Glanville Jones finds in the Domesday record for Yorkshire.

However, Butlin has recently brought strong documentary evidence in refutation of Smailes's basic assumption that open-field was rare throughout North England.²⁶ On the basis of the detailed study of many sixteenth and seventeenth century surveys of Northumberland townships, he shows that both 'midland'- style open-fields and 'infield-outfields' with Scottish affinities existed at that time. Moreover, the distribution of the two types accords with ecological, as well as ethnic, patterns. Open-field was to be found in the river valleys and more fertile northern sections of the coastal plain, where also the larger nucleated villages, presumably of Anglian origin, dominate. Environmental conditions might have had equal force in Durham, since the south-east is much the most fertile portion of the county.

The argument is therefore inconclusive, but the evidence for the traditional interpretation favouring seventh century domination of the landscape by open-fields seems no stronger than that suggesting a somewhat later date. It may, nevertheless, safely be assumed that the evolution and spread of the open-field system in West Cleveland continued through the ninth and tenth centuries, to be severely checked after 1069, when the Normans' punitive expedition depopulated and laid waste the majority of Cleveland settlements and damaged many others.

For Cleveland, as indeed for the whole of Yorkshire, the Domesday record is disappointing.²⁷ As a result of devastation, the full details of many settlements as they had existed in 1066 were either



unobtainable or thought to be irrelevant. The geld assessments might in most cases be mapped, but since leading authorities consider that these bore no relevance to contemporary economic life,²⁸ little is to be gained from the exercise. Farrer's potentially fruitful hypothesis²⁹ - that the ratio of assessment to ploughlands represented the 1066 ratio of pastoral to arable emphasis in the rural economy - has received no support from other Domesday scholars.³⁰

Clearly emerging from the record, however, is the picture of an intensive settlement of the lowland and scarp-foot tracts by 1066 (Fig.2). At Airyholme, arable cultivation had extended on to the Middle Lias bench at 600' to 700' O.D.; only the moorlands (with the marshlands about the site of Middlesbrough) were unsettled, but not, perhaps, unused. If the absence of specific mention is to be relied upon, this settlement had effectively eliminated any significant tracts of woodland.

A great contrast to this settled landscape is apparent by 1086, when more than half the vills were uninhabited and only four (Barwick, Marton, Ormesby and Whorlton) held more than ten families. In the whole district, there was a ploughteam to every three or four square miles of country. The manor of Stokesley had its mill and limited meadows, which were also found at Faceby, Little Ayton, Nunthorpe, Morton, Upsall and Pinchinthorpe. Half a dozen churches had survived: but ruined houses and idle land, with a population far too scanty and ill-supplied with plough-beasts to attempt more than a very slow redevelopment, were more significant elements of the landscape at

this date.

Except for those few settlements which escaped the Conqueror's wrath, re-establishment was in general slow, and may have involved the entry of new peoples: especially groups of Norse-speakers from Stainmore and the Pennine Dales.³¹ Bishop has studied this process in great detail for lowland Yorkshire on the basis of late twelfth and thirteenth century charter material; many of his detailed examples are from Cleveland. One of his more important points is that the re-colonists set out to re-make the earlier landscape. they made their settlements of the same type and size and upon the same sites as had the original settlers. From these centres they set out to reclaim the lost arable and pasture lands. The system of land use adopted was that of the open-fields. Bishop could find "no instance from the thirteenth century of vills, fully illustrated by charter material, where the main arable territory did not consist of open-field land".³² The basic unit of landholding was the bovat, and whether the vills were manorial (about one half were) or non-manorial (e.g. Dromonby) a normal holding was of one or two bovates, each of which "consisted as to its main arable land of a bundle of strips in the open field." The stages by which this reclamation took place are clearly identifiable in contemporary nomenclature.

In each township, the twelfth century saw the re-establishment of a 'core' of open arable. Further extension (assarts) might be made communally, as at Easby (not certainly Easby-in-Cleveland) where, in 1213, it was agreed that assarts should be developed between the

existing furlongs of the open-field. Alternatively, the work might be carried out individually, as at Pinchinthorpe, where Pincuncroft was an assarted arable close held in severalty. During the thirteenth century, as population increased, sub-division of holdings developed; and (at least among the smaller landholders) a clear tendency towards the incorporation of individually assarted land into the open-field. Such a process is recognisable at Ormesby, where personal assarts - Oretoftes and Levenadtoftes - became 'flatts' or furlongs: these were subject only to common grazing at first, but later were divided into strips as they came to be worked by a number of peasant farmers. Bishop shows clearly how this might work out in terms of individual holdings. Thus at Hutton Rudby, Ingleby Greenhow and Thornaby, holdings were found to consist of two parts: one purely open-field, measured in bovates; the other assarted land, measured in acres. From Thornaby he quotes an example of the commerce in land, showing how a divided holding might be brought up to strength by the incorporation of assarted land.

In the thirteenth century,

The open-field system of the typical Yorkshire vill has not the appearance of having simply survived from some period when it was created by a large group of settlers; it seems on the contrary, to be the result of successive accretions of freshly cleared land, and to have expanded with the ever increasing numbers of the village community. ³³

This is, of course, very much the same view as Beresford has taken in a more general context,³⁴ and it appears to fit the realities of life in any pioneering society, whether post-Conquest re-colonist or

Anglo-Danish settler.

One further point: the system as described is dynamic and adaptable. One important change which may have taken place circa 1200 in Hutton Rudby was the intensification of land use when a third field was brought into operation alongside the earlier two, thus permitting each acre to be cropped two years in three rather than every other year. At Whorlton, as an undated (but early) record suggests, the Castle Park had been absorbed as the third unit of a three-field system:

two and a half acres of land in the field of Weruelton towards the south, namely, towards Herehow and Synthun ...
 one and a half acres and half a rood of land in the field of Weruelton towards the north, namely, in the park; in exchange for ... and for one and a half acres and half a rood of land in the field of Weruelton towards the south namely towards Moregate. ³⁵ (*Italics mine.*)

It seems likely that evolution from a two-field to a three-field arrangement was typical at this time, but specific evidence is rare. Certainly the townships which retained their open-fields into the seventeenth century appear to have had three fields of approximately equal size (as at Faceby and Middlesbrough) or four fields, one of which was smaller than the others (as at Newton and Great Broughton).³⁶

Under the open-field system, the characteristic unit of occupance was the small, fragmented, peasant holding, which comprised: a village homestead; an enclosed garth; scattered strips in the arable open-fields and others in the meadows, together with grazing rights on the pastures, meadow fog and fallows.

Two elements in the mediaeval rural scene presented something of

a contrast to this peasant-oriented pattern. First were the demesne holdings of the manorial lords, and the second, increasingly important from the twelfth century onward, were the landholdings of the many monastic houses (especially Whitby Abbey and Guisborough Priory) with Cleveland interests.

Basing his work on the Lay Subsidy records of 1301, Bishop shows that Cleveland's manorial structure was rather different from that of the Vale of York.³⁷ In lowland Yorkshire as a whole, about half the villis had no demesne land, and most of these had been waste in 1086. In Cleveland, by contrast, many devastated villis were later manorialized and included demesne lands. He considered that this contrast might well have been related to the unusual density of early Norman castles in the area. Very little is known of the management of Cleveland demesnes, but it is likely that some, at least, would be managed as several farmholds, distinct from the open-field arrangements.

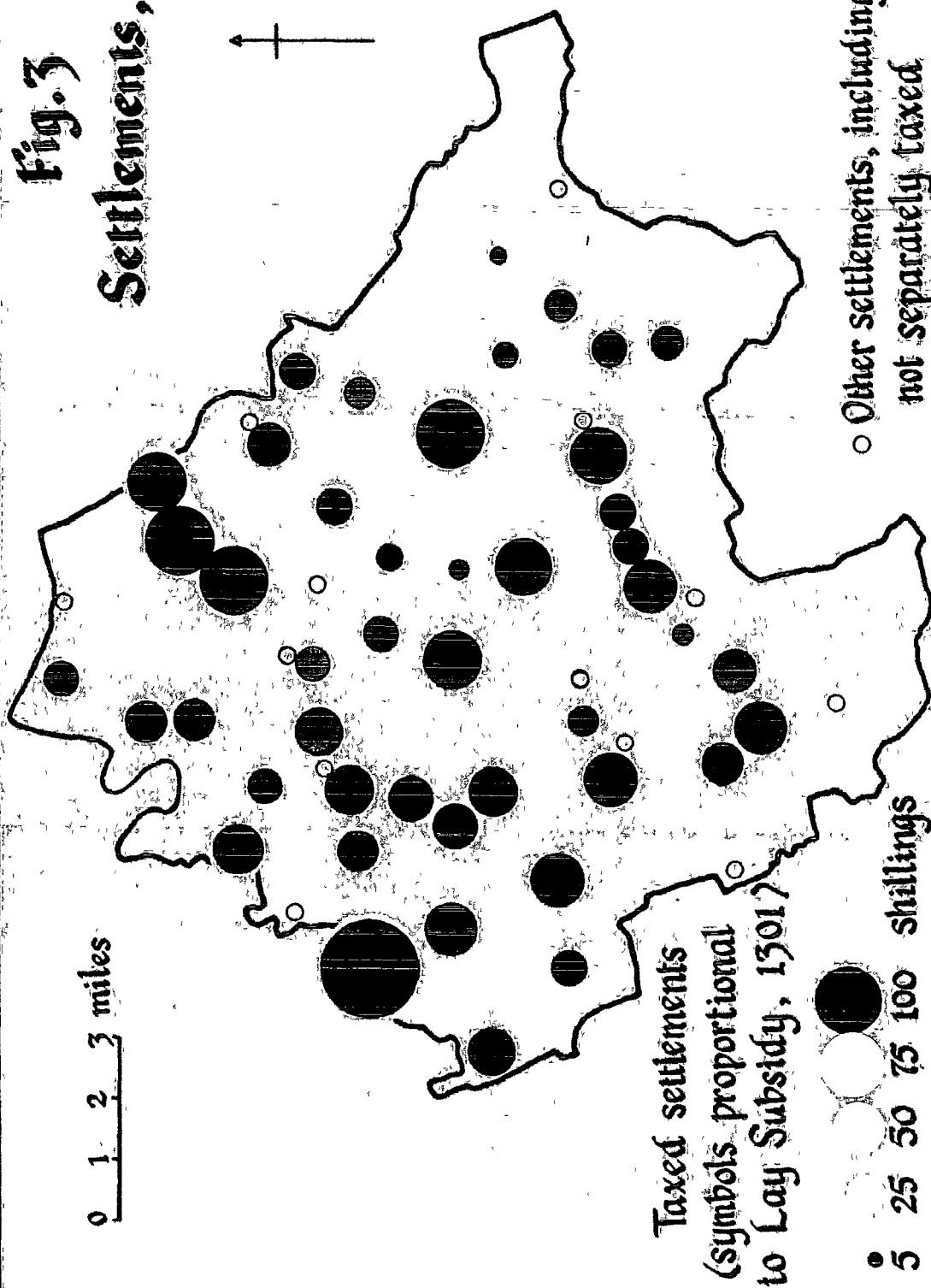
Records of the monastic landholdings are much more plentiful, and Waites has been able to utilize them for a study of the monastic contribution to the mediaeval development of North East Yorkshire as a whole. In the moorland districts, granges and subsidiary livestock farms, or 'cotes', were established on waste land, and there represent a true colonizing movement. Such was the case in parts of Bilsdale and in the southern parts of Guisborough, extending into Baysdale and onto Kildale moors. However, in the settled lowlands, the situation differed:

It is evident that many of the North East granges originated from such strips [given or bequeathed by individual peasant owners or manorial lords.] And, that even when largely consolidated, the grange lands might lie in the open field, though not subject to the same feudal demands as village strip land was. ³⁹

Even if free from feudal constraints, such land would almost certainly have been subject to the same limitations as regards cropping and grazing as were the peasant holdings amongst which it lay. But an area consolidated within the common arable, such as Waites describes at Guisborough and Ormesby, might readily be enclosed and separated from the township lands if circumstances favoured such a move. In a footnote, Waites asks: "How far did this [consolidation] contribute to the break-up of openfield agriculture?"⁴⁰ One might suggest that the contribution was great before the Dissolution and no doubt greater afterwards, when Tudor financiers began to develop the land market in former monastic properties.

Enclosure of monastic land was most easily effected where a whole township belonged to the monastery. Such was the case at Little Broughton, where, in the fifteenth century, Hexham Abbey held the land, but allowed it to be farmed as an open-field village unit.⁴¹ Subsequently, however (economic circumstances favouring the full commercialization of agriculture) the open-fields, meadows and pastures were enclosed and the settlement depopulated and destroyed. Beresford lists it as a lost village.⁴² A similar history probably explains other lost villages, although lay ownership may have been equally as effective as that of the monastery in those cases where it

Fig. 3
Settlements, 1301



was complete.

As yet, little has been written on the locality during the fourteenth and fifteenth centuries - years following the expansion of the monasteries and including the disaster of the Black Death of 1348. It is generally held that the early fourteenth century was a period of the flowering of mediaeval life, of relatively high population density, and maximum settlement of the lowlands. This stage can be represented cartographically (Fig. 5) on the basis of the Lay Subsidy Rolls of 1301.⁴³ Recovery from the Conquest devastation is apparent, although a few Domesday vills are not mentioned on the Rolls. On the other hand, several new settlements had been added to the Domesday list of vills. Recession marked the period after 1348. Mortality from the plague upset traditional patterns, may have eliminated some populations and so seriously weakened others that the encloser's task was made easy.

West Cleveland emerged from the trough of the later mediaeval period with a variegated land use pattern. Many townships had retained their open-field systems virtually intact, others had remnant open-fields; yet others were totally inclosed and farmed in severalty. At least twenty-seven of the area's sixty-three townships and localities had some open-field land in the first half of the sixteenth century, and possibly as many as 80% were in this position. It is therefore legitimate to consider West Cleveland as still being within the open-field phase of evolution in 1550. Two hundred years later, enclosure was virtually complete - Parliamentary Enclosure had

little opportunity in this region. The period of maximum activity seems to have been the years from 1620 to 1670, and it is certain that very few townships remained essentially open later than 1700.⁴⁴

During the sixteenth and seventeenth centuries, therefore, one is concerned with two fundamentally different kinds of rural organization: the open-field township and, becoming increasingly more prevalent, the enclosed farmhold.

In the average open-field township it is probable that the major land use categories were found in the proportions indicated in Table I.

TABLE I - Percentage of area occupied by major land use categories in the average West Cleveland open-field township

Major land use category	Probable area - per cent
Common pastures	42.8
Arable open-fields	42.0
Meadows	8.0
Village, green and garths	3.5
Woodland	2.5
Roads, water etc.	1.2

The common pastures included land of various qualities; not only general grazings which were available - usually under stint - to the whole community, but also grassland reserved for special classes of animal (draught oxen, for example). Many arable open-fields

contained meadowland strips (though these may not have been normal early in the phase) in addition to irregularly-shaped pieces. There were also access balks, drainage furrows etc., so that the actual productive arable acreage would be somewhat less than 42.0 per cent. On the other hand, the 8.0 per cent of meadows represents specialized, often low-lying, hay-growing land and does not include other plots which may occasionally have been used for hay. It follows that actual arable acreages probably amounted to rather less than two-fifths of the productive agricultural land.

In general, land devoted to any one use was often contiguous and preferentially distributed within the territory controlled by each rural community. The village, consisting of homesteads, often a church, garths and occasionally a green, lay rather off-centre within the township lands. Close to the settlement on flatter, heavy, but not waterlogged, clay soils were the arable open-fields. Beyond, on higher, steeper or more distant sites was the common pasture, and, if any remained, the woodland. Damp, stream-side alluvials, wherever located, bore the main hay crops.⁴⁵

On enclosed land, the same use categories were found, though probably in different proportions. As a broad generalization it might be said that enclosed land was more likely to be used for grass than if it were open, and one strong motive of the encloser was to increase the proportion of the better land that was under grass. But, although there is known at least one 200 - acre farm which was all grass in 1670, most farmers of enclosed land continued a mixed

farming practice with about one quarter of their closes devoted to arable farming. Early in the seventeenth century, lowland cropping was dominated by wheat, grown either in pure stand (19% of all crops) or in mixture with rye as maslin (21%). Barley (33%) and oats (27%) were also important, but rye (1%) and the pulses were apparently rare. Towards the uplands, wheat gave place to pure stands of rye, and barley to oats. The yield of wheat may have been between 21 and 26 bushels per acre, and of oats 23 to 29 bushels.⁴⁶

By the late seventeenth century, arable acreages were beginning to fall below 20% of improved land, especially in the north, where access to the Tees ports stimulated a dairy industry which found its ultimate outlet in the London butter market. Arable acreages were also low in the stock-rearing areas of the upland margins. Crop-farming retained some importance in the central areas, but was everywhere less extensive than before enclosure. The 'hard' corns - wheat, rye and maslin - were dominant still (45% of all crops), but barley (18%) had declined in importance, with consequent increases in the relative share of oats (31%) and the pulses (6%) during the century. On larger farms, oxen were the main plough-beast, but work horses were also used and, in addition, horse breeding was becoming firmly established as a regional speciality. Sheep, although liable to rot, were widespread: the average Cleveland farm of the 1680s had a flock of thirty. Pigs and poultry were non-commercial sidelines, the major emphasis lay on cattle - for the dairy, in rearing and for slaughter. Technical improvement lagged far behind the commercial-

ization of Cleveland farming. Wooden ploughs and primitive harrows implemented the traditional three-fold course.⁴⁷

In the first half of the eighteenth century, price movements continued to favour livestock produce. Road works improved access to the riverside ports, production of butter for export spread throughout Cleveland, and arable acreages further declined. Despite a rather half-hearted introduction of new crops, such as turnips, potatoes and rape, and the increased liming which transport development permitted, arable farming took a poor second place to the maintenance of grassland and the stock population. Conscious stock-breeding policies led to the development of Teeswater cattle and the Cleveland Bay horse. Butter production encouraged ancillary pig-raising. Prosperity based on animal farming permitted expenditure on land consolidation, construction of centrally-placed dispersed homesteads and fencing. The importance of stock-farming encouraged relatively small fields with hedgerow trees, and it is to these prosperous years that the present rural landscape owes much of its character.⁴⁸ (Frontispiece)

A complete reversal of this economic trend became apparent after about 1760. No more than a decade later, arable acreages had increased, on average, to over one third of the farmed total. However, the regional patterns of the 1680s were still evident and the arable ratio varied from 14.5% in an upland valley to 41.6% on the clay plateau. In the main, wheat, oats and pulses, with a little barley, were still the bases of arable farming, but there was a

fundamental dichotomy of practice, since a few farmers were beginning to experiment with new crops. On such farms, clover, turnips, potatoes and cabbage might together account for as much as 40% of the total crop area. Livestock were still important. The plough ox having disappeared by 1770, the horse population had increased as compared with 1688, but horse-breeding had declined. Dairying had expanded at the expense of cattle rearing. the sheep population had fallen by one third.⁴⁹

Ploughing out of grasslands continued as the demand from an expanding industrial population for food, and especially wheaten bread, increased. Stimulated initially by high prices and later by high rents, Cleveland farmers, as those of most clayland areas, pushed wheat production as hard as they could, sometimes abandoning, in the process, the new crops and improved rotations with which they had been experimenting. Already by 1793, Cleveland had more land under the plough than any other comparable part of the Riding. With war-time disruption of imports, the arable ratio was quickly pushed beyond two-thirds on many lowland farms. Small-scale reclamation schemes on marginal land were also attempted. This expansion had two inevitable corollaries: (1) although crops (especially wheat) were of high quality, yields fell; (2) arable expansion focussed attention onto a major problem of farming on clay - excessive water. Attempts began to be made to solve this second problem, but with little immediate success. A partial compensation for the loss of grassland was sought, in continued

improvement of livestock, especially of the beef shorthorn, and the gradual more widespread introduction of clover and arable grasses.⁵⁰

Neither the farming community nor the country as a whole, appreciated the special reasons for the wartime profitability of arable cultivation. As a result, the ensuing depression was thought to be short-term. Rather than a re-adjustment to the new economic circumstances (involving, on these soils, a return to grassland farming) there followed an almost hysterical further expansion of arable acreages and reduction of the livestock population. As a result of this treatment, and the complicity of the weather, a district judged by Young to have a well-balanced (if old-fashioned) mixed farming, apparently on the verge of embracing the New Husbandry, was brought, by 1848, to a state of exhaustion and sterility with "nothing but starvation spread over every parish."⁵¹ While a number of improvers were preparing the way for a modified High Farming, many cultivators were even neglecting some of the better items of traditional practice. Timber shortages during the War had encouraged the planting of some marginal lands early in the century; this trend was encouraged by the recession, though some plots were simply allowed to revert to rough grazing or worse.⁵²

The effect of Corn Law legislation was not felt until the late 1870s. Especially on lighter lands, intensive farming of crops and stock, using newly developed artificial manures and other aids, was highly profitable. Clay soils were not entirely suitable for this treatment, though drainage and the widespread use of seed grasses

greatly improved the potential of such land. In 1850, Caird wrote.

Many landlords in Cleveland are availing themselves of the drainage loan, and within the next two years a very great extent of drainage will be accomplished.⁵³

Time proved him to be correct, as Wright reported in 1861⁵⁴ and is apparent from the contemporary press - virtually all the arable sections of farms advertized for sale in 1864, for example, had been drained.⁵⁵

This improvement permitted an increased cultivation of roots, especially potatoes, and also of barley: a cereal long neglected in Cleveland. There was a consequent elaboration of rotations, though Clarke (in 1878)⁵⁶ was still castigating the locals for their continued adherence to the "bare fallow and two white crops" of tradition.

In fact, as early as 1869 sown grasses were playing a significant role, and by 1880 they were the second or third most important crop; while barley (insignificant in the 1840s) was occupying 15% to 20% of the cropped area.⁵⁷ Even on the heavier soils, the ratio of bare fallow to productive crops fell from 1:3 or more to about 1:5.

Accompanying this diversification was a recession from the extremely high arable acreages of the 1840s. There was a decline of some 3.5% by 1869 and a further 6% fall during the following decade. Nearby urbanization was partly populated by the migration of agricultural workers: a factor encouraging the spread of farm mechanization.

Steam ploughing was introduced to the district in 1862⁵⁸ and was widespread a decade later,⁵⁹ but enthusiasm was not maintained.⁶⁰

On the other hand, steam threshing (introduced shortly after mid-

century) is still in use. Improved ploughs, scarifiers and harrows quickly became popular. In the meadows, horse-drawn grass-cutters and hay rakes, introduced close to the towns by the 1860s, were also widely adopted, but reaping machines were not easily handled on the generally small, often high-ridged fields. As more land was drained, however, the ridges could be split and the more complex machinery introduced. In its early stages, mechanization called for more horsepower and their numbers, especially of Clydesdales, increased.⁶¹

The consequent increase of permanent grassland was facilitated and justified by improved techniques of seeding and subsequent management.⁶² Organic manures, earlier reserved for the grass, were available from the greatly expanded livestock population, which now approached the density thought desirable for mixed farming on clay soils. Stock-farming became increasingly influenced by local demand. Tweddell, in 1872, noted that supplies were still sent to London, "but the immense increase of population in the Cleveland ironstone mining and manufacturing district ... has given us a home market which native produce is unable to supply."⁶³ Rail communication assisted this supply (Hunter Pringle was to notice how much its absence in Bilsdale hindered agriculture there in 1894⁶⁴) and also brought out urban refuse for manure. Sheep, though generally more abundant than at mid-century, were later a minor element in the livestock population, except on the moorland edge, and became increasingly rare on the margins of the expanding towns. There, horses (for cartage) and dairy cattle occupied all available grazing. Breeding and rearing

of cattle, especially of dairy and dual-purpose shorthorns became a prime interest of the rural areas.

It was well that the expanded local market had permitted the build-up of stock during the three decades before 1879, because in that year an atrociously wet season, following others of moderate yields, combined with overseas imports and "literally sealed the fate of thousands of acres of strong clay."⁶⁵ Cleveland farmers had already begun to adjust to the new conditions, and were able to share with their county peers the benefits of mixed farming. As an Assistant Commissioner reported to the 1895 Royal Commission:

Although a large proportion of the lowlands of Yorkshire still bear the character of corn-growing land, it is worthy of note that the breeding, rearing, and feeding of stock has ever formed a leading characteristic of their agriculture. Except on the strong clay, where formerly corn growing pure and simple held the sway, it could hardly be said that farmers at any time depended mainly on their sales of wheat, barley, and oats. On the contrary, stock and stock farming in some shape or form have always been intermingled with the cultivation of the soil.

I have never in my experience travelled in any district where the stock of cattle reached such a high standard. Yorkshire is the home of the Booths and Bates [He farmed at Kirkleavington], and ... great care is everywhere observed to use good bulls.⁶⁶

The impact of depression was therefore less than it might have been, although the region had its problems. Messrs. Wilson of Worsall and Braithwaite of Stokesley testified:

Wheat-growing land has fallen two-thirds in value since 1879. Poor clay, if in fair cultivation, makes from 12s. to 15s. an acre rent, but clay land in need of draining can hardly be let at all.⁶⁷

As a result, some arable was allowed to tumble into rough grass,

which gave the region an ill-cultivated appearance. Depression came also into the stock-raising and fattening section of the industry, following effective overseas competition from 1892 onward. Only the dairy farms, providing liquid milk to the towns, were now shielded from the effects of free trade.

In the course of the two decades 1880 to 1900, West Cleveland arable acreages fell by almost 15% and in the latter year the median parish had some 47.8% of its land under the plough, including 11% sown grass. It is noteworthy that the reduction of arable was not uniform, but had the effect of a gradual contraction of the area dominated by ploughland on to a core region which was essentially the same as that which had remained arable during the "pastoral era" circa 1700. Grasses were now the principal arable crop over much of the area. Of the remaining crops, oats (33.3%) and barley (27.7%) were most significant, with wheat occupying a poor fourth place (14.8%). The potato acreage (6.5%) was generally about half that of turnips, but equalled it around the towns (Acklam, Thornaby, Middlesbrough, Marton and Ormesby parishes) and at Kildale. The improvement wrought in soil texture, the laying-down of the heavier, wetter land and the withdrawal from wheat farming reduced the need for bare fallow, which by 1900 stood in the ratio of 1:10 to productive crops. Restriction of arable to the more suitable land was one factor in the improvement of yields: wheat up to 40 bushels, and oats to 60 bushels at Dromonby.⁶⁸

Under these depressed conditions, the smaller farm, with reserves of family labour, was better able to take advantage of the urban markets.

Smallholders as distant as Carlton were taking liquid milk to Stockton for retail sale, whereas the larger farmers made some butter and bred, reared and stall-fattened cattle. Within a radius of four miles or so of the towns, however, large-scale specialized dairying was profitable. Rider Haggard, travelling England at this time, summed up the situation in the more accessible parts of West Cleveland by quoting opinion of local agricultural conditions as,

the most cheerful that I had heard for a long while, but to some extent doubtless this was due to the recent dry seasons, and still more to the eager market furnished by the great manufacturing city of Middlesbrough which lay close at hand.⁶⁹

The general situation, apart from the short-term effects of World War I, remained much the same through to the late 1930s. The area which could profitably provide liquid milk to Teeside expanded with the increased urban population, improvement of dietetic patterns, and development of road transportation. Organized milk marketing finally spread these benefits over the whole region. Breeding and rearing, mainly of shorthorn, but increasingly (in the dairying fringe) of Ayrshire, cattle was still important. Highly specialized dairy farming tended to diminish. The total cattle population, and that of sheep (many of which were not bred, but merely fed in the low-lands) expanded, partly in response to the reduced horse population. Horse-power declined earliest in the towns, and though reduced on the farms by 1938 was still vital there. Except for the war years, when wheat production revived, oats became the main arable crop and the ratio of bare fallow to crops fell lower than ever - to 1:12. Pig

and poultry farming, which had not been of great significance, burgeoned during this period, partly on the smallholdings, but also as a sideline for the working farmer's womenfolk. As in 1900, the market opportunities of Teeside gave Cleveland a great advantage over physically similar, but more remote areas. Wooldridge compared the region particularly with the northern section of the Vale of York, which he considered to have equal physical endowment.⁷⁰ One would not agree entirely with his suggestion of "a notably progressive agriculture," which "is, indeed, a region of 'high farming'." Certainly this would be difficult to maintain, either in the contemporary national context, or in the light of wartime and post-war developments. However, his conclusion that "the whole constitutes an excellent example of a varied but well integrated farming system leading to profitable results," owing its existence to location "within the orbit of the one large urban market found within the North Riding,"⁷¹ contains the essential truth of the region's distinctiveness in this generally depressed period.⁷²

During and after the Second World War, this distinction tended to disappear as Executive Committee control, subsidies, mechanization and the introduction of the three - to five - year ley had their effect throughout the English lowlands. Much of the old grassland, established since 1850, was ploughed out. In 1948, 63.5% and, by 1955, 65.5% of the farmland was arable. Sown grasses (amounting to 14.5% of the total area in 1948) increased with the establishment of long leys to cover almost 20% of farmland or 30% of all cropland in 1955.

By comparison, bare fallows had contracted to less than 2% of farmland, despite the extensive area under the plough. During and immediately after the war, wheat showed signs of recovery to occupy almost one quarter of cropland, but later there was a rapid decline to its pre-World War I position. On the other hand, barley (some of which is of malting quality) has shown considerable recent expansion. Labour problems have permitted little expansion of turnip and mangold acreages, but increasing use of mechanical techniques has permitted the intensive production of potatoes on the more suitable sandy or silty soils (14.5% at Stokesley in 1955). The later wartime and early post-war years saw a considerable expansion of milk production on the basis of dairy herds increasingly modified with Friesian blood: ensilage of grass and, later, strip-grazing of leys assisted in this intensification. Pig-farming and egg production, the latter decreasingly from free-ranging birds, also expanded, partly (but not entirely) in new, compact enterprises.

Since 1955, there has been a move away from a pattern of concentration on milk production to one of diversification. Beef-breed bulls (Angus and Hereford) are being put (increasingly through artificial insemination) to the dairy herd's Friesian cows - the off-spring being fed for 'baby beef'. Also apparent has been a tendency to leave down four-year leys rather longer than originally intended. Apart from these signs of a slight pause in the intensification of West Cleveland farming, production patterns are much as they were a decade ago. There can be no doubt that these last decades have seen this clayland region producing a greater quantity of

a more varied range of commodities than at any time in its history.

Virtually all the agricultural writers of the eighteenth and nineteenth century were agreed on what they considered to be the proper use of northern clay soils: they should grow grass. This review has indicated that Cleveland farmers have by no means always agreed with them. Before enclosure, open-fields of the midland type had corn production, for local subsistence, as their main interest. But it is well to recall that the actual arable area was not great and that, unlike many comparable villages of the midlands proper, Cleveland townships, with their extensive common pastures, large meadows (supplemented by meadow "swayths" among the arable) and, in the later stages, a significant amount of grass in nearby enclosed townships, devoted significant resources to animal husbandry. It might not be improper to write of a 'mixed' open-field farming. Through the seventeenth and into the eighteenth century, grass and the butter-milk cow increasingly dominated. This rather bleak and (save for its seaward connections with London) remote region was producing in a manner well adjusted to the edaphic and climatic conditions. As the Napoleonic period approached, the over-riding market demand was for bread, rather than butter. At the technical level of most British farming at that time, wheat had to come mainly from the clay-lands. Cleveland, unlike Lancashire and Cheshire, some distance from potential markets for animal products and at the same time (on the run of seasons) better able to ripen grain, rose to the occasion, and to subsequent ruin.

The years immediately before widespread enclosure, the era centred on 1700 and the nineteenth century wheat-growing epoch therefore represent three altogether different approaches to the resource utilization problem, but the given environment was broadly the same in each case.

From 1800 onwards, however, widespread land drainage and the improvements in management which it permitted, meant that the pasty weak clays of the 1840s were scarcely recognizable in the firm, but tractable, tilth of the 1870s and later years. Equally significant was the newly developed spatial context. No longer was the River Tees an outlet to distant markets, but the nucleus about which grew an ever-expanding industrial and residential complex which, while competing with agriculture for space, provided a large and persistent economic incentive to the intensification of West Cleveland agriculture.

It is in recognition of this watershed in the region's economic basis, as well as the change which took place at mid-century in the nature of raw material for historical and geographical reconstruction, that one has chosen to terminate detailed analysis at about the year 1850. The starting date, 1550, has been selected as coming close to the very beginnings of the post-mediaeval enclosure of the open-fields, and thus permits the establishment of a base line from which subsequent changes can be traced.

- 1 A. Young, A six months tour through the North of England, (London, 1770), II, 93.
- 2 W. Smith, An economic geography of Great Britain, Methuen, 1949), p.28.
- 3 W. Marshall, The rural economy of Yorkshire, (1st ed.; London: 1788), p.5.
- 4 Camden, Britannia, (1695), p.766.
- 5 The term is used, for example, by M. M. Milburn, "On the farming of the North Riding of Yorkshire," Jour. R. Agric. Soc., IX (1848), p.551.
- 6 Rev. J. Graves, The history of Cleveland, (Carlisle, 1808) and Rev. J. W. Ord, The history and antiquities of Cleveland, (London, 1846), for example.
- 7 The area is represented in sheets numbers 85, 86, 91 and 92 of the Ordnance Survey's One-inch map of Great Britain, (Seventh Series).
- 8 For details, see chap. III.
- 9 Marshall, loc.cit.
- 10 H. L. Gray, The English field systems, (Reprint, Merlin. 1959), passim.
- 11 F. Elgee, Early man in North East Yorkshire, (Gloucester, 1930), passim.
- 12 O. Klindt-Jensen, Denmark, (Thames and Hudson, 1957), pp. 93 - 96.
- 13 Dr. I. G. Simmons in personal communication.
- 14 F. Elgee, The Romans in Cleveland, (Published by the author at Comondale, Yorkshire, 1923), pp. 12 - 13.
- 15 There is, as Elgee points out (ibid.), some confusion concerning finds here. This site deserves investigation.
- 16 R. J. Glanville-Jones, "Basic patterns of settlement distribution in Northern England", Adv. Sci., XVIII (1961), pp.192 - 200.

- 17 VCH - Y, II, 96.
- 18 For some account of 'infield - outfield' to the north, see A. E. Smailes, North England, (Nelson, 1960), p.93.
- 19 A. H. Smith, The place-names of the North Riding of Yorkshire, (Cambridge, 1928) is a primary source for this section. Also consulted were: A. H. Smith, English place-name elements, (2 vols; Cambridge: 1956) and K. Cameron, English place names, (Batsford, 1961).
- 20 E. Ekwall, The concise Oxford dictionary of English place-names, (1st ed.; Oxford: 1936), p.xiii.
- 21 A re-evaluation of another place-name might be made on similar grounds: Carlton represents the Scandinavianized form of Anglian ceorlatun - 'tun of the ceorls'. Ceorl, is semantically interesting. originally having the meaning "free peasant" it later became synonymous with "villein", but whichever meaning was current at the time of Carlton's naming, Ekwall argues, "it suggests that manorialism had made a good deal of advance in OE times, for even 'TUN of the free peasants' presupposes that there were villages not held by freemen." (Ibid., p.xxix.) Equally, of course, it could support Jones's theory of the continuity of the Celtic system of bond hamlets. which co-existed with new settlements dominated by one man (as at Goulton and Picton); or by a kinship group (as at Hemlington): or settlements of free peasants (as at Carlton itself).
- 22 H. C. Darby (ed.), Historical geography of England, (Cambridge, 1936), p.158.
- 23 R. Latouche, The birth of the Western economy, (trans.; Methuen: 1961), p. 37. He also, incidentally, stresses the important modifications which local or regional environments might impose.
- 24 Smailes, op.cit., p.94.
- 25 E. M. Leonard, "The inclosure of common fields in the seventeenth century," Trans. R.Hist. Soc., N.S. XIX (1905), 105 - 145. Also, P. Dickenson and W. B. Fisher, The mediaeval land surveys of County Durham, (Durham, 1959), p.9.
- 26 R. A. Butlin, "Northumberland field systems," Ag. Hist. Rev. XII (1964), 99 - 120.
- 27 The Yorkshire Domesday is translated in VCH-Y, II, 195 - 327.

- 28 F. W. Maitland, Domesday and beyond, (Reprint; Fontana. 1960), p.542.
- 29 A. T. Farrer, "Introduction to the Yorkshire Domesday", VCH-Y, II, 137 - 138.
- 30 Such as H. C. Darby and I. S. Maxwell, The Domesday geography of Northern England, (C.U.P., 1962).
- 31 Re-establishment by immigrants may have begun by 1086. T. A. M. Bishop, "Assarting and the open fields," Ec. Hist. Rev., O.S. VI (1935), 13 - 29.
- 32 Ibid., p.14.
- 33 Ibid., p.19.
- 34 E.g., M. W. Beresford, History on the ground, (Lutterworth, 1957), pp. 77 - 79, also his Lost villages of England, (Lutterworth, 1954), pp. 44 - 46.
- 35 "Yorkshire Deeds, VIII," YAS-RS, CII (1940), 153.
- 36 See chap. VI.
- 37 T. A. M. Bishop, "The distribution of manorial demesne in the Vale of Yorkshire", Engl. Hist. Rev., 386 - 406.
- 38 B. Waites, "The monastic grange as a factor in the settlement of North East Yorkshire", YAJ, XL (1962), 627 - 655.
- 39 B. Waites, "The monastic settlement of North East Yorkshire", YAJ, XL (1962), 494, footnote.
- 40 Waites, "The monastic grange ... ", p.641.
- 41 J. Raine (ed.), "Priory of Hexham II", SS, XLVI, 65.
- 42 M. W. Beresford, "The lost villages of Yorkshire", pt.IV, YAJ, XXXVIII (1955), p.296.
- 43 "Lay Subsidy, 30 Edw 1", YAS/RS, XXI (1897), 26 - 45.
- 44 This paragraph is based on chap. VIII of this work, where the evidence is considered in detail.
- 45 For details of material summarized in this and preceding paragraphs see chap. VI.

- 46 See chap. VII.
- 47 See chap. IX.
- 48 See chap. X.
- 49 See chap. XI.
- 50 See chaps. XII and XIII.
- 51 Milburn, op.cit., p.551.
- 52 See chaps. XIV and XV.
- 53 J. Caird, English agriculture in 1850 - 51, (London: Longman, 1852), p.327.
- 54 W. Wright, "On the improvements in the farming of Yorkshire since the date of the last reports in the Journal," Jour. R. Agric. Soc., XXII (1861), p.110.
- 55 Darlington and Stockton Times, files for the year 1864.
- 56 J. A. Clarke, "Practical agriculture", Memoir on the agriculture of England and Wales to the International Agricultural Congress, Paris, 1878, reprinted Jour. R. Agric. Soc., Ser 2, Vol XIV (1878), p.616.
- 57 The cropping figures here quoted, and those used in the remainder of the chapter, are based on tables, sketch maps and graphs constructed by the author from official statistics.
- 58 Darlington and Stockton Times, 8th March, 1862.
- 59 G. M. Tweddell, The people's history of Cleveland, (Stokesley, 1872), p.69.
- 60 R. Hunter Pringle, Report on South Durham and selected districts of the North and East Ridings of Yorkshire, (C - 7735, Royal Commission on Agriculture - England, H.M.S.O., 1895) p.23.
- 61 Wright, op.cit., p.121.
- 62 M. H. Sutton, "Laying down land to permanent pasture", Jour. R. Agric. Soc., XXII (1861), pp. 416 - 21.
J. Dixon, "Manuring grass lands", Jour. R. Agric. Soc., XIX (1956), pp. 204 - 218.

W. R. Bowditch, "On the manuring of grassland", Jour. R. Agric. Soc., XIX (1858), pp. 219 - 264.

Nevertheless, methods of much greater antiquity than those proposed in the papers cited above were still used in Cleveland as late as 1901

"On the face of the field to be treated, after it has been cleared, sods of good old turf are set in the soil a distance of a foot or two and left till they run together, and thus form a permanent pasture of grasses that are natural to the neighbourhood."

(H. Rider Haggard, Rural England, Longmans, Green & Co.; London: 1902, II, 329.)

63 Tweddell, op.cit., p. 105.

64 Hunter Pringle, op.cit., p.7.

65 Ibid., p.8.

66 Ibid., p.6.

67 Ibid., p.12.

68 Rider Haggard, op.cit., II, 330.

69 Ibid., p.339.

70 S. W. Wooldridge, Yorkshire (North Riding), Part 51. The Land of Britain, ed. L.D. Stamp, (Geographical Publications, Ltd.; London: 1945), p.408.

71 Ibid.

72 This and the following two paragraphs are based upon the personal knowledge of the writer, discussions and field observations, supported by analysis of official statistics.

CHAPTER II

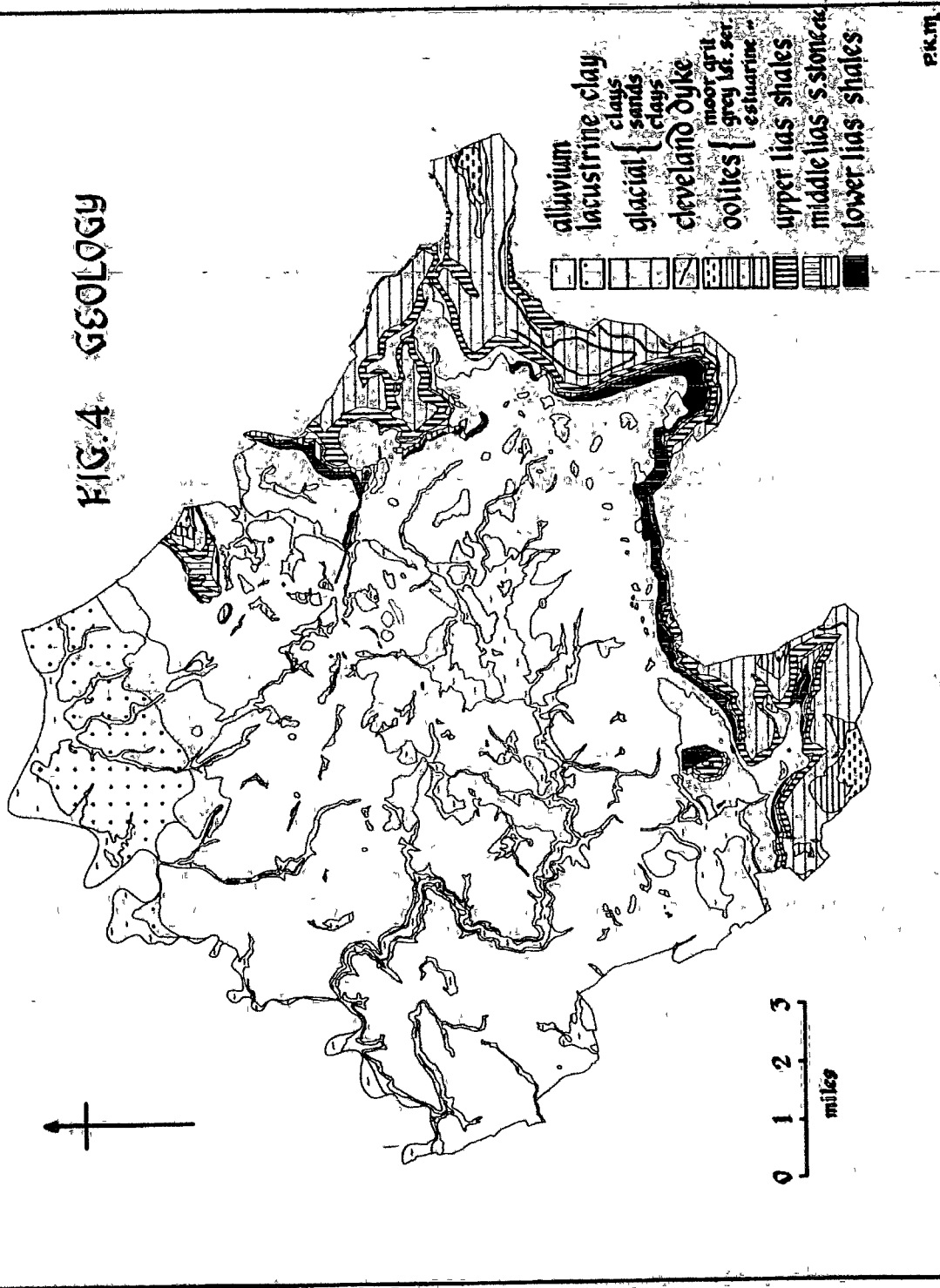
THE PHYSICAL ENVIRONMENT

This chapter attempts to indicate the principal features of the physical geography of the region. In the main, these factors are viewed as we know them today. Significant changes are likely to have taken place only in the climatic and biogeographic environments, and in neither case is there sufficient basis for any meaningful discussion of trends during the period 1550 to 1850.

The essential structural basis of West Cleveland conforms to a pattern most common in the English lowlands: the two-fold sequence of eastward-dipping upland plateau and lowland strike vale. In the Cleveland case, the vale, though now drift-filled, has been developed upon the soft sandstones, marls, gypsum, salt and anhydrite of the Triassic and uppermost Permian; the somewhat harder, but thin, strata of the calcareous facies of the Rhaetic and Lias; and the soft shales of the lower Lias. Crowning the escarpment are the resistant beds of the Inferior Oolites, here represented by the sandstones and grits of the Estuarine series, with intercalated bands of shale and thin limestones. The face of the escarpment, in part plastered with drift or covered with slump and creep deposits, consists of the thick, soft shales of the Upper and Lower Lias. Between these softer beds is a discontinuous bench feature formed by the sandstones and iron-stones of the Middle Lias.¹

These sedimentary rocks underlying the West Cleveland landscape

FIG. 4 GEOLOGY

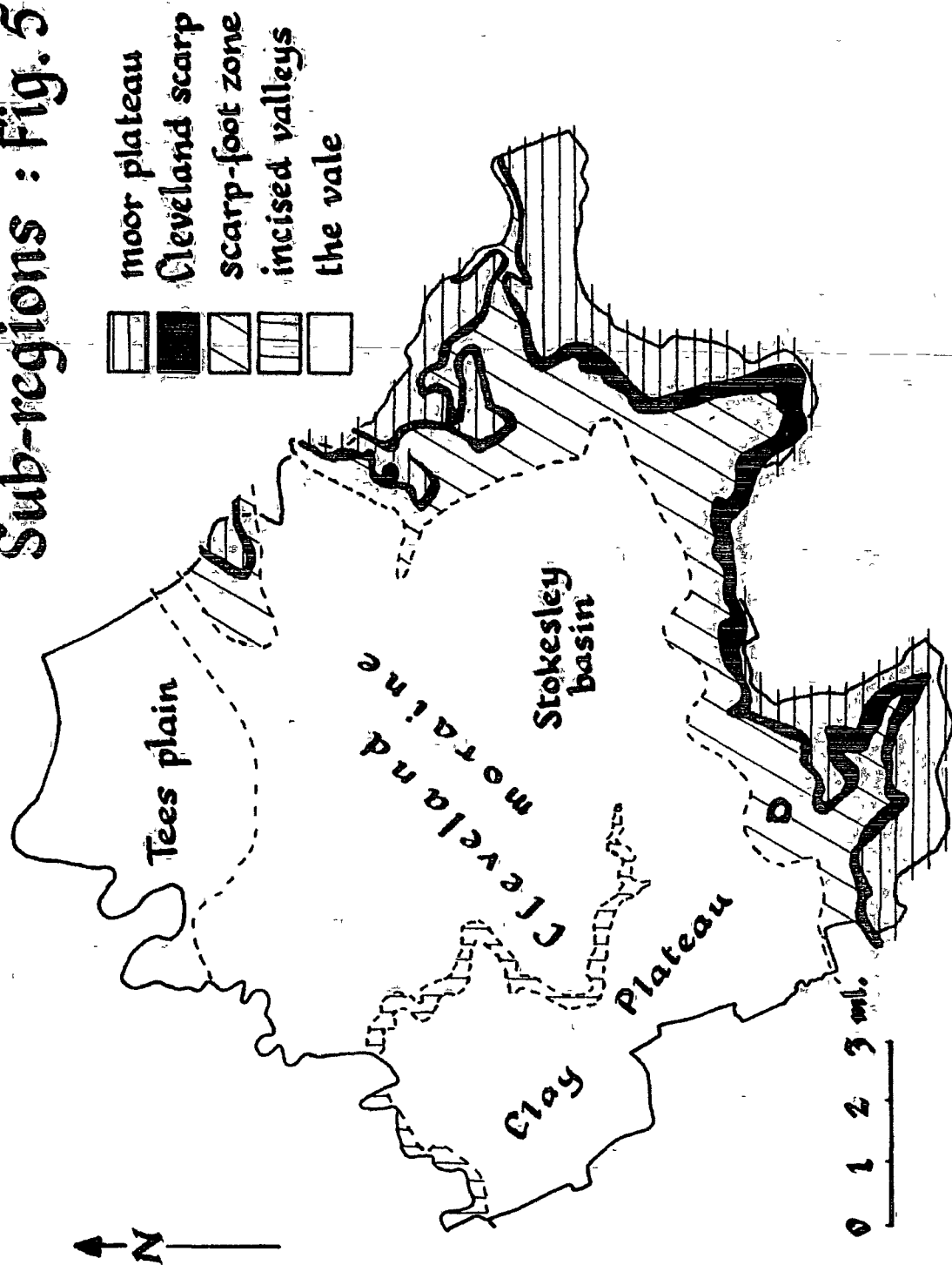


pass upwards conformably into the later Jurassic strata (exposed in the North York Moors region) and downwards into the Permian limestones of East Durham. However, despite this conformity with the older rocks to the north, structural separation has been imposed by the Boundary Fault of South Durham. This fault forms part of the structural complex which causes the eastward curvature of the Trias outcrops, bringing the vale of York and Trent to its sudden termination at Teesmouth: a pattern enforced by the eastward extension of the rigid Alston Block.

Further complication of this simplified pattern is the result of doming and faulting within the post-Permian rocks. Most important is the Cleveland Dome, an anticlinal flexure whose axis runs slightly south of east from Urra Moor (GR:594016), thereby locally disrupting the regional south-easterly dip. One implication of this upfolded structure is that lowland West Cleveland proves to be, not merely a simple scarp foot vale, but represents virtually the whole of the north-western quadrant of the dome, from which the protective Oolite cover has been stripped both by scarp retreat and the potent erosive power of the radially-draining proto-Leven. There has resulted a massive re-entrant, floored by Lower Lias shales which, in Ingleby Botton, strikes to the very heart of the upland. These features have given to lowland West Cleveland its remarkable symmetry and impressive upland walls both to south and east.

Slight modifications in the general pattern result from faulting and intrusion. The most significant of a number of fault systems has

Sub-regions : Fig. 5

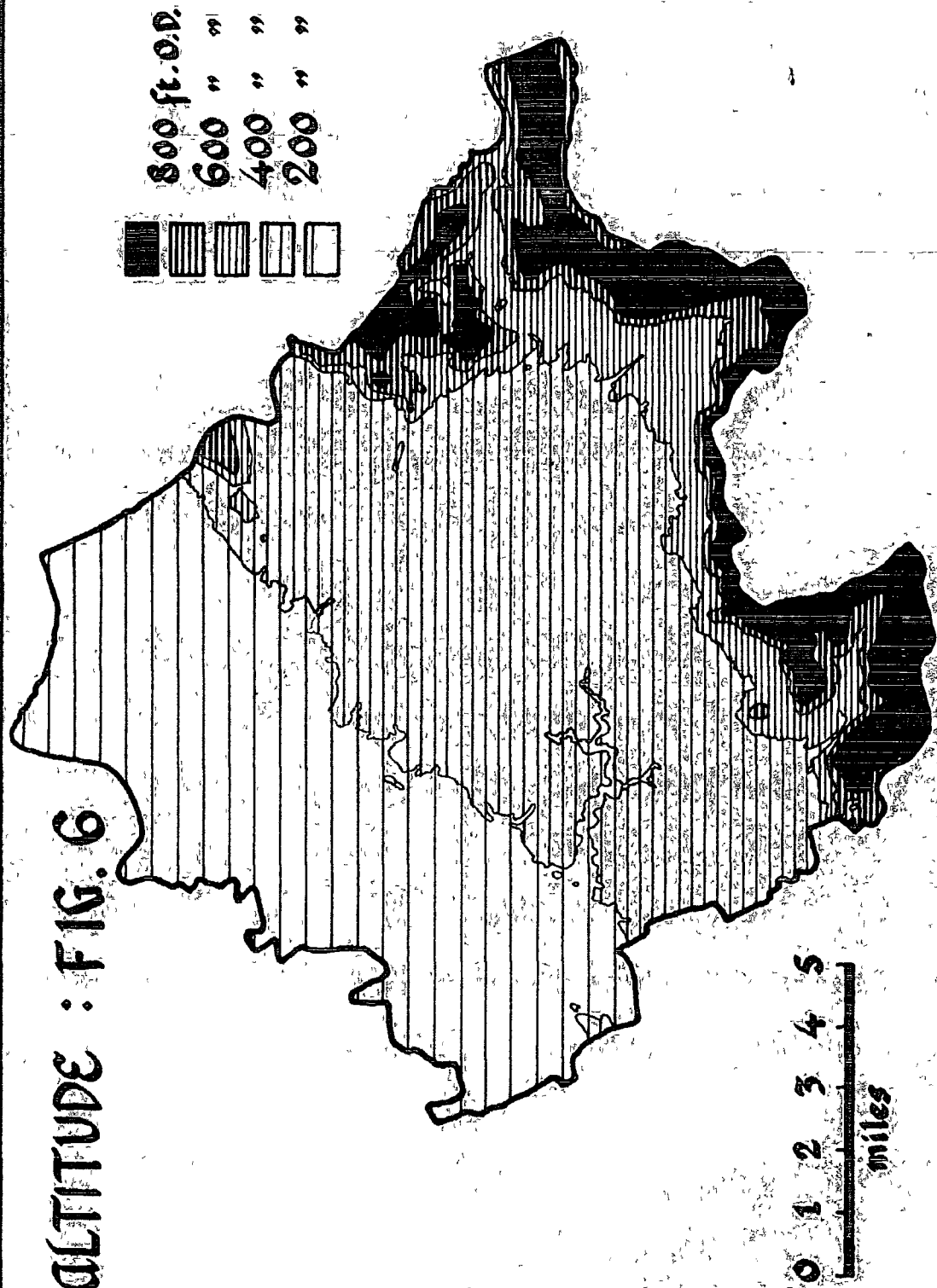


lowered the Eston Moor block, and paved the way for its isolation from the main hill mass along the Guisborough valley. The prominent outlier of Whorl Hill (GR.494027) and the development of Scugdale also owe something to local faulting. Running across the area from Ingleby Barwick by way of Langbaugh Rigg (GR:560121), Pale End (GR.612104) and Kempswithin, the augite-andesite Cleveland Dyke intermittently reaches the surface, so giving rise to locally prominent features.

If lithology, structure and post-Jurassic erosion have been responsible for the macromorphology of the area, glaciation was the prime factor in dictating the present micromorphology. Pre-glacial lineaments were substantially the same as those of today, but with significant local differences. At that stage, the proto-Tees, draining Teesdale, Stainmore and Swaledale, flowed some two miles north of, but parallel to, its present course in a broad shallow valley which reached the modern coastline north of Hartlepool. The open valley of the proto-Leven probably joined the Tees valley some two miles west of Ingleby Barwick, its north-eastern flank being clearly marked by the ridge of the Cleveland Dyke.²

During glaciation, the whole area may have been affected by ice from the Lake District, Alston, the Cheviots or, possibly, Scandinavia; but in the later phases, the North York Moors were largely free of ice. Glacial drifts are not certainly recognised above 700 to 800 feet O.D. In the lowland, by contrast, at least three different boulder clays, a laminated lacustrine clay, and two sandy formations are known. Upwards of 100 feet thick in the pre-

ALTITUDE : FIG. 6



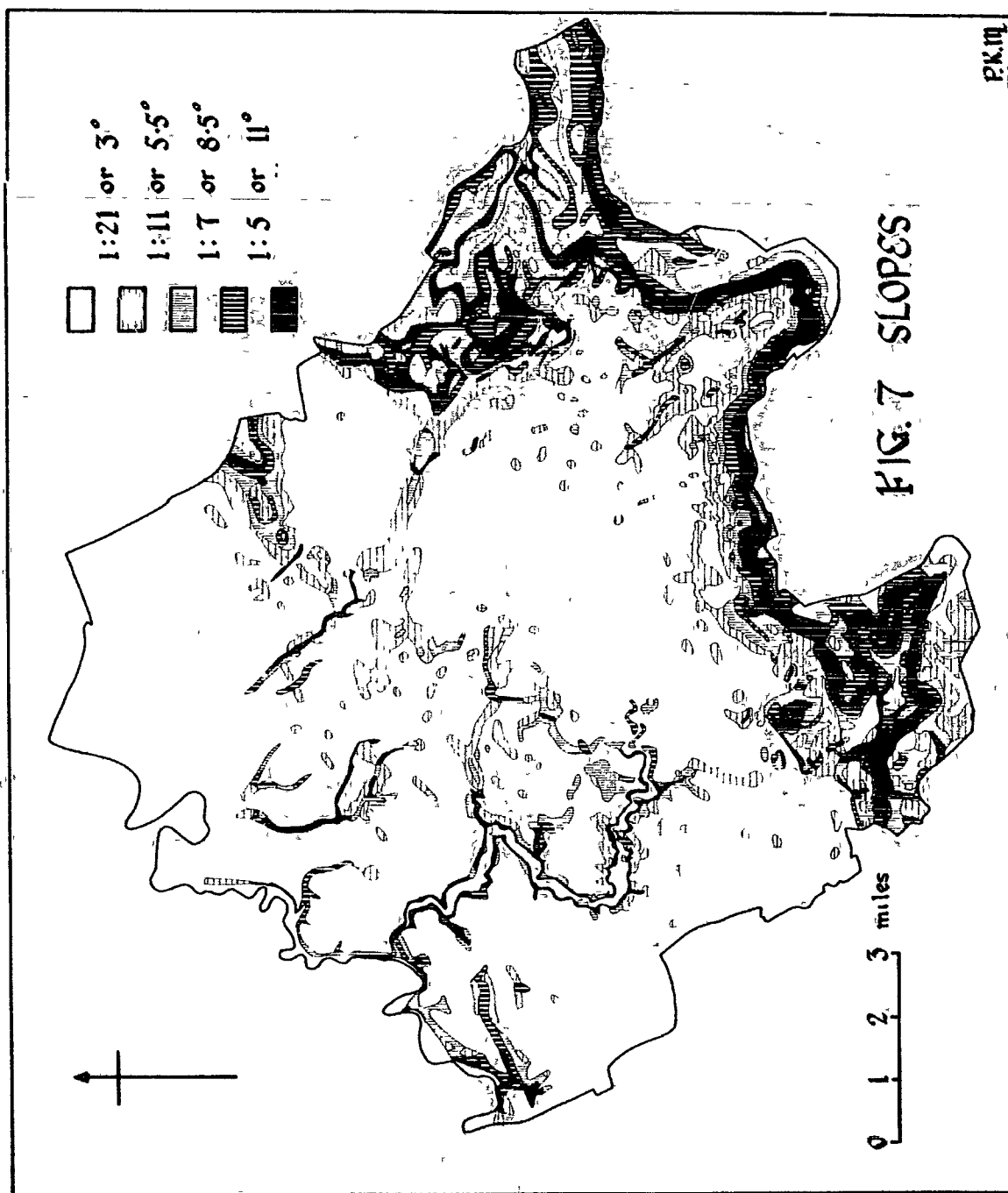
glacial valleys, the drift feathers out against the upland mass. One of the sand formations is probably interglacial, and is important only where the drift has suffered subsequent erosion. Other sands and related fluvio-glacial gravels are associated with retreat phases; as are a number of melt-water channels on the upland flanks and the lake and beach deposits of a late-glacial Teesmouth Lake. (Fig.4)

Post-glacial fluctuations of base-level have led to the deep incision of streams into the drift (and, in certain cases, the underlying Trias) with subsequent alluvial in-filling. Some alluvial deposits also mark the partial smoothing of an often ill-drained hummocky morainic surface. Peats show some local development in such situations.

TABLE II - Proportion of surface area by altitude classes

Altitude ranges ft.O.D.	Percentage of surface	Reliability%
0 - 199	33.6	± 2
200 - 399	40.1	± 2.2
400 - 599	9.0	± 1.2
600 - 799	7.0	± 1.2
800 and above	10.3	± 1.3

The main elements of the physical landscape are illustrated in figure 5. Almost three-quarters of the surface lies below the 400 foot contour (Tab.II and Fig.6). Land of intermediate elevation is most extensive in the Greenhow embayment, at the mouths of Kildale



and Scugdale, to a certain degree within the floors of those valleys, and on the Eston Moor fault block. The highest altitude range here recognised includes both steeply sloping land on the escarpment and its dissecting valleys, and portions of the summit plateau.

TABLE III - Proportion of surface area by slope categories

Slope categories - degrees	Percentage of surface	Reliability %
less than 3	64.8	± 2.0
3 - 5.4	12.8	± 1.5
5.5 - 8.4	8.0	± 1.2
8.5 - 11	5.7	± 1.0
Steeper than 11	8.7	± 1.2

The various facets of the landscape are best shown in the detailed map of slopes (Fig.7). Although the basic outline of the scarp slope stands out clearly, and accounts for most of the 8.7% of the surface steeper than 11° or 1 in 8 (Table III), it is seen in detail to be a rather complex feature. Comparison of the slope distribution map and the geological map (Fig.4) brings out clearly the role of the Middle Lias beds in producing the benches at 400 feet to 650 feet, which are so well developed at High Farm, Easby (GR:586087), Pinchinthorpe (GR:587143) and Whorlton (GR:484024), although drifts, both of the sandy and argillaceous facies, provide a superficial plastering and smoothing. The summit plateaux, (reaching a maximum elevation of 1489 ft. O.D. close to the structural apex at Urra Moor,

but falling to some 700 ft. O.D. in the Eston outlier) give a peripheral zone of moderately sloping to almost horizontal terrain.

Below the discontinuous Middle Lias bench, topographic variety is mainly dependent on the varied constructional features of the glacial deposits and their subsequent erosion, but the ridge features associated with the Cleveland Dyke (especially at Langbaugh) are a prominent exception. Three phases of the final deglaciation have left their mark:

(1) A stage during which the ice-front lay just short of the hill mass. It was probably at this time that the moraine across the mouth of Kildale was created, and the outwash sands and gravels deposited, both within the dale and scattered along the scarp foot. Roughly contemporaneous were the over-flow channels, cutting through the escarpment (e.g. at the head of Bilsdale - GR:573033). A little later were worn the wash channels at the foot of the scarp (e.g. Gold Hill - GR:48028).

(2) A further stage appears to be marked by the poorly-defined Cleveland moraine, which extends from the western end of the Eston Moor block at Hambleton Hill (GR.538157) to Hutton Rudby. Here is a broad belt of mixed clays, sands and gravels placed across the sub-glacial valley of the Leven. Individual nummocks rise above 300 ft. O.D., and the whole mass shows appreciably more relative relief than the partially alluvial Stokesley Basin to the south or the boulder clay plateau to the west. The Leven has been constrained to excavate a fine gorge around the western end of the moraine.

(3) In a final stage, a lake rising to 75' O.D. was formed behind an ice dam off the present coast. Within the lake were deposited up to 25 feet thickness of laminated clays, while the shoreline is marked by sandy beach deposits, in part re-worked from the interglacial sands. The beach is especially well developed along a strip from Acklam to Normanby.

There have been considerable fluctuations of sea level in post-glacial times, including phases with base levels at - 150 ft. O.D. and + 30 ft. O.D. Dissection of the glacial deposits, and subsequent alluvial in-filling, mark these stages in the area north of the moraine. In the Stokesley Basin, there is a considerable spread of silty alluvials, including one or two patches of terrace gravels, which appear to represent a stage of adjustment to a local base level before the cutting of the Leven gorge was completed. A second area of alluviation lies in the area centred upon Morton Carrs (GR.553153). Some of the drainage from this area is carried by eastward-flowing streams to the North Sea; but most surface water is carried (rather ineffectively) by Nunthorpe Stoll and Main Stoll through gaps in Langbaugh Ridge to the River Tame. A little finds its way into the Leven at Ayton. Yet a third zone of alluvial in-filling and poor natural drainage lies to the west, in Trenholme, where drainage in the scarp-foot trough and on the clay plateau surface begins its long journey, via the Wiske, to the Humber. Smaller alluvial patches lie scattered on the clay plateau (e.g. in Picton - GR.420060) and in hollows within the moraine surface. The best, and largest, example

of the latter type of site is Seamer Carrs (GR:486098); but many other patches occur, a number of them too small to be shown on the geological map. These aspects of an immature drainage system have added significantly to the west Cleveland farmers' problems in dealing with a generally heavy clay soil.

Insufficient data are available for worthwhile climatic mapping; but the main contrasts are clearly between lowland and upland. the latter being wetter, cooler and more windy, having a longer period when snowfall is likely and lies on the ground, and a water budget producing hydrological run-off during most summers, and all winters.

In certain respects (e.g. occurrence of summer thunderstorms) the climate of the vale is comparable with that of the Vale of York; in others, for example, the rather late, cool spring and the incidence of coastal fogs and 'haar', the analogy is closer with the eastern parts of Durham. As with its physical basis and some of its cultural features, therefore, West Cleveland is climatically a marcher zone.

Although the open-ness of the area to North Sea easterlies from time to time becomes important, the overwhelming dominance of general air flow from points between SSW and NW makes the presence upwind of the Pennine barrier of great significance. at least some of the areas below-average rainfall may be attributed to a rain-shadow effect. Easterlies reach their maximum in spring, which is often also rather dry. Sea water surface temperatures off Teesmouth are as low as 40.5°F. in february.

The thermal growing season lasts on the average some 35 weeks

in the lowland, falling below 30 weeks, and possibly as low as 27 weeks, on the higher parts of the steep north-facing slopes. During the months which are most important for crop-growth (April to September) there is the likelihood of some moisture shortage in as many as 5 years in 10 in the lowlands, where summer rainfall is less than 14 inches. Even at modest heights in the uplands, however, a hydrological surplus throughout the summer is normally to be expected. For the region as a whole, the balance is rather delicate, and sub-humid summers (especially early summers) can cause almost as many problems on the lighter land as do per-humid cultivating and harvesting seasons on the heavier clays.

TABLE IV - Some climatic elements³

Mean monthly values interpolated for lowland West Cleveland												
	J	F	M	A	M	J	J	A	S	O	N	D
Temperature (°F)	37.6	38.2	41.4	45.0	50.2	56.0	59.6	58.7	55.0	48.7	42.4	38.9
Sunshine (hrs)	45	65	104	140	165	185	160	150	120	90	58	40
Rain (ins)	2.2	1.7	1.5	1.6	1.9	1.9	2.7	2.8	2.2	2.4	2.5	2.1
Rain days	16	16	17	15	16	14	16	18	14	19	19	17

At Kildale Hall, a long-established rainguage indicates a mean annual precipitation of 36.6 inches: on the plateau summit, 42 inches may be exceeded. To the north, values fall off: 26.8 inches at Crathorne and 23.6 inches across the Tees at Stockton are established means. This area of low mean precipitation also has the distinction

of being one of the most variable in the English lowland - totals ranging from 17 inches to 30 inches in contrasting years. Snow lies on fewer than 10 days in the north and up to 20 days in the hills; in exceptional years, moor farms may be isolated for periods of six to eight weeks.

Although nothing in the way of microclimatological investigation has been possible, it is clear that varying exposure (particularly in the upland, but also on lowland sites) will cause considerable modification of the regional climate. This is certainly the case in the north-west where, at Hilton for example, a rather 'open' situation, associated with sufficient relative relief to ensure surface drainage, guarantees a harvest somewhat earlier than elsewhere. Adverse effects might be illustrated from the appropriately named Midnight Farm (GR.586046) and neighbouring holdings in the scarp-enclosed Greenhow Botton.

West Cleveland is still without a complete detailed soil map, and those small-scale published maps which cover the area are too highly generalised to be of great value. Crompton⁴ maps the lowland sector simply as 'loams', whilst the Atlas of Britain indicates a zonation parallel to the escarpment, grading from the acid podsoils of the moor plateau, through a band of brown forest soils with gleying, to lowland gley soils on the Tees plain.⁵ The area of Morton Carr and Eston Moor are included in an area of grey-brown posolic soils. Whilst these classes serve to distinguish the general characteristics of Cleveland soils, the zonation is inexact, and they are of little

value for the detailed analysis of land use distributions.

Parts of the upland margins, however, have been mapped in detail by Anderson.⁶ His study demonstrated the close correlation between soil series and the outcrop of the various Jurassic beds. In decision-making, the modern Cleveland farmer takes two major soil characteristics into consideration: efficiency of drainage and soil texture. It is likely that his predecessors have done the same. The drift edition of the geological map, with slope maps, gives as good a picture of these edaphic factors as one can provide, short of intensive field survey. It follows that soil patterns can best be discussed in terms of the distribution shown in figure 4.

Having written which, one further point needs to be made. The predominant sub-soils of West Cleveland (72.8%) are drift formations, derived, in the main, from the underlying Trias and Lias beds. Alluvium, which covers a further 10.2% is, in turn, mainly derived from the drift, with additions from the Jurassic and (in the Tees valley) Permo-Carboniferous outcrops. In the field, the distinction between the more highly arenaceous clay components of the boulder clay and the argillaceous variants of the sands is not always easy to make. There is, in fact, an almost continuous spectrum of soil textures: from an extremely heavy blue or brown brick clay of widespread occurrence (from which most Cleveland farmsteads are built) to the very light sands of the late-glacial lake beach (where the writer has seen an inch of topsoil blown from a field of turnips in a dry June). In particular, much of the area mapped as glacial sands

in the vicinity of Seamer has developed a medium loam rather than the light sandy soil one might expect, and locally, patches of really tenacious clay soils occur thereabout.

Although loams of varying texture have developed on slopes and in the better-drained areas of the drift, gley-soils (and in certain cases peaty soils very close to true peats) are characteristic of many areas of impeded drainage. This is by no means true of all the alluvial areas. The terraces and flood plains of the Tees and Leven are in general well-drained, and wet-weather water tables are high only at relatively long intervals. Similarly, much of the flat area to the south and east of Stokesley is floored with a silty loam, which, while retaining moisture adequately in dry summer weather, is rarely water-logged, and shows little sign of gleying. Some of it is currently used for market gardening.

Podzols are rarely encountered in the lowland, but "moorish" soil was reported from a number of areas in the past: some apparently with a hard pan or 'bog-iron' layer.⁷ These soils appear to have developed during the period of human occupation under common pasture management. they occurred particularly on higher, naturally free-draining portions of the Cleveland moraine in the peripheral portions of townships. Subsequent deep-ploughing, and the introduction of rotational ley farming to these plots has almost eliminated the podzolic character of the profiles. There can be little doubt that the very great amount of artificial drainage undertaken since 1850 has also reduced the area where typical gley profiles might be found.

Human modification of the soil, while important in the lowlands, has been more radical in the more humid uplands. Dimbleby has discovered perfectly normal brown earth profiles protected by burial mounds of the Bronze Age, whilst surrounding unprotected areas have a heather-clad surface underlain by fully developed podzols.⁸ Pollen analyses indicate a prehuman deciduous forest cover of oak, alder, birch and hazel, before forest clearance in Neolithic or earlier times. Subsequent grazing and cultivation, with a markedly positive precipitation/evaporation balance, have encouraged leaching, the loss of bases and deterioration of vegetation cover over wide areas of the moor plateau and the borderlands. This devolution is only arrested on creep slopes, where there is partial renewal of the base status and some woodland remnants have survived.

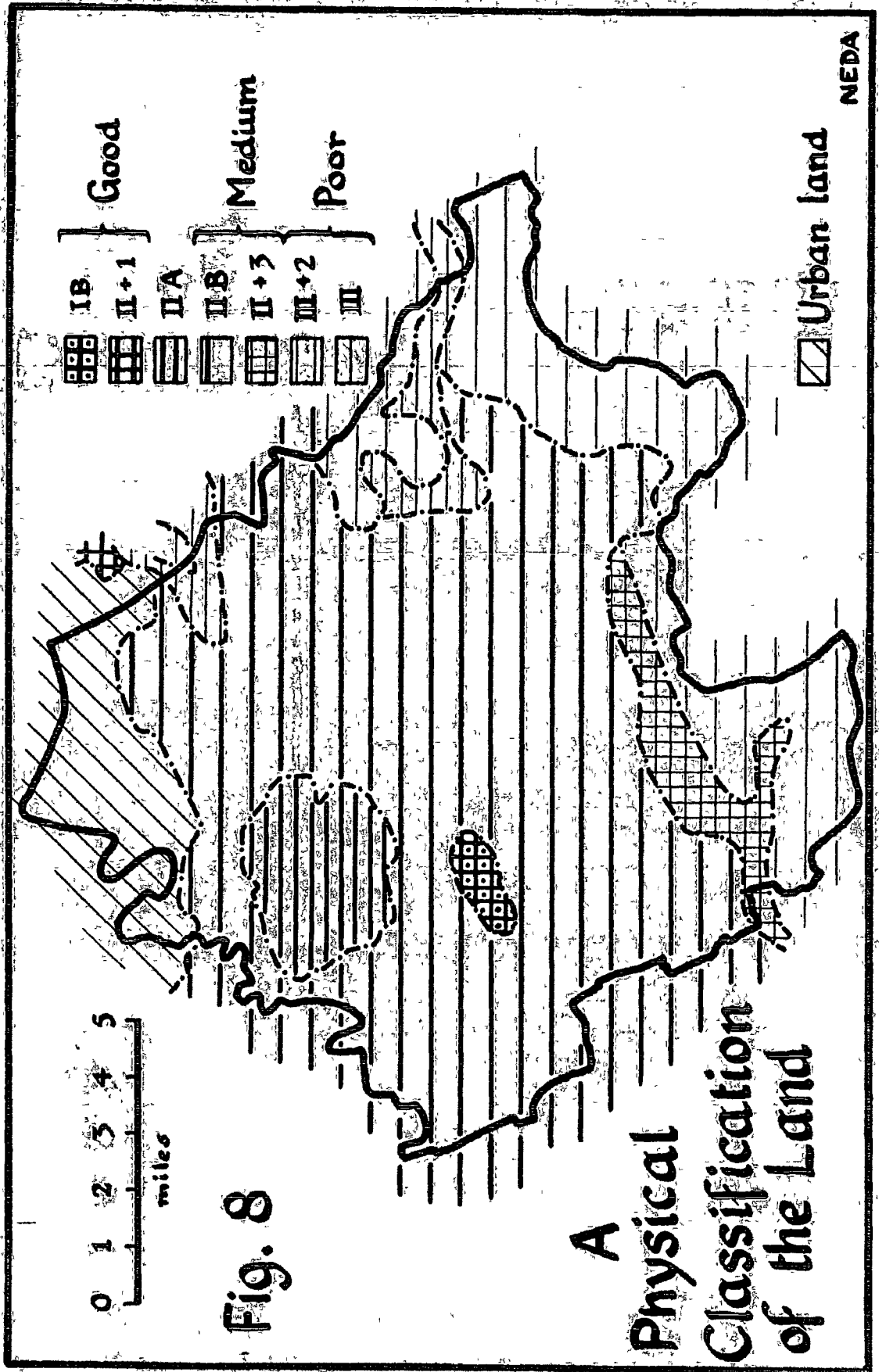
Despite the general tendency towards podzolisation, each of the Jurassic formations tends to give rise to a characteristic soil type. Those which are of most significance in West Cleveland include the free-draining medium loams developed on the sandstones, and the rather impeded brown earths found on the ironstones and ironstone-shales of the Middle Lias bench. On the steeper, and rather poorly-drained, slopes of the overlying Upper Lias shales (including the Alum shales) are silty clay loams over an impervious clay. On the creep soils washed out of the Dogger beds and underlying formations, loamy or even sandy, immature soils are found. Where the Estuarine series develop a flat surface, a coarse-grained sandy podzol, with peat and sub-surface pan, lies under heather. Peaty gleys and peaty

gley podzols are characteristic of the shaly beds of the Lower Oolites, and also of the more freely draining, but surface-impeded, soils of the Moor Grit.

It is clear that the heavily leached upland soils are much inferior to the soils at lower levels, although Anderson has shown that with careful (and probably totally uneconomic) management reasonable yields of grass, potatoes, winter rye and oats can be obtained at elevations up to 1300 ft.O.D.⁹ In their present state, the poorer soil/vegetation complexes can scarcely support one Blackface sheep on ten acres.

Nor are the lowland soils of very great natural fertility. All have been short of bases; particularly lime, but potash also. The present condition of much of this soil depends on its recent management; and present productivity is no real guide to its value during the historical period with which this work is concerned. One example will serve to illustrate this point. Three fields at Sexhow Station are by far the most productive in the neighbourhood, despite the site factors which would lead one to expect considerable gleying and drainage problems. Investigation revealed that these plots were most unexceptional until the 1870s, when they were drained and massive amounts of urban manure (railed in at low cost) applied.

However, although there is little evidence of the fertility status of the district's soils at the relevant times in the past, some sort of general classification needs to be applied which will give an indication of the relative potential of land in the various



parts of the area. Such a classification is available for the whole north-east region, and the appropriate section is reproduced at figure 8. The major zones of varying potential are clearly evident: the poor land of the moor plateau and scarp, the medium-poor zone at the scarp-foot; the generally medium quality land of the lowland, with rather better areas in the Ingleby Barwick/Maltby/Stainton area; and the land with highest potential at Middleton and Foxton.¹⁰

It is unlikely that even a fragment of the natural vegetation of lowland West Cleveland survives. Before the entry of man into the area, the whole (except for salt marshes in the north) was forest covered. Isolated patches of shallow fen or peat bog may have occurred in ill-drained hollows, as at Seamer Carrs and Peat Carr, Kildale (GR:635095), while alder and willow woods probably bordered the major streams.

By 1550, the area was almost devoid of trees and even hedgerows were relatively rare.¹¹ One can find little basis for any reconstruction of the vegetation of the lowland 'moors' and other common pastures; or, indeed, of the many enclosed grasslands appearing in those years. In 1940, Stapledon's grassland survey found that the permanent grasslands of the lowland area might be divided along a line running from Hutton Rudby to Normanby.¹² To north and west the better Agrostis-Lolium sward was dominant, with Agrostis elsewhere: to south and east the positions were reversed. Above 400ft.O.D. Agrostis-Lolium sward disappeared and was replaced by many poorer fields with rushes and tussock-grass, although Agrostis continued to

dominate up to the moor edge in well-tended fields. It seems likely that these contrasts owe as much to nineteenth and twentieth century management as to other factors, and it would be dangerous to extrapolate backward in time.

It would be easier to argue for some measure of continuity on the uplands over this relatively short time-span of four centuries. The moor plateau itself is dominated by heath (mainly Calluna vulgaris), with bilberry (Vaccinium myrtillus) and Erica cinerea as local sub-dominants. In the moister areas, small patches of sphagnum peat, with heath rush (Juncus squarrosus) and larger areas of mat grass (Nardus stricta) occur. Bracken (Pteridium aquilinum) is now widespread on the abandoned intakes and wetter, steeper slopes of the Lias shales, but it may have been less widespread when grazing stock more commonly included cattle as well as the sheep which are today's sole occupants. In the better intakes, an Agrostis-Fescue sward (Festuca ovina) is dominant. In addition to recent plantations, scattered copses of low woodland, especially of durmast and sessile oaks, hazel, birch, rowan, alder and some pine, occur on the slopes: these may preserve remnants of the original forest cover.¹³

No more than summary and general review of the environmental factors has been attempted in this chapter. When detailed examples of past land use patterns are examined in later chapters, closer attention will be given to the relevant controls, particularly to the edaphic factors.

- 1 Department of Scientific and Industrial Research, Geological Survey and Museum, Regional Handbooks. "Northern England", (2d ed., 1946); "The Pennines and adjacent areas," (2d ed., 1948), "East Yorkshire and Lincolnshire," (1st ed., 1948). The region is mapped on the Geological Survey Department's One-inch map, (Drift ed.) on sheets numbers 33, 34, 42 and 43.
- 2 Discussion of the pre-glacial and glacial geology is based on the following works and on field observation
P. F. Kendall, "Glacier-lakes in the Cleveland Hills," Q.J. Geol. Soc., LVIII (1902), 471 - 571.
P. F. Kendall and H. E. Wroot, The geology of Yorkshire, (published by the authors; Leeds: 1924), 2 vols.
A. Raistrick, "The pre-glacial Swale", Naturalist, (1931), 233 - 237.
G. W. Radge, "The glaciation of North Cleveland", Proc. Yorks. Geol. Soc., XXIV(1929), 180 - 205.
R. Agar, "Glacial and post-glacial geology of Middlesbrough and the Tees estuary," Proc. Yorks. Geol. Soc., XXIX (1954), 237- 253.
- 3 Table IV is based on material contained in, or interpolated from data in, the following authorities:
Meteorological Office, Book of Normals, (H.M.S.O., 1919).
Meteorological Office, A climatological atlas of the British Isles, (H.M.S.O., 1952).
The Atlas of Britain, (Clarendon Press, 1963), plates 26 - 35.
Meteorological Office, British Rainfall, (H.M.S.O.), annual volumes.
- 4 A. Compton, "A brief account of the soils of Yorkshire", Yorkshire Grassland Society, VIII (1961), 43 - 51.
H. I. Jones, "Soils of Yorkshire," Congress of Soil Science 1935, Guide Book, pp. 272 - 290.
- 5 The Atlas of Britain, plate 40.
- 6 G. D. Anderson, "A preliminary investigation of the soils of the North-East Yorkshire Moors" (unpublished Ph.D. thesis, School of Agriculture, King's College, Newcastle, 1958).
- 7 E.g. BI/R III m XLVIII 2a.
- 8 G. W. Dimbleby, "The historical status of moorland in North East Yorkshire," New Phytologist, 51 (1952), 349 - 354.

- 9 Anderson, op.cit., p.334.
- 10 North East Development Association, A physical land classification of Northumberland and Durham, (published by the Association, 1950).
- 11 See chap. VI.
- 12 As reported by S. W. Wooldridge, Yorkshire (North Riding), Part 51. The Land of Britain, ed. L. D. Stamp, (Geographical Publications, Ltd.; London : 1945), pp 392 - 93 and Fig. 14.
- 13 F. Elgee, The moorlands of North East Yorkshire, (London, 1912), passim
Anderson, op.cit.
Dimbleby, op.cit.

CHAPTER III
LOCALITIES AND THE ADMINISTRATIVE
SUB-DIVISION OF THE AREA

If a study of this kind is to be valid from the geographical point of view, it is of paramount importance that the locations to which specific data refer, or that the areas to which generalized data relate, are clearly recognized. Some data (maps, for example) pose no problem. Many other sources do. Since documents usually provide locational information in terms of contemporary administrative sub-divisions, it would be valuable to map such territorial units for each period studied. As this chapter will show, the problem is by no means as simple as it has often been assumed to be, and some uncertainty must remain. The further implications of the points discussed below will be considered in the chapters dealing with sources and methods of analysis.

West Cleveland has been defined in terms of twentieth century civil parish boundaries. At present, it comprises thirty-seven civil parishes which are portions of Rural Districts and two which are portions of an Urban District (Morton and Pinchinthorpe). Also included is Normanby, which was an independent urban district from 1894 to 1915, but thereafter lost its entity by amalgamation with neighbouring Eston to form the Eston Urban District. Thornaby Municipal Borough and Middlesbrough County Borough complete the list of the present forty-two administrative units. Expansion of the territory of Middlesbrough has taken place at intervals since

incorporation in 1853. In 1932, the parish of West Acklam was finally absorbed in the Borough after several encroachments. There has also been encroachment upon Marton and Ormesby parishes, reflecting the outward spread of urban development.

Had the administrative consequences of the urbanisation of Teeside not been fulfilled, however, modern West Cleveland would have comprised forty-three civil parishes. (The relevance of this point will emerge later.) Those as yet undisturbed by Teeside expansion, date only from the last decade of the nineteenth century, when the Local Government Act of 1894 empowered County Councils to subdivide the pre-existing ecclesiastical parishes. Discussing this subdivision, a standard text holds that, "the civil parishes almost invariably coincided with the ecclesiastical parishes."¹ In no more than six or seven cases was this true in West Cleveland,² but such exceptions are admitted as local departures from the norm. Where co-incidence with the ecclesiastical parish was impractical, "the new civil parishes were made to follow the ancient boundaries of the villis or townships."³ According to this argument, therefore, the modern civil parishes should correspond to the territorial units of mediaeval, Anglian or even earlier times. Peake was an exponent of this 'continuity' theory, which appears to dispose of the locational problem, especially as the township is defined as "the area delimited and occupied by an agricultural community."⁴ The Orwins, assuming that the modern parish map provided an accurate picture of the units within which land use choices might be made by mediaeval man, adopted

it as a frame for a discussion of the environmental background to open-field farming.⁵ Other workers in the field of settlement studies have also taken this view,⁶ which does not appear to have met serious challenge in the literature.⁷ In West Cleveland, as indicated above, the 'continuity' theory would suggest the earlier existence of forty-three vills or townships. However, Domesday⁸ lists no fewer than fifty-five vills and the 1301 Lay Subsidy returns⁹ mention forty-nine localities. The modern record thus appears to understate the mediaeval situation.

Ideally, therefore, one would wish to review the pattern of vill, township and parish throughout the period covered by this study. Material for a fully detailed enquiry does not exist, and all of this is not to hand, but the following paragraphs indicate the changes which are known to have occurred. They will also indicate the basis for a suggestion that as many as sixty-three township units (or other farming units of similar character) may have existed in pre-enclosure West Cleveland.

Discussion will be based on the lists of parishes and townships given by Graves,¹⁰ Ord¹¹ and the volumes of the 1851 Census of Population; upon Greenwood's map of 1817,¹² the first edition Ordnance Survey Six-Inch Map Sheets (1853) and the varied manuscript Tithe Maps; supported by the Victoria County History's accounts of "historic parishes,"¹³ the lists of the 1301 Lay Subsidy, and casual reference in documents of the sixteenth to eighteenth

centuries.

Seven modern civil parishes appear exactly to replicate the nineteenth century ecclesiastical parishes. They are: Carlton, Crathorne, Hilton, Ingleby Greenhow, Kildale, Newton and Yarm. While the boundaries of the parishes as shown on the early six-inch sheets coincide in most respects with the modern pattern, certain discrepancies may be observed in Greenwood's work. At Carlton, a cartographical error results in the omission of part of one boundary which coincides with a stream, at Kildale, a portion of Baysdale is included which was, in fact, part of Ingleby Greenhow. At Crathorne, he mistakenly took the estate limit, rather than the parish boundary, thus excluding High Foxton Farm. A number of similar demonstrable errors have been noted, as well as some more significant indications discussed below.

The omission of High Foxton, though a misinterpretation, calls attention to the special character of that portion of the parish. The six-inch map sheet has "Foxton" written boldly across it, though no area is delimited or admeasured. Some element of distinctiveness is also indicated by the 1685 Crathorne glebe terrier, which indicates that, whilst a composition was paid for most of the tithes of corn and hay, "the tythes of both the foxtons were paid in kind."¹⁴ Their status is somewhat clarified in the 1716 terrier: "two out hamlets call'd high foxton & low foxton within the Sd. Parish".¹⁵ The separate existence of some settlement at Foxton is suggested by the name of John de Foxton who was assessed under Crathorne for the

[illegible]

Crathorne ~ field names

1/2 ml.

P.K.M.

Lay Subsidy of 1301. Other evidence, none of it conclusive, points in the same direction. Crathorne is anomolous in straddling the incised Leven valley, the pattern of eighteenth century field-names suggests a complete suite of land use types on the western side of the river, whilst those on the Foxton side indicate imparking and pastoral uses (Fig.9); western pastures were being ploughed out in the sixteenth century¹⁶ - does this imply that new pastures had become available elsewhere?, the Park, held to comprise 113 acres in 1780 had probably been much larger in the sixteenth century¹⁷ (when it was one of two local parks to catch the attention of the early cartographers¹⁸). There is some evidence, therefore, to suggest that the transpontine section of modern Crathorne had a history differing from that of the core of the parish. But whether the two "hamlets" of 1685, with their distinct tithing arrangements, represent a former township or vill, whose settlement is represented by the earthworks at High Foxton Farm, is still an open question.

At Ingleby Greenhow, the matter is clearer. Here, all nineteenth century authorities were agreed on the existence of three townships. Ingleby, Greenhow and Battersby. Each was assessed individually in 1301, and subsequent documents indicate that, in secular matters, independence was largely maintained, despite the eventual consolidation of the lands into one coterminous civil and ecclesiastical parish.

Apart from its late losses of territory to Middlesbrough, the case of Marton parish is, in some respects, similar. The disposition

of modern farm names suggests three parallel territories: Newham, Tollesby and Marton. Newham was mapped separately by the Ordnance Survey, whilst Graves listed Tollesby as a minor subdivision. The boundaries of all three with Acklam are shown on a map of that estate dated 1716.¹⁹ Witnesses in a 1633 tithe cause, however, each swore that "dureinge the time of this dept. remembrance there was never any town village or hamlett called by the name of Newsham [sic]"²⁰ But as there is no evidence that this Newham was ever known as Newsham, the respondents, whose case would be weakened by the admission that a village or hamlet had existed, may have been relying on the ignorance of the proctors at distant York. In a later cause, mention was made of a "Chapell of Newham".²¹ The Marton Tithe Apportionment indicates Tollesby common.²² With surrounding garths and wells, the relict features are strongly suggestive of a former nucleated settlement there. The evidence again appears to indicate the earlier existence of three townships within the Marton parish of later years. There were, however, no individual assessments for Tollesby and Newham in 1301, but Robert and Roger de Newham were contributors to the largest amount collected at a single place (urban Yarm, only, being excepted).

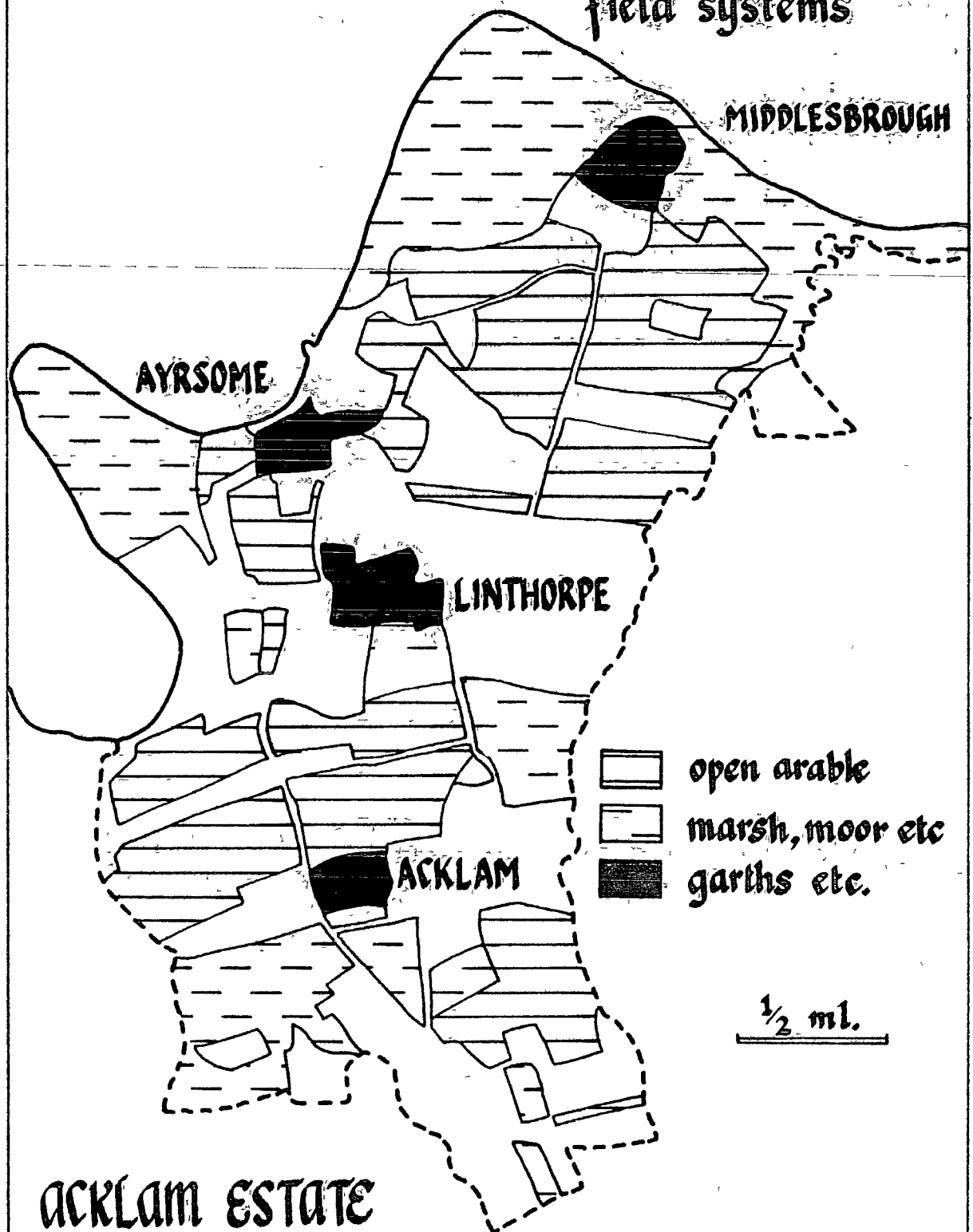
The ecclesiastical parish of Kirkleavington comprised the four townships of Kirkleavington,²³ Castle Leavington, Low Worsall and Picton. each of these is now a civil parish.

Ormesby parish, according to Graves, included Ormesby, Upsall, Morton, Normanby and Eston. The Victoria Country History lists Eston

as a chapelry within Ormesby, and the Ordnance Survey went a stage further by mapping Normanby and Eston together as a separate parish. Eston was dealt with independently of Ormesby in seventeenth century visitations, and in 1691, a witness, describing stock feeding "within the Township and constabulary of Eston" was quoted, "... but he doth not beleieve that Eston is within the parish of Ormsby".²⁴ The 1851 Census Volumes listed all five townships as part of Ormesby parish and added "the Hamlet of Cleveland Port". Cleveland Port, known also as Cargo Fleet and Caldecotes, was mentioned with Ormesby in the 1301 assessment: it was probably a small statthe and fishing settlement and appears not to have had an independent territory. In 1301, Morton and Upsall were taxed together. There is some evidence to suggest that about the year 1500, part of the Ormesby commons had been "separated from the Sayd comon and adioyned to the growndes belonging to the manor or capital messuage of West Upsall".²⁵ The modern West Upsall farm, curiously, is now included in Morton civil parish.

Stainton ecclesiastical parish, latterly comprising five civil parishes, probably includes nine earlier townships. Stainton, Stainsby, Thornton, Thornaby, Maltby, Barwick, Ingleby, Hemlington and Coulby. Kirby²⁶ (now Kirby and Broughton civil parishes) included Kirby, Great Broughton, Little Broughton and Dromonby (possibly also Great and Little). In neither case was a reduction in the number of townships accompanied by any reduction in the total area of the parish.

Partial reconstruction of pre-enclosure field systems Fig. 10



P.K.M.

Acklam, much modified in the course of the nineteenth century, was described in 1716 in the following terms: "The parishes and Constableries of Aclam and Middlesbrough and Constablerie of Linthorp with the Hamlet of Arisham and New Port".²⁷ Graves considered Middlesbrough as dependent on Acklam, but 50 years earlier, Middlesbrough was described as a "Parish" and Acklam as a "Curacy".²⁸ There appear to have been three townships centred on Acklam, Middlesbrough and Linthorpe. The territory of the latter was divided for ecclesiastical purposes between the other two. The Tithe Commissioners found great difficulty in defining the limits of the two ecclesiastical units. An enquiry instigated by the Archbishop of York in 1810 had decided on the relative proportions of the two. "But owing to the intermixture of the Townships the lands belonging to each parish are unknown & in many parts it will be necessary to draw a new line."²⁹ Finally, an adjudication was agreed in 1847, and this, with the legislation incorporating the new town, was the basis of the alignments shown on the Ordnance Survey's sheets. In modern times, Linthorpe had brief recognition in the late nineteenth century census lists. The evidence of surviving field names suggests at least three separate field systems in the pre-enclosure period (Fig.10). The precise relations of the settlement at Ayrsome to the field patterns and territorial units remains ambiguous.

Another divided township was Newby, shared by Seamer and Stokesley. The modern civil parish also includes the former vill of Tunstall, which was long considered a detached portion of Little

Ayton township,³⁰ though in mid-seventeenth century it was recognised as a distinct portion of Ayton and responsible for the payment of one sixteenth "of all the laies that hath been laid upon the whole Parish of Aiton".³¹ It was separately taxed in 1301. Other members of Ayton included "Nunthropp, Nunhouse and Riall Hall" now, and probably earlier, united as Nunthorpe.

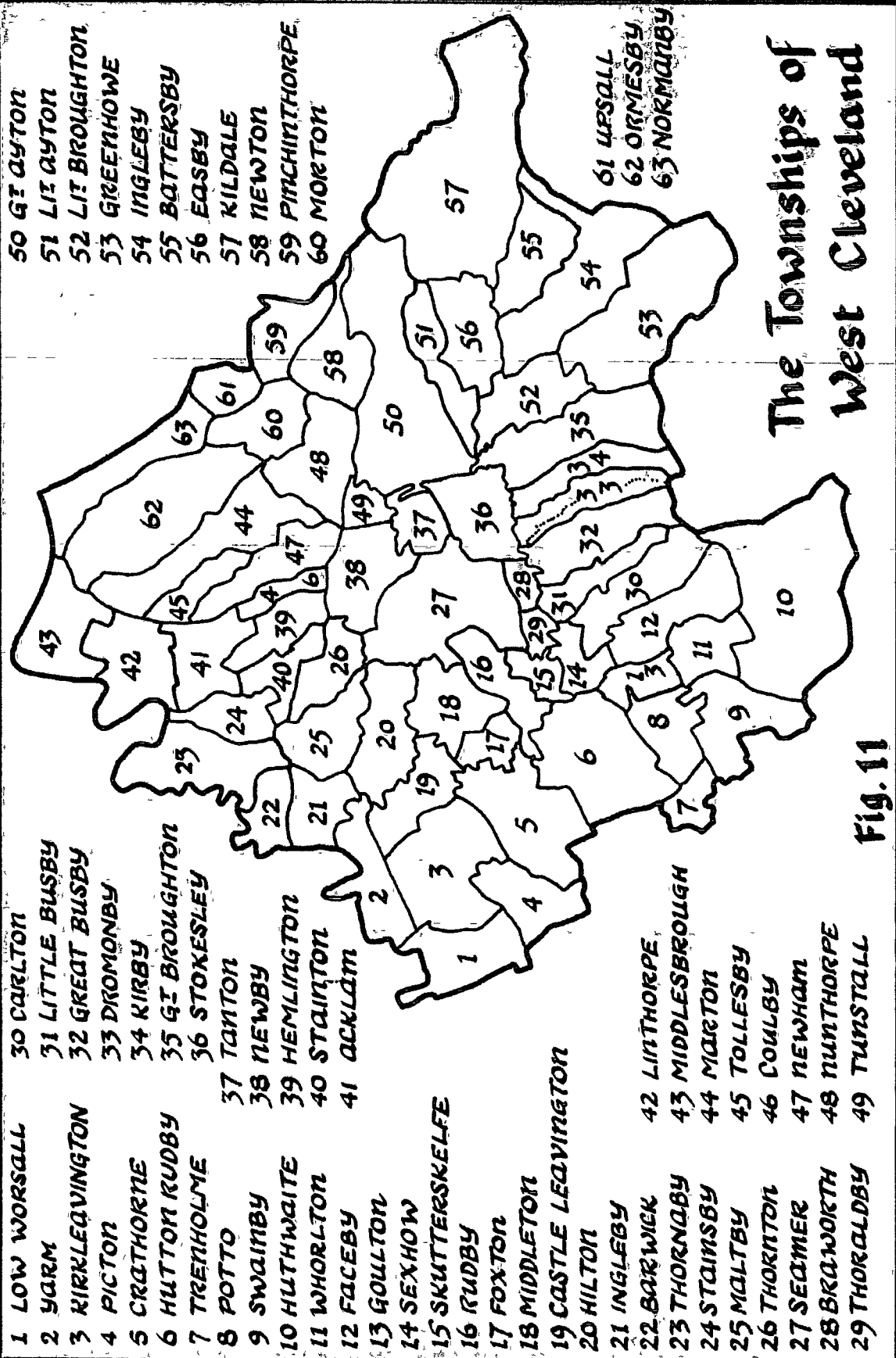
Graves was in agreement with later sources in listing the following townships in Rudby parish: Rudby, Hutton, Sexhow, East Rounton,³² Skutterskelfe and Middleton, though he elsewhere quoted the figures of the 1801 Rudby Crop Return as showing "the number of acres reaped in Hutton, Sexhowe, Skutterskelfe and Rudby".³³ Middleton tithes were being claimed under Hilton in 1663.³⁴ According to the Ordnance Survey, Skutterskelfe was in three portions, an eastern segment (Braworth) forming a detached portion of Rudby, whilst the central section (Thoraldby) was part of Stokesley parish. No such distinction had appeared during the apportionment of tithes, a few years earlier.

Stokesley was the largest parish in Cleveland, but most of its territory lay on the moors and in Westerdale and Basedale. This upland and detached portion, which accounted for 10,000 acres, was not reckoned with Stokesley for statistical purposes.³⁵ In the lowlands, the parish contained part of Newby (and for population census purposes, the whole of that township), Great and Little Busby, possibly Thoraldby, Easby, Stokesley and Tanton. The detached Easby was transferred to Ayton in 1880 under the Divided Parishes Act.

Trenholme was shown as a simple township in Greenwood's map, but the eastern portion, now in Whorlton civil parish, was considered as a distinct tithe district. The western portion was tithed with Ingleby Arncliffe³⁶ and forms part of that civil parish today.

Whorlton, according to Graves, also included Potto township, the village of Swainby and the hamlets of Scarthewoode and Huthwaite. He was uncertain of the status of nearby Faceby, which was probably a curacy or chapelry, and had certainly returned separate glebe terriers. The Victoria County History includes Faceby (and also recognises the hamlet of Goulton in modern Potto). There are indications of a separate field system and of a former village green at Goulton. it may well have been a fully independent township.

The settlement of Whorlton was already deserted in 1801. In 1839, there was no tithe district of Whorlton, but, in addition to that of Trenholme, there was the "Hamlet of Swainby in Whorlton Township".³⁷ An estate survey of 1842 describes the tithes so commuted as "for Swainby and Whorlton",³⁸ and the area of the tithe district is large enough to cover all but the Trenholme portion of the modern civil parish of Whorlton. Neither the Ordnance Survey nor Greenwood had attempted to show any separate territorial existence for Huthwaite, though it was certainly a separate settlement in the seventeenth century.³⁹ On the other hand, a distinct area, "Oxhill and Scarth Lees" is shown on the six-inch map sheet as lying outside the "Liberty of Whorlton," which was alleged to cover the whole parish. This extra-parochial remnant may represent the last survival of a



former independent unit, perhaps Scarthewoods, or less probably, Swainby itself.

While this review has convincingly demonstrated the inadequacy of the equation of township, ecclesiastical parish and civil parish, it has not always revealed the precise relationships at the various dates. Even a much more thorough search, particularly in the mediaeval records, would reveal a complex and possibly confused situation. Such a thorough search has been carried out for the Pickering area.⁴⁰ Again, the equation was found not to apply, but it was thought that "in all probability most of the civil metes of the nineteenth century were at least good facsimiles of their mediaeval predecessors," despite fairly numerous exceptions, especially in the western North York Moors.⁴¹

For West Cleveland, figure 11 indicates the approximate boundaries of the sixty-three units thought to have had independent existence at some time during the years when the dominant land use pattern was that of the midland type or open-field. For purposes of analysis, each is considered to have had its own central settlement and field system, although Wightman's warning that "it is unsafe to see both every village as a township nucleus and every township as a village cell"⁴² indicates the level of generalisation which may be involved. It does seem quite certain, however, that each of the units marked has its unique land use history, often quite distant from that of neighbours with which it may happen to be united in a modern civil parish. Such is the case, to take but one example, of

Great and Little Broughton. The former had many owners and more tenants, it retained all its open-fields into the seventeenth century and vestiges into the nineteenth. Little Broughton, by the fifteenth century, had come into the hands of a single monastic owner, was early enclosed and subsequently depopulated.⁴³ The contrast is still clear today.

Units larger than the ecclesiastical parish are of less direct interest. West Cleveland, as defined here, comprizes much the same territory as did the Western Division of the nineteenth century administrative area of Langbaurgn Wapontake.⁴⁴ The Western portion of Domesday Langberge was rather smaller.⁴⁵ All West Cleveland ecclesiastical parishes fell within the Deanery of Cleveland. There appear to have been neither extra-parochial areas, nor parishes under full peculiar jurisdiction, although it seems that Middlesbrough and Newham (where Whitby Abbey held much land) was included within the Liberty of Whitby in 1301.⁴⁶

¹ L.D. Stamp and S.H. Beaver, The British Isles, (4th ed., 1958), p.589.

² Crathorne, Hilton, Ingleby Greenhow, Kildale, Marton (which, however, lost some land to Middlesbrough in 1874), Newton and Yarm. For statistical purposes, Carlton occasionally included Little Busby.

³ Stamp and Beaver, loc.cit.

- 4 H. J. E. Peake, "Geographical aspects of administrative areas," Geography, XV (1929-30), 536.
- 5 C.S. and C.S. Orwin, The open fields, (2d ed.; Oxford: 1954), pp. 24-29.
- 6 For example, M. W. Beresford, Lost Villages of England, (Lutterworth, 1954) bases his reconnaissance search for lost village sites on this assumption, without any discussion of its validity. Miss Sylvester, in a discussion of the settlement history of the northern Welsh Marches (forming part of the proceedings of Symposium S4a of the 20th International Geographical Congress) seemed to adopt the same position.
- 7 Recently, C. G. Dickinson, Statistical mapping and the presentation of Statistics, (Arnold; London: 1963), has given an excellent summary of the actual relationship of the various administrative units, without specifically examining previous assumptions.
- 8 As translated in VCH-Y, II, 195-327 and mapped here as Fig.2. The identifications are those of I. S. Maxwell, "The geographical identification of Domesday vills," I.B.G. Trans., 16(1950), 95-121, with the exception of Blatun which he places in Great Busby. There does not appear to be any convincing argument in favour of this interpretation and, on the evidence of field names, the order of the Domesday entries and the local pattern of vills, a site in the modern civil parish of Potto is preferred. In private communication, Maxwell supports this second location.
- 9 "Lay Subsidy, 30 Edw 1," YAS/RS, XXI (1897), 26-45.
- 10 J. Graves, The history of Cleveland, (Carlisle, 1808).
- 11 J. W. Ord, The history and antiquities of Cleveland, (London, 1846).
- 12 C. Greenwood, Map of the County of York ... surveyed in the years 1815, 1816 & 1817, (Wakefield, 1817).
- 13 VCH-NRY, (1925), Vol.II.
- 14 BI/R III M l vlll 1
- 15 BI/R III M l vlll 2

- 16 BI/R As.22/18
- 17 LD-CH/ "A terrier ... 1780", notes at end of volume.
- 18 E.g. the county maps of Saxton (1577) and Blome (1672), which show parks only at Crathorne and Whorlton.
- 19 MPL/ "A Survey of the Lordship of Acklam - Ano.Dom. MDCCXVI".
- 20 BI/R VIII H1965, _____1972, _____1981.
- 21 BI/R VIII H4926.
- 22 TRC/ TA Marton. Field number 388 in the ownership of the "Landowners of the Parish of Marton" is named "Tollesby common, 2-1-4."
- 23 This form of the name, used by the Ordnance Survey on the Fifth Edition of the One-inch Map, is adopted in the present work. An alternative, "Kirklevington" appears to be gaining currency, and the name is sometimes rendered as two words, by analogy with neighbouring Castle Levington.
- 24 BI/R VIII H 4256.
- 25 BI/R VIII G 2223.
- 26 Variouslly Spelt "Kirkby".
- 27 MPL/ "A Survey of the Lordship of Acklam."
- 28 MPL/ A copy of a map, dated on internal evidence to about 1730, has no title, but the cartouche has two columns: "Acklam Curacy" and "Parish of Middlesbrough".
- 29 TRC/ TF 12108.
- 30 As in the Tithe Apportionment maps and documents and the 1st ed. Six-inch Map.
- 31 "Quarter Sessions Records", NRR, VI (1889), viii.
- 32 Not included within west Cleveland as here defined.
- 33 Graves, op.cit., p.178, footnote.
- 34 BI/ R III M 1 xiv 1.

- 35 Volumes of 1851 Census.
- 36 Not included within West Cleveland as here defined.
- 37 TRC/ TF 12300, _____ 12319.
- 38 WLC/ Emerson Papers, a field book of 1842, f 3.
- 39 BI/ D & C Wills (Vacancy), August 1687, Christopher Rimer.
- 40 W. R. Wightman, "Some aspects of the historical geography of the Vale of Pickering area, 1086 - 1350 A.D." (unpublished Ph.D. thesis, University of Durham, 1964).
- 41 Ibid., p.77.
- 42 Ibid., p.66.
- 43 See appropriate entries in appendix C.
- 44 As shown by C. and S. Greenwood, Map of the North Riding ... corrected to the present period, (London, 1834). The eastern boundary differs only by the inclusion of Pinchinthorpe and Normanby in the present study and the exclusion of Westerdale from it. In the west, Langbarugh extended further into the Northallerton Gate, with the addition of Appleton Wiske, West and East Harlsey, Ingleby Arncliffe and East Rounton to those included here.
- 45 H. C. Darby and I. S. Maxwell, The Domesday geography of Northern England, (Cambridge, 1962), map at p.86. In 1086, there appear to have been three sections to Langeberge. As compared with my West Cleveland, the Domesday territory excluded Ormesby, Normanby, Upsall, Morton, Pinchinthorpe, Nunthorpe, Newton, Great and Little Ayton, Easby, Battersby and Kildale to the east, and Yarm, Kirkleavington, Castle Leavington, Low Worsall and Picton to the west. East Rounton was included, but I omit it.
- 46 "Lay Subsidy, 30 Edw. I", p.53.

CHAPTER IV

MAJOR SOURCES OF DATA

The present work is essentially a regional study, in the sense that the area to be examined was determined and its limits drawn quite independently of any consideration of the availability of raw material. In this, it contrasts with much historical geographic writing wherein a single source or limited range of sources form the basis of the work - the Domesday Geographies are, perhaps, the outstanding examples of that genre.¹ An inherent characteristic of the source-orientated style is the limitation of geographical and historical scope which must be accepted at the outset. There is evident advantage in that approach, since it fits the mould of classical historical scholarship and methodological problems are few. Also, the simple (but eminently time-consuming) search for information is restricted to supplementary matter. The core data are given. By contrast, if only the regional frame is given, then collection of information forms a very much larger share of the labour of the study. Variety of source data is inevitable in these circumstances. Problems resulting from this are examined in chapter five, but there are also advantages in the method. Not least among them has been the writer's introduction to a number of classes of document which, one believes, have not received adequate attention from geographers.

The core technique of the study of agricultural land use is the chorochromatic mapping of its various categories at a scale appropriate to the characteristics of the agricultural system and the objectives of the analysis. For detailed work, the mapping unit should be the crop-stand (i.e. the area occupied continuously by a single cultivated plant - e.g. wheat - or a recognized association of cultigens - e.g. the Agrostis-Lolium sward -) or, alternatively, an area

of varied vegetation devoted to a single type of management (e.g. rough sheep grazing land). In many instances, on enclosed land, the crop-stand is coterminous with the field, but frequently the exigencies of management (or variations of soil), require a farmer to divide a single enclosure amongst several crops. Each such crop occupies space that is known in Cleveland as a "plat", and the "plat" would therefore be the basic mapping unit. Before enclosure "plat" and "strip" were effectively synonymous.

Ideally, therefore, the central sources for the historical study of land use patterns would be such as to permit the plat-by-plat mapping of the region at a number of significant stages during its agrarian evolution. The extent to which the various portions of this study approach, or fall short of, this ideal depends largely on the availability of raw material of the requisite kind.

Material coming closest to satisfying this requirement is the survey and accompanying map. This class of document was an important tool of land management from the sixteenth century through to the 1850s, and reached its finest development in the 'field books' of the late eighteenth century. These manuscript volumes were produced by local surveyors, usually as part of a survey and valuation of the estate. On alternate pages of the volume were numbered field plans of each farmhold. Opposite, was a list of the fields, with indication of their use (i.e. arable, meadow or pasture) and, in some cases, of the crop currently growing in each arable field.² Ancillary information of great value to be obtained from such volumes include data on size,

shape and boundaries of farms, rental values, names of tenants, field names, measured acreages of the fields, and, in some cases, agronomic notes and suggestions for the improvement of the property. Earlier, the material was not bound into a book, but the map (often on vellum) and the survey existed on separate sheets; sometimes, no map was produced. Disappointingly, in some cases either the survey³ or the map alone have survived.⁴ Steps can usually be taken to make up for the loss of a map, but only rarely (where land use data, or farm boundaries, or field names are inscribed on the surviving map) can the survey be reconstructed, and then only in part.

The problem may be illustrated from two eighteenth century maps of the Acklam Estate. The first of these, thirteen feet square and executed in oils, shows standard topographic information (buildings in profile) and with most fields (shown either in green or yellow) numbered and named in an elaborate key. Other (un-numbered) areas are shown russet brown.⁵ An examination of estate records⁶ failed to throw up any contemporary survey, but did indicate that un-numbered fields were not part of the Hustler properties in 1716 (the date of the map). After prolonged investigation of other possibilities, all of which had to be discarded, the conclusion was reached finally that the fields coloured green were grass and that the fields coloured yellow (which also bore an irregular cross-hatch reminiscent of plough ridges) were, in all probability, arable land. One believes, therefore, that this document is an early coloured land use map and figure 44 is based upon it. A tracing of a smaller map of the

same area (which uses the same field numbers) has no title, but a cartouche listing a number of personal names under the two heads of "Aclam Curacy" and "Parish of Middlesbrough".⁷ The purpose of the map, which the personal names indicate to have been drawn about 1730, clearly had something to do with parish assessment, and certainly (contrary to the assertion of a recently-added caption) does not indicate the location of strips within a system of open-fields.

The earliest map so far traced for West Cleveland is dated 1612, and covers the whole parish of Kildale.⁸ Land use is shown, and the map is richly supplemented by a survey of 1623.⁹ The documents have been separated since the early nineteenth century, the map is in the owner's possession and the survey is now at the County Record Office. The latest known West Cleveland field book is one for the Ormesby Hall Estate which dates from 1853.¹⁰ This is the date of publication of the Ordnance Survey's first six-inch map. As soon as this became available, its sheets were utilized for estate management work, formal records of surveys were not maintained, and the source dries up. Estate surveys and maps are not very plentiful, partly because Cleveland has always had many small properties, but also because many estates have been sold in the past one and a half centuries and frequently all records have been destroyed or have become inaccessible. Some surveys and maps are preserved as sale catalogues.

Doubly precious, therefore, is the survey and map material produced outside the estate office and which has been preserved by

some central agency. Much the most valuable group is that of Tithe Apportionments and Maps.¹¹ Under the Tithe Act of 1836, England and Wales were divided into tithe areas (which often coincided with the historic townships). The situation as regards tithe payments was determined for each tithe area and, in the majority of West Cleveland cases, tithes were commuted either by agreement or compulsory apportionment.¹² Agreement was reached in six localities by 1837 and the whole procedure completed in 1850. Normally, three documents form the official record of this procedure

1. The Agreement or Award, in which are set out the exemptions, moduses and agreed total cash value of tithe.
2. A summary, attached to the above, which lists the owners and occupiers of land and gives a synopsis of the quantity of land under each use category.
3. The detailed apportionment (with accompanying large-scale plan) which gives an account of ownership, occupation, acreage, land use and tithe rent-charge, named field by named field, for all titheable portions of the tithe area.

The third document is clearly the most valuable, preserving, as it does an estate map view of even the smallest property. Moreover, the record for adjacent territories is very nearly contemporaneous, and few areas are not detailed. An additional virtue of a few apportionments is that the field-by-field account lists the various crops as they were growing at the time of the survey (e.g. Hulton and parts of Hulton Rudby).

Comparable with an apportionment survey was that made in Kirby and Dromonby in 1825 for the assessment of the parochial dues.¹³ Documents of this kind (together with estate surveys) were used in the compilation of tithe commutation documents, but no other appears to have survived.¹⁴ A number of other surveys, both private and in public records, are less valuable, in that fields may be named, but no land use given - in the present context, such surveys must be considered as defective.

A rather special class of survey was the parish glebe terrier.¹⁵ Prepared in connection with Archbishopal Visitations, most of those for the later seventeenth century and subsequent periods have survived. Beresford has shown how the glebe farm was often typical of the smaller township holdings and therefore how its history, as revealed in the terriers, can indicate developments (more especially enclosure) in the township as a whole.¹⁶

Mention has been made above of the symbiotic relationship of map and survey, but not all maps have been produced as part of a land valuation process. A valuable early map of Middlesbrough, for example, appears to have been drawn to help resolve some dispute as to title or rights within this former monastic settlement.¹⁷ Other records of the dispute are, apparently, now lost.¹⁸ The much later Greenwood large-scale county map of 1817 and the 1853 edition of the six-inch map are unaccompanied by agricultural detail.¹⁹ But the topographic information on any accurate map of the area cannot be anything but valuable, although such a source falls short of the ideal postulated above.

Title deeds and copies of leases, especially those relating to smaller properties, occasionally contain some of the material of a survey. However, the volume of documents of this kind is enormous, many remain in scattered private repositories and few have been printed. Research in depth into such a source would only be profitable in the solution of specific, highly localized problems. Where material of this kind is available, however, its study can repay the effort - much of the reconstruction of open-field Great Ayton was based on this type of source.²⁰

Classes of record arising from purely financial affairs, such as estate accounts, rent books and the fiscal records of the Land Tax are of relatively little direct interest, but can provide useful ancillary materials, helping with problems of dating, for example. The North Riding land tax rolls are, in fact, disappointing. A number of spot checks showed that they were incompletely filled-in and fail to maintain such important distinctions as that between tenants and freeholders.²¹ Also useful for dating, and occasional topographic references, are the parochial registers of baptisms, marriages and burials, as also the books of the overseers for highways and the poor. Rather few of the latter have survived, and these are mainly late in date.²²

Topographic information, together with much of direct relevance to a study of farming, is to be found in the records of various courts. At the local level, few records of West Cleveland manorial courts are extant. There are some for Great Ayton,²³ which illuminate pre-

enclosure practices, and a few for Kildale.²⁴ However, some townships were non-manorial, and in most others the raison d'être of the courts had disappeared with the open-fields. The context of a few extant rolls (those of Low Worsall, for example) suggest a nineteenth century revival of those courts in which a nouveau-riche Lord of the Manor was anxious to impress.²⁵

Of much greater value have been found the records of the Archidiaconal and Archiepiscopal Courts, especially when these were hearing disputes concerning tithe.²⁶ There is the added advantage that all this material is accessible and indexed by locality.²⁷ Tithe disputes, or causes, were most likely in areas where lay improPRIATORS held the tithe rights of former monastic houses, or where old patterns were changing, especially as a result of enclosure. Incidental references to enclosure are most enlightening, but there is also an abundance of data on cropping and livestock husbandry. Caution is required in many instances, because the documents rarely tell the whole story of a cause, the claims of the two parties rarely coincide and the witnesses may have been partial. Nevertheless, a study of this neglected source can provide much illumination of sixteenth and seventeenth century practices.

Quarter Sessions papers for the North Riding are accessible and have had summary publication.²⁸ Little that is directly relevant to land use studies is to be found in them. No doubt Chancery records would be much more informative, but there has been little publication and the corpus of this material has no toponomic index. Until this

deficiency has been made good, no investigation of the source is feasible. On the other hand, much information on seventeenth century enclosure is found in documents pertaining to the Exchequer Court. Surveys on Special Commission resulting from real or fictitious suits heard in this court are specially classified at the Public Record Office.²⁹ Details of enclosure at Great Broughton and of pre-enclosure patterns at Faceby depend on this material:³⁰ the Court, in fact, appears to have functioned in these affairs as a Court of Record. The North Riding Registry of Deeds, whose establishment early in the eighteenth century reduced the need for recourse to the courts for the registering of title, came too late to yield much information on West Cleveland enclosure. However, both the Newton enclosure agreement and the award under the parliamentary enclosure of Faceby are registered there.

It will be apparent that many of the sources listed so far cannot yield the material for a direct mapping of land use, but are of value in that they reveal contrasts in the landscape which, in turn, may reflect land use changes. Similar topographic data occurs widely, and there is scarcely any document relating to a rural area which fails completely to add to one's knowledge. One superficially unlikely source is the record of Episcopal Visitation (in addition to the glebe terriers mentioned above). Yet parochial perambulation was one of the churchwardens' duties which were inspected at such times. Enthusiasm for this task appears often to have waned after enclosure reduced its direct economic value and failure to perform

the duty is therefore often an indication that the open-field landscape had gone.³¹

Topographic references and data on stock and crops also occasionally occur in wills, especially those of the smaller freeholders or leaseholders, who were anxious to dispose equably of their limited possessions. Literally thousands of West Cleveland wills are accessible and, although they are not indexed by locality, residences are mentioned in the printed index volumes. The enrolled copy of a will is not, unfortunately, accompanied by the inventory of the deceased person's property (which had to be produced at probate), but some of the original wills do have the inventory attached. In the York Probate, the preservation of inventories appears to have been associated with Dean and Chapter jurisdiction, which applied to most of the diocese only at those times when the See was vacant. The total number of West Cleveland inventories is therefore unknown, but during the vacancies of 1663 and 1687/88 sufficient have survived to yield a significant body of data. A deceased farmer's inventory, in effect, lists the live and dead stock of his agricultural enterprise.³² Where a sufficient number of contemporaneous inventories are available, a clear picture of farming patterns can emerge.³³ This is especially valuable in providing quantitative information concerning livestock - an aspect on which data are notoriously short. An exhaustive search for relevant wills and inventories would take immense labour and could be profitable only in the case of the detailed study of a single township.

Stock valuations and sale bills, usually of later date than the probate inventories, sometimes provide comparable material.³⁴ Tenancy agreements, where preserved, occasionally include what is virtually a farm survey,³⁵ but others do no more than give a general indication of the land use policy of the owners and of the restrictions placed upon the tenant farmer. Tithe accounts, on the other hand, are often specific.³⁶ Although they deal only with titheable crops, such accounts can give an estimate of crop yield and, where a run of years is available, actual rotational practice can be observed.

Data on yield, rotations, some livestock population figures and valuable general notes on local farming formed part of the material collected in preparation for the tithe commutations of 1837 to 1850. Each tithe area had its tithe file, and the more important material in each file has been preserved.³⁷ These documents, which are of very great value, have not received anything like the attention which they deserve.

Somewhat earlier in date, and usually less detailed, are the various returns made to the Home Office during the Napoleonic Wars.³⁸ The returns of 1801 are, in general, the most complete and best known.³⁹ Their value and accuracy have been called in question. Indeed, the contemporary Board of Agriculture rejected them outright,⁴⁰ but most modern writers have accorded a guarded acceptance.⁴¹ Their main disadvantages may be listed.

1. The questionnaire was incomplete, in that all crops were not listed. The main local omission was clover, but the exclusion

of a "mixed corn" category may also have caused problems.⁴²

2. It was not the intention of the enquiry to obtain acreages of bare fallow, but this item could have been most useful.⁴³ Similarly, the total acreage of farms contributing to the data was not sought.
3. Actual returns were often incomplete, and it is frequently far from clear to what territory the figures are supposed to relate. Theoretically, the unit was the ecclesiastical parish, but in multi-township parishes there was a tendency to return dependent chapelries on separate forms. Sometimes only the central township was included.⁴⁴
4. Overall, the returns are thought to have underestimated acreages,⁴⁵ but the error was not consistent - even, as at Faceby and Carlton, where the compilation was in the hands of a single parson.⁴⁶

Since there was no adequate control of this primitive agricultural census, consistency is scarcely to be expected. Paradoxically, it is on precisely this ground that most workers have gathered courage to use the material. Analysis has repeatedly shown clearly marked regional associations of crops. Such patterns can only arise from a bias, which (so the argument runs) is more likely to result from the actual crop pattern than from any intruded distortion.⁴⁷

For the interpretation of data and filling in the background of local farming practices and economic trends, what might be termed the "literary" evidence is important. For West Cleveland, such sources

range from the travel records of Defoe,⁴⁸ Young⁴⁹ and Cobbett,⁵⁰ through the agricultural writings of Marshall,⁵¹ Tuke⁵² and Milburn⁵³ and the topographic comments of local historians such as Brewster,⁵⁴ Graves⁵⁵ and Ord,⁵⁶ to the minutes of evidence or reports of assistant commissioners received by nineteenth century Royal Commissions and Select Committees.⁵⁷ Valuable also are the relatively few modern studies which include the area as part of their field. The work of Beresford,⁵⁸ Bishop⁵⁹ and Waites⁶⁰ have been most helpful, especially in placing the period of this study into an overall historical context.

This review of sources would be incomplete without reference to the corpus of eighteenth and nineteenth century field-names, derived from materials already listed, which have been utilized for the partial reconstruction of pre-enclosure land use patterns. The technique is examined in the following chapter. One has also used indirect evidence from the modern landscape (as revealed in the field, on air photographs and large-scale maps), especially the shapes of modern boundaries and the apparent building dates of dispersed farmsteads. Ridge and furrow patterns were investigated, but proved unreliable. A trial was made at Faceby, where seventeenth and eighteenth century documents permit confident mapping of pre-enclosure land use (Fig. 19). The distribution of ridge and furrow showed no similarity to that of the open-fields. It seems likely that too much ploughing, some of which levelled the pre-enclosure high-backed ridges and other which created new ridges difficult to distinguish from the mediaeval type, occurred in the years from 1770 to 1850.

The principal repositories of these varied types of material include national and local, public and private collections. Main local archives are those maintained by the Yorkshire Archaeological Society at Leeds and by the County Council under an archivist at Northallerton, where also the North Riding Registry of Deeds is situated. The Public Record Office and the British Museum have some local material and local sections of national series. At York, the Borthwick Institute houses the valuable collections of the Archdiocese and wills and inventories from the Probate Registry. H.M. Inland Revenue now controls material of the extinct Tithe Redemption Commission relating to tithe commutation, though the Borthwick Institute has some tithe agreements, maps and awards. Parish chests are virtually empty. A relatively small amount of local material has found its way to central archives, partly, no doubt, because a County Archivist was not appointed until after world War II. It is certain that significantly large resources still lie in deed boxes in the custody of various solicitors scattered widely throughout Northern England and perhaps further afield. Unfortunately not all holders of such material are willing to permit access, even when the properties concerned have long been sold. Equally, there is evidence that much valuable documentary material has been destroyed in recent decades. Even material to which access is permitted is difficult to exploit, when (as most of that with solicitors and - due to large pressure on a small staff - some in the County Archive) it is uncatalogued.

A relatively small amount of West Cleveland source material has

been published, either by the Yorkshire Archaeological Society, the North Riding Record Society, the Surtees Society or by national agencies. Much that is of vital interest at the local level is unlikely ever to appear in print. This is one reason why extensive quotation is adopted in this work.

Although one's analysis is based on a wide range of sources, therefore, most individual classes of document do not occur in great numbers. Thus the present work cannot claim to be exhaustive. However, all major conclusions are based on the convergent evidence of several sources. New material coming to light in the future may well embellish, but is unlikely to destroy, the structure created in the ensuing chapters.

- ¹ H. C. Darby, ed., The Domesday Geographies, (Cambridge, in progress).
- ² LTD-CH/"A terrier of the Lordship of Crathorne ... valued and surveyed in 1780," is a particularly beautiful volume of this kind, being illustrated with hand-drawn rural scenes as an extra embellishment.
- ³ E.g. CRO/ ZK 18 (3) an undated survey of Great Busby, without map.
- ⁴ E.g. CRO/ MPE 325, an eighteenth century map of Castle Levington.
- ⁵ MPL/"A survey of the Lordship of Acklam ... Ano.Dom.MDCCXVI."
- ⁶ TBL/ Hustler Papers, passim.
- ⁷ MPL/"Aclam Curacy: Parish of Middlesbrough," tracing of an original on vellum.

- 8 GET-KH/"The trewe plott and mappe of the Manor of Kildale ... - 1612."
- 9 CRO/ Kirkleatham Papers - Kildale, "A survey of the Manor of Kildale taken by Fran. Mason, A.Dom.1623."
- 10 JBP-OH/ Field book, (1853).
- 11 TRC/ Tithe Agreements, Awards, Apportionments and Maps. Three copies of each were produced and deposited with the Tithe Commissioners, in the Diocesan Registry and in the parish. Few of the parish copies are now accessible and the Registry set (at the Borthwick Institute) is incomplete. A good, but incomplete, discussion of this material appears in H. C. Prince, "The tithe surveys of the mid-nineteenth century," Ag.Hist.Rev., VII (1959), 14-26.
- 12 For a number of Cleveland tithe areas, there is no apportionment and map. At Kildale and Faceby, tithes had been extinguished as part of the enclosure process; at Middlesbrough, tithes were extinguished by purchase; at Ingleby Greenhow, although there was an apportionment, it was made on the basis of farms rather than fields and the useful detail is very limited. Other areas without detailed information are Nunthorpe, Rudby, Swainby (i.e. Whorlton), Carlton and part of Little Busby.
- 13 KBY-CH/"A survey and valuation of all the lands, houses gardens and orchards within the townships of Kirby and Great and Little Dromonby in Cleveland ... by me, Rd. Otley, June, 1825."
- 14 G. H. Walley, The tithe acts, 1836 and the tithe amendment act, 1837, (London, 1838), p.224 gives details of methods used for the compilation of tithe maps.
- 15 BI/ R III M, passim.
- 16 M. W. Beresford, "Glebe terriers and open field, Yorkshire," YAJ, XXVII (1950), 325-68.
- 17 PRO/ MPE 542
- 18 The map once formed part of the records of the Land Revenue Record Office. According to a personal communication from the Deputy Keeper, no related materials are extant in PRO.
- 19 C. Greenwood, Map of the County of York ... 1817.

- 20 WLC/ Kitching Papers. Indentures, leases, releases, bargains of sale and a schedule of deeds relating to Great and Little Ayton.
- 21 CRO/ Land Tax Returns, 1791, Hutton Rudby, for example, lists the tenants of the Kirkleatham Hospital as if they had been freeholders. Similar discrepancies occur elsewhere.
- 22 MPL holds a number of Linthorpe overseer's books.
- 23 YAS/ DD 92 has rolls of 1651 and 1655.
R. Kettlewell, Cleveland Village, (Gt. Ayton, 1938) printed extracts from the rolls of 1647 and 1648, pp 80-83.
- 24 CRO/ Kirkleatham Papers - Kildale.
- 25 TBL/ Hustler Papers - Low Worsall, Roll of the Court Leet, 1861.
- 26 J. S. Purvis, "A note on XVith. century farming in Yorkshire," YAJ, XXXVI (1949), 435-54, and
J. S. Purvis, "Select tithe causes," YAS/RS, CXIV (1952), 42-46 have useful comments on this type of material.
- 27 At the Borthwick Institute, York.
- 28 North Riding Record Society, Quarter Sessions Records, Vols. I-IX (1884-1892).
- 29 PRO/ E 178 includes surveys on Special Commission.
- 30 PRO/ E 178 5756, _____ 5759.
- 31 BI/ R VI B4, ff 400 and 405 (Visitation of 1633), in which the churchwardens of Kirby and Ormesby excuse their non-perambulation on these grounds.
- 32 Great use of inventory material has been made by economic historians, e.g. W. G. Hoskins, The midland peasant, (Macmillan, 1957). Joan Thirsk discusses the source in her "Sources of English agrarian history," Ag.Hist.Rev., III (1955), 72-74.
- 33 W. Harwood Long, "Regional farming in seventeenth century Yorkshire," Ag.Hist.Rev., VIII (1960), 103-114, bases his analysis on inventory material.
- 34 E.g. Sale bill concerning a Newby Farm, The Stokesley

Advertiser, 1st.April, 1843.

- 35 WLC/ Goulton Papers, Agreement between Sir Wm. Foulis and John Goulton, 1st.Jan.1820, is an example.
- 36 CRO/ Kirkleatham Hospital Papers, Barwick Tythes contains such data.
- 37 TRC/ Tithe Files, passim.
- 38 PRO/ HO 42/54 and _____67/26 has Cleveland returns.
- 39 E.g. H. C. K. Henderson, "Agriculture in England and Wales in 1801", GJ, CXVIII (1952), 338-45, and D. Thomas, "The statistical and cartographic treatment of the acreage returns of 1801", Geog.Stnd., V (1958), 15-25.
- 40 W. Minchinton, "Agricultural returns and the government during the Napoleonic wars", Ag.Hist.Rev. I (1953), 40, describes contemporary official reaction.
- 41 Ibid, footnote 5 contains a list of authors who have used this material.
- 42 "Rye (or maslin)" was added in manuscript to the York Diocese forms, but little was grown. Other dioceses added "Dill" and "vetches".
- 43 Thomas (op.cit. p.17) was able to ignore bare fallow in his calculations relating to the Welsh marches, but in Cleveland fallow might equal half the cropped area.
- 44 J. Graves (History of Cleveland, - Carlisle, 1808 -, p.178, footnote), states that the Hutton Rudby return included the townships of Hutton, Rudby, Sexhowe and Skutterskelfe: returns do not survive for the remainder of the parish - the chapelries of East Rounton and Middleton.
- 45 This statement is based on a comparison of the magnitude of total tillage as estimated from the returns, and the same parameter derived from other sources. For this estimate, two assumptions are made: (a) that fallow acreages were unlikely to exceed 45% of the listed crop acreage, and (b) that unlisted crops were unlikely to exceed 5% of the listed crop acreage. On this basis, the following values for total tillage as a percentage of farmed total, are obtained:

Acklam	40%	Kirkleavington	45%
Carlton	56%	Marton	40%
Crathorne	38%	Middlesbrough	31%
Faceby	18%	Newton	188%
Hutton Rudby	37%	Ormesby Tship.	60%
Ingleby Greenhow	29%	Ormesby Parish	37%
Kildale	24%	Seamer	45%
Kirby greater than	21%	Whorlton	35%
		Yarm	30%

Comparison with figure 66 will indicate that the result is, in many cases, not totally unreasonable. Estimates for Ingleby Greenhow, Kildale, Whorlton (which here includes Potto township), Yarm and Kirkleavington agree well with other estimates, and Ormesby does so remarkably well if the calculation is based on the township rather than upon the parish. Crathorne looks rather low (c.f. value of 41.6% already established in 1780), as do many others. Kirby (even though damage to the manuscript limits the total to the principal crops) is much too low, and Newton is ludicrously high. The overall impression is that values are low, but not, perhaps, by more than 10%.

46

These parishes were served by Rev. Thomas Deason who wrote: "Carlton and Faceby are very small Parishes: yet the produce for so small a Number of Acres in each Parish has been very good." There is no suggestion of any major contrast between the two, but his figures imply that Faceby had less than 20% of its land under the plough while Carlton had about 56%. The latter value is more in agreement with Graves's estimate of one half.

47

On these grounds, the Newton return is discounted. Graves (op.cit., p.24) described "the soil and produce ... greatly similar to the lands in the adjoining parishes", but the incumbent recorded values which, by local standards, were much too low in wheat, extremely high for barley, and (having regard to soil conditions) turnip and potato acreages which are very difficult to accept. Comparison with a nearly contemporary survey of almost half the farmed land of the parish (CRO/ Staveley Papers, "A survey and rental of Mrs. Norton's Estate at Newton-in-Cleveland, Yorkshire," 1802) confirms the discrepancy:

Percentage of total crops listed

	1801 Return	1802 Survey
Wheat	22.3	41.2
Barley	13.5	-
Oats	49.5	48.2
Mixed Corn	-	8.5
Potatoes	8.7	-
Turnips	5.9	-
Clover	-	2.1
Total	<u>100.0</u>	<u>100.0</u>

- 48 D. Defoe, A tour thro' the whole island of Great Britain, (ed. G. D. H. Cole; London: 1927), p.656.
- 49 A. Young, A six months tour through the North of England, (London, 1770), 4 vols.
- 50 W. Cobbett, Rural rides, (Reeves and Turner; London: 1886), II, pp. 363 and 367.
- 51 W. M. Marshall, The rural economy of Yorkshire, (1st ed., 1788), 2 vols.
- 52 J. Tuke, A general view of the agriculture of the North Riding of Yorkshire, (Quarto ed., 1794 - Octavo ed., 1800).
- 53 M. M. Milburn, "On the farming of the North Riding of Yorkshire," JRAS, IX (1848), 496-521.
- 54 J. Brewster, The parochial history and antiquities of Stockton upon Tees, (Stockton, 1796).
- 55 J. Graves, op.cit.
- 56 J. W. Ord, The history and antiquities of Cleveland, (London, 1846).
- 57 E.g. "Second report from the Select Committee ... Agriculture," Reports from Committees, V, No. 668 (1822).
- 58 E.g. "The lost villages of Yorkshire," YAJ, XXXVII (1951), 474-91, _____ XXXVIII (1955) 44-70, 215-240 and 280-309.
- 59 E.g. "The distribution of manorial demesne in the Vale of Yorkshire," Engl.Hist.Rev., XLIX (1934), 386-406.
- 60 E.g. "The monastic grange as a factor in the settlement of North East Yorkshire," YAJ, XL(1963), 627-55.

CHAPTER V

DATA UTILIZATION, PRESENTATION AND PROBLEMS

In the narrowest sense of the term, land use study can only be conceived as an exercise based directly on fieldwork. Only in the field can the subtle inter-relationship of the farmer's aim, the system in which he is working and the techniques available to him be examined as they impinge on the resources of the natural environment, so as to 'explain' a land use pattern. One's essential concern, therefore, is with the land and the landscape. Yet, in practice, it becomes extremely difficult to preserve this intimacy of the direct approach through to the exposition stage, especially if the study is a large one.¹ The geographer has for long sought to overcome the problem of exposition by use of his central tool - the map. All too easily, the map becomes dominant and an examination of processes and results within the landscape takes on the style of an exercise in map analysis. Such a shift of emphasis is all the more tempting when, as in historical work, the landscape is inaccessible. All aspects of the synthesis have then to be reconstructed from documentary evidence, for even edaphic and other aspects of the physical environment are subject to change. In this study, one has attempted throughout to visualize the landscape beyond the documentary source, and the methodology shortly to be discussed attempts to preserve this vision in the final account.²

By any criterion, as is clear from our first chapter, land use relationships have been changeable during the three centuries ending about 1850. Not only has there been the evolution from subsistence-oriented open-field systems to a pattern of commercialized enclosed farmholds,³ but throughout (though more clearly discernible in the later years), a quasi-cyclic fluctuation of the relative fortunes of plough-farming and stock-farming. Mutation within the economic frame-

work has produced striking modification of the land use pattern. The best structure for a discussion of such a sequence is not necessarily the continuous narrative, which gives little scope for the examination of factors controlling the spatial distribution of phenomena. Nor is the 'lantern slide' technique of sequent occupance study self-sufficient, since transformation has often been slow - innovation has resulted from evolution, rather than revolution. Transitional phases may often be equally as significant, therefore, as periods of quiescence, and without comprehension of the process of change, stages in the sequence may not fully be understood. The presentation of material in this thesis accordingly comprises a series of transects across the time continuum. Each is of chapter length, so that geographical analysis of the prevailing land use patterns may be given full rein. Intervening chapters act as links in the sequence, introducing modifications of the economic or technical background to West Cleveland farming, and illustrating the transition from one stage to the next.

Ideally, the timing of the transect studies would coincide with periods of stability. Each should be very limited in the time-span to which it relates. All should contain comparable material, perhaps presented in uniformly systematic manner. Unfortunately, the exigencies of the data permit the full satisfaction of none of these requirements.

Regrettably, continuity and equilibrium are poor begetters of record. Willis and inventories arise at times of death, enclosure documents are drafted as new patterns replace the old, surveys and

plans often signify a new owner's enthusiasm or preparation for a sale. The bulk of documentation tends to increase at times of great upheaval. This is also true of 'literary' sources, since changing events (having caught the attention of those affected by them, or wishing to influence them) result in a proliferation of commentary. Such periods may well provide the best opportunity for cross-sections, despite the fluidity of the situation. The years of the Napoleonic Wars (chapter thirteen) form one such unstable, but well-documented, era. Again, the study ends at a time of crisis, when the forces of the previous half-century were spent and entirely new factors were intervening (chapter fifteen). Earlier, Arthur Young, the exponent of improvement, saw the area in course of adopting the 'New Husbandry'. (Though in this case, innovation was less swift than he anticipated. Moreover, his balanced account pictures both conservative and progressive elements of the Cleveland community.) Further back, the speed of change appears to slacken and traditionalism come to the fore - but this view may be heavily conditioned by a relative paucity of data and of commentary.

Allied to the problem of the stability of phenomena, is that of contemporaneity of data. Clearly this requirement may be applied less stringently in more stable periods. This reasoning might be thought to justify the extended time-span of the discussion of pre-enclosure land use (chapter six) and of the two succeeding transects which cover a century (circa 1550 to circa 1650 - chapter seven) and a half century (1650 to 1700 - chapter nine) respectively. In the first case, further justification might be sought, because here one is

concerned with one of the major phases of resource useage. Many of its characteristics, according to the concensus of opinion, show continuity backward into mediaeval or earlier centuries. Wherefore it might be argued that much more of the extant mediaeval source material might have been utilized for the re-construction of pre-enclosure patterns. These were largely avoided for two reasons. The first is academically unsatisfactory but entirely practical - the writer was ill-equipped for entry into the field. Secondly, it was feared that the effort would be so time-consuming as to distract attention from the central theme of the work. Consequently, that section is essentially retrospective, both in regard to its function as a base-line study for the thesis and with respect to the materials. As is explained below, treatment of the period called for the development of special techniques.⁴

The period from circa 1550 to 1650 (indeed, to a lessening extent, the following one hundred years also) saw the co-existence of two entirely contrasted land use systems. Eventually, the enclosed landscape came to dominate completely, but it is appropriate to examine separately the land use of enclosed areas during those years when open-fields were still normal (chapter seven).

Central to this discussion of the contemporaneity of materials is the fact that, unless a single source provides all the data required, then some extension of the time-span will be inevitable if discussion is to be sufficiently broadly-based as to be rewarding from the geographical point of view. Some generalization in time

may be necessary to achieve particularization in space.

Comparability, the third criterion of an ideal series, is also difficult of achievement. In the central area of the study, the examination of the distribution of major use categories (e.g. arable, meadow, pasture and woodland), a qualitative comparability must be achieved or the series is invalidated. Yet even at the core, there may be contrasts in the amount of detail. Thus one period may be discussed in terms of a more or less complete chorochromatic mapping of data (Figs.99 to 104), another on the basis of a very incomplete chorochromatic mapping (Figs. 12 - 15), a third from the slender evidence of a small series of township or farmhold maps (Figs.51 to 61 and yet a fourth will depend on a sketch-map indicating no more than the general outlines of a distribution (Fig. 43). Parity of data is aided by quantification. It is for this reason that one has chosen to express the local or regional balance of the major land use categories as a ratio or percentage value. Since woodland was rare in West Cleveland, villages, buildings and open water covered insignificantly small areas, and moorland and other un-improved land was restricted, a ratio of the following form is used:

$$\frac{\text{arable acreage} \times 100}{\text{acreages of (arable + meadow + pasture)}}.$$

Variations in this ratio express the major contrasts between the periods studied, and also summarize important sub-regional distinctions at a single date. But qualitative distinctions must also be considered.

It is particularly amongst the ancillary material that compara-

bility between periods becomes difficult. There is clearly a complex network of relationships linking land use (sensu stricto) with other factors such as the degree of commercialization, ambition and technical ability of the farming community, the resources in land, stock, seeds and equipment available to it, market conditions, productivity and the level of rents. Such features as type of tenure, the size and shape of farmholds and the disposition of the various qualities of land within the holding, form part of the complex at its most detailed. The contemporary study can collect information on all such points, the historical analysis depends on its source materials, including the inevitable lacunae. However, the land use patterns of each period tended to be influenced particularly by a rather limited number of factors - where possible, appropriate emphasis is placed on these. Finally, since the geographer's special concern is with place and distribution, particular attention is given to such influences as varied markedly in space. The main elements of this group are the edaphic aspects of the environment which a priori would be expected to exercise significant control of agricultural activity.

Given the general 'patchiness' of source material, one central question faces all who attempt historical reconstruction - how representative are the available data? Modern studies can make use of random sampling methods to select representative cases or to test for typicality, but the characteristics of past populations are unknown and no direct test is possible. The best that can be done is to expand data as much as feasible and to eliminate the more obvious

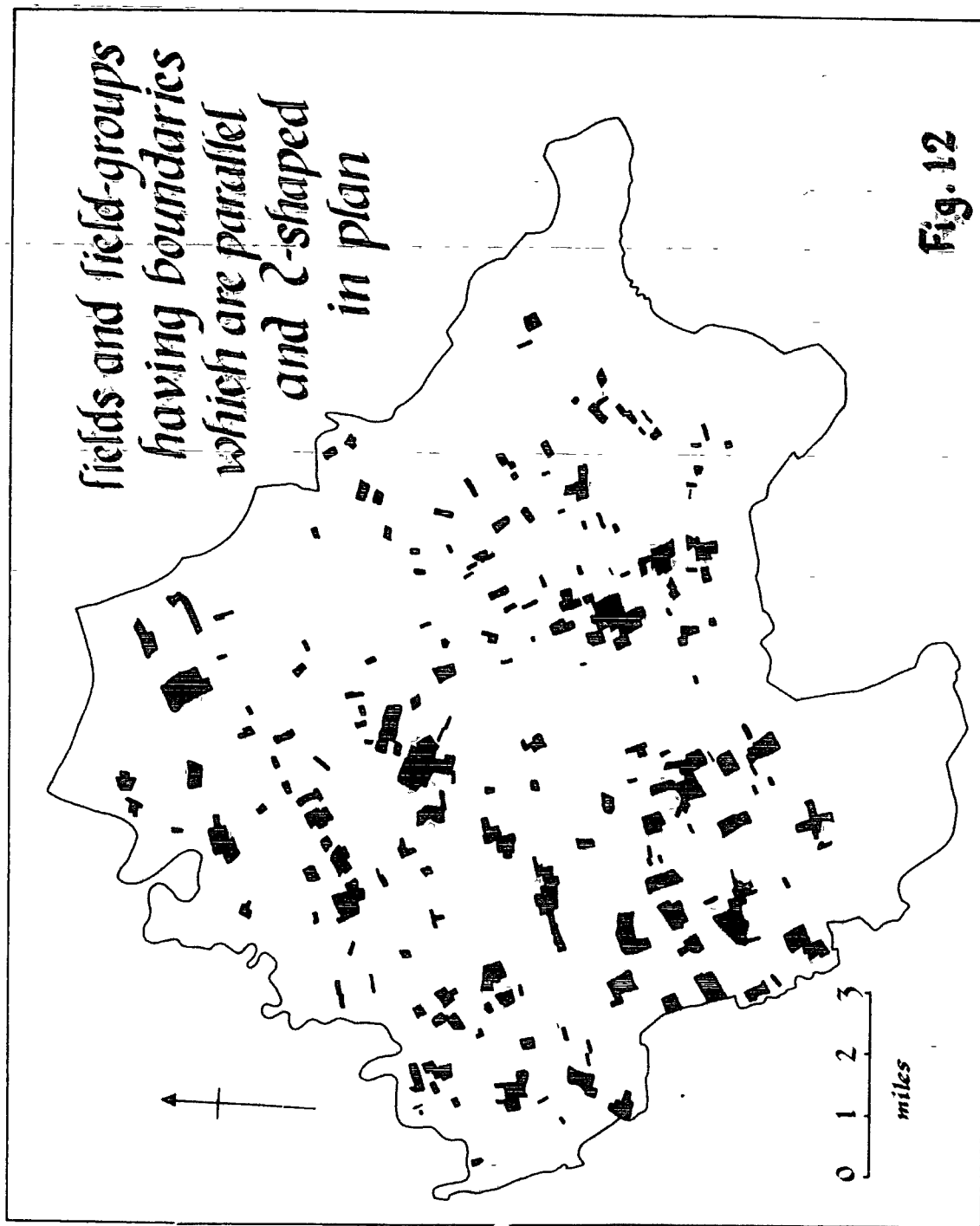


Fig. 12

of the special or biased examples. One aspect of this problem may be illustrated from the procedures adopted to reconstruct the open-field land use pattern in West Cleveland.

Although there is evidence to suggest that the vast majority of West Cleveland townships and localities had open-field systems, detailed maps can be constructed for five only and partial maps for four others (chapter six). In the process of reconstructing these maps from the documents, great assistance was afforded from two directions. (1) sets of parallel field boundaries, characteristically having a 'reverse-S' plan, and apparently following the alignment of much earlier boundaries between strips in the open-fields:⁵ (2) the names of enclosures as recorded in eighteenth and nineteenth century surveys. In almost every case, in the mapped townships, the 'reverse-S' boundaries were on land that the documents showed to have been open-field arable (or mixed arable and meadow). Specific and distinctive elements of the enclosure names helped to locate portions of the pre-enclosure landscape, but in addition, it was observed that certain more general elements (e.g. "flatt", "riggs", "ings" and "intake") were always associated with certain types of pre-enclosure land use (i.e. "flatt" and "riggs" with arable, "ings" with meadow and "intake" with pastures). Moreover, these same 'indicators' were observed to be widespread in other townships (see, for example figure 12). It seemed that there was here an opportunity to use non-documentary evidence for the amplification of a scanty and highly

localized set of data.

Accordingly, materials were collected and mapping proceeded, subject to the following checks.

1. Since most open-fields were enclosed by about 1650, and the bulk of the field-name data came from documents of circa 1840 (i.e. the tithe apportionments), a check was made on the rate of survival of field-names. Six areas were selected where surveys gave the necessary information at two or more dates. Field-name survival rates were then expressed in terms of the percentage of the area at the earlier date which was still recognizable at the later date. This test, the results of which are in table V, was worked for all the names at these localities. It indicated that some survival (perhaps 25%) over the relevant period might be expected.

TABLE V - Results of a test of field-name survival⁷

Century.	Mid-16th	Late-16th	Early-17th	Mid-17th	Late-18th	Early-19th	Mid-19th
Kildale			100				52
Crathorne					100		18
Foxton				100		40	8
Busby					100		45
Broughton	100		66			33	25
Berwick				100			18

2. Only the nineteenth century forms of most of these field-names are known. Therefore the application of rigid philological tests

such as are used by place-name scholars was not possible.⁸

However, each word considered for use as an 'indicator' of pre-enclosure land use has been checked with regard to fundamental meaning⁹ and with regard to local useage.¹⁰

TABLE VI - Field-names as 'indicators' of

pre-enclosure land use

Land use category	Meaning of field-name	Field-names
Open-field arable	Strips within open-field	Lands, Riggs, Acres, Butts.
	Furlong within open-field	Flatt, Fall, Furrows, Furrs.
	Share of open-field	Wandale, Dale.
	Unploughed part of open-field	Sike.
Common Pasture	Uncropped land	Moor, forest, Marsh.
	Formerly uncropped land	Intake, Intack.
Meadow	Specialised meadow	Ings, Swang.

3. Field-names accepted as 'indicators' of pre-enclosure land use are shown in table VI. Useage is considered in the following sections:

(a) The field-names "lands", "riggs", "acres", "butts" and "furrows" are only reliable where they occur in the plural, as singular useage may be of post-enclosure date. "Acres" has to be treated with great caution, as its introduction in field-names such as "Ten Acres" (where the reference is to the measured area of the field) is current.

"Lands", as in "cultures called Langelandes" (Whorlton¹¹) and "barley growinge upon 13 landes in the dyke flatts in the Feildes of Kirk-leventon"¹² refers to the working units in the open fields, as do "Riggs" and "Furrows". At Ayton, in 1615, the fact that enclosed areas were "rigg and furr groundes"¹³ was regarded as certain evidence that these had been open-field arable: that the term "furr" could acquire toponomic value is clear from a will of 1629 "all my right in the backhouse furrres".¹⁴ For the local use of "butts", there is the evidence of the map of Middlesbrough's open-fields,¹⁵ and many references at Newton.¹⁶ "Flatt" was used very widely. "Spittal Flatt" and "William Flatt" at Yarm (1657),¹⁷ "cultures called Hexildsamflat"¹⁸ at Whorlton (no date, but early) and "six lands called mill flatt" at Faceby¹⁹ (1630), are examples. The synonymous "fall" is much more restricted, though Beresford has noted its use elsewhere in Yorkshire.²⁰ The only translation given by Smith²¹ is "a forest clearing," so that this term affords useful corroboration of the general theory of the origin of furlong blocks. At Acklam there is a seventeenth century reference to "the Mill hill Fall,"²² but this land may already have been enclosed by this time. There is no certain local example of the open-field use of "dale"²³ or "wandale", but there appears to be no doubt of their meaning, though the former poses problems of ambiguity where "valley" might be a possible meaning. According to the Orwins "sike" has a clearly defined meaning in the Midlands,²⁴ but in the absence of local evidence too much reliance cannot be placed in it as a Cleveland open-field 'indicator',

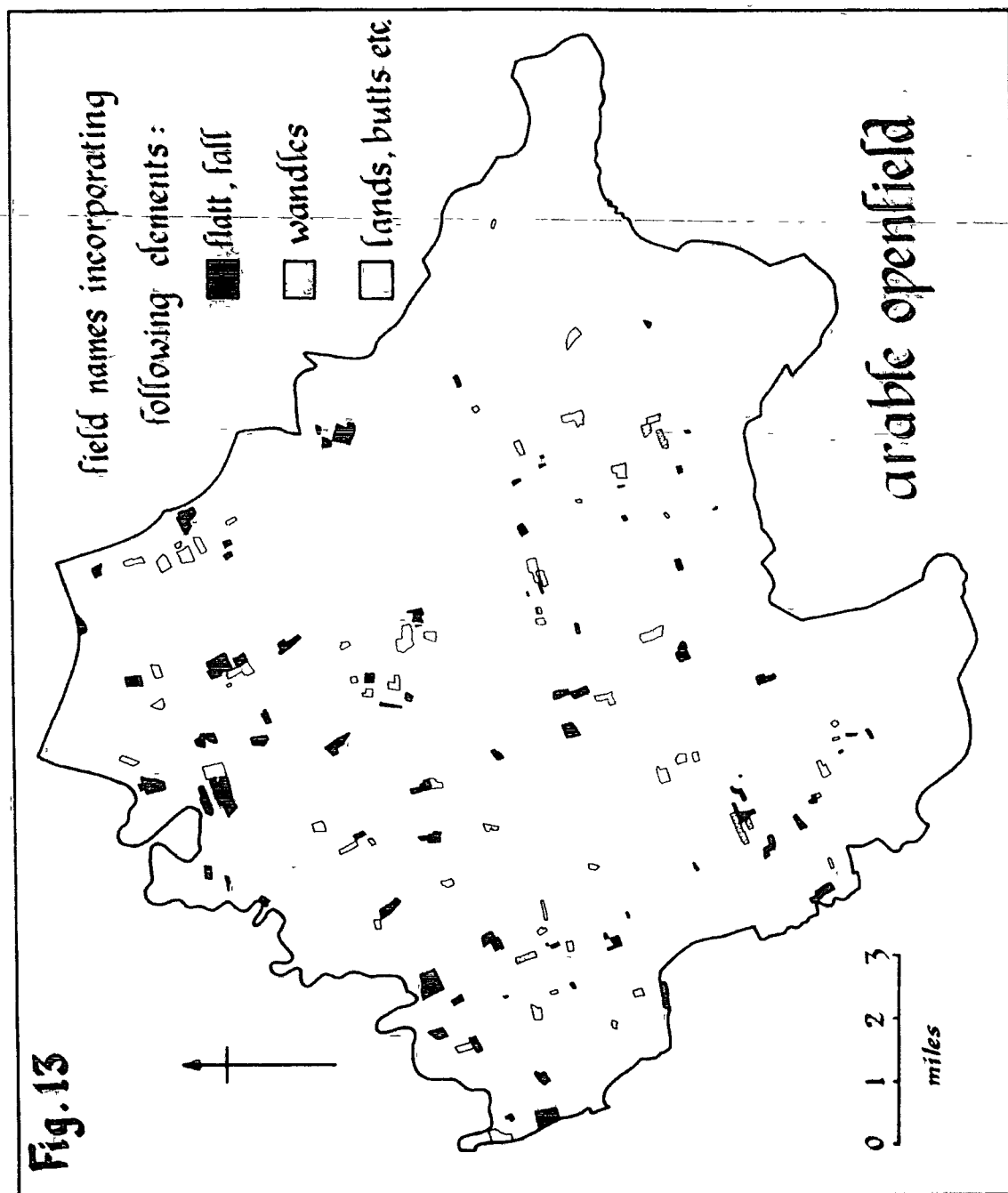
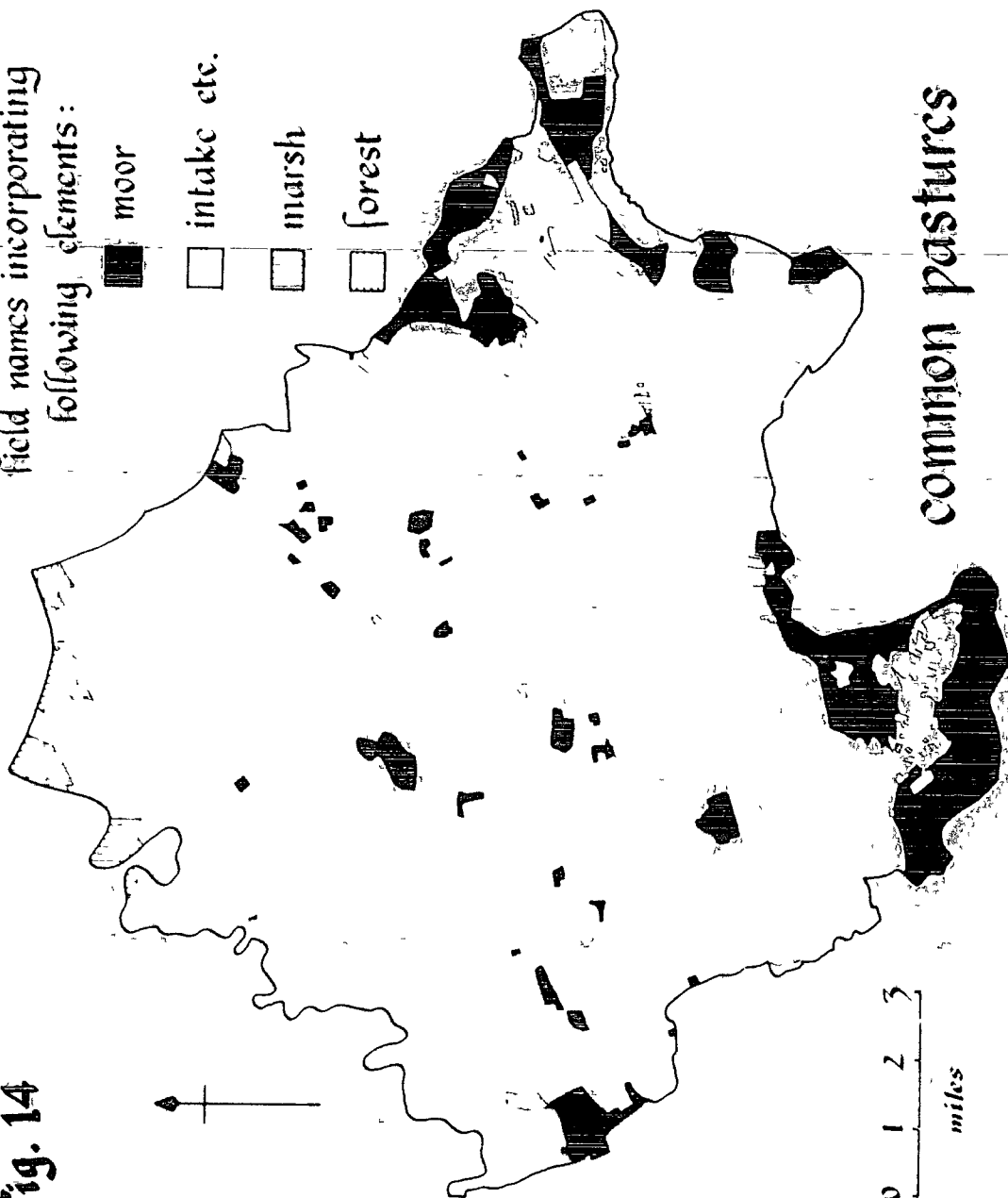


Fig. 14

field names incorporating
following elements:

-  moor
-  intake etc.
-  marsh
-  forest



common pastures

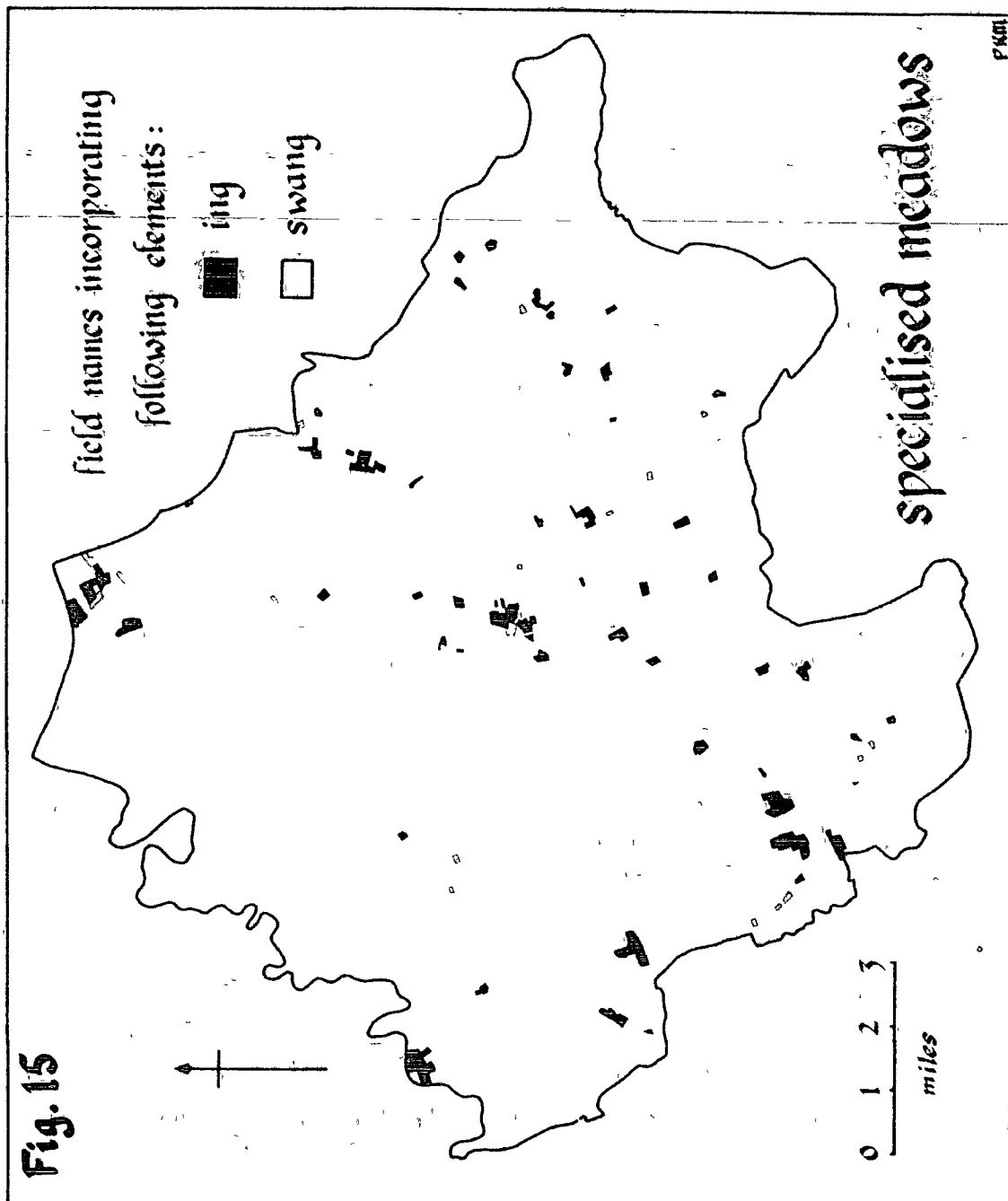
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certainly at Kildale (1623)²⁵ it is used of an unlikely location.

The distribution of open-field arable as indicated by these names is shown at figure 13.

(b) "Moor" is, in a sense, self-explanatory, but it is certain that a wide range of different qualities of land might be so described, ranging from the high bleak plateaux of Ingleby and Stockdale Moors to the vastly superior commonable pastures of Kirkleavington and Marton. In the eighteenth century, the term came to be used of a soil type, as for example at Stainton, where part of the glebe was "fourty acres, but of smal value as being infested with whins & of a moorish soil,"²⁶ but field names were not affected. By analogy with the barren wastelands of most of those North Country areas in which the Forest Laws applied, "forest" in Cleveland was a synonym of "moor" and was not used of woodland until the present century. Whilst the general sense of "intake" might imply enclosure of any sort, a very valuable Battersby reference supports the general observation of the term's restricted use. "that if a man devide a close by a ditche he thinketh the peece so divided is properlie called a close divided into two and not an Intacke excepted it be takin from the comon or soom large soomer pasture."²⁷ "Ings" (in this instance derived from Old Norse innám) was sometimes an alternative for "intake" and must be carefully segregated from the "ings" which is a derivation from eng meaning "meadow". Common pasture 'indicators' are mapped in figure 14.

(c) Both "swang" and "carr" frequently occur in close association



with "ing" (meaning meadow), but there is clear evidence from several localities that the name "carr" was being adopted for wet land as late as the 1820s.²⁸ "Swang" however, appears early to have lost its currency, and that it may be grouped with "ing" as an indicator is suggested by its use at Ormesby (1716) where a distinction is made between the tithable meadow "swangs or low grounds" and the "tith hay of the ancient arable,"²⁹ for which a modus was paid. Meadowlands identified from field-names are shown in figure 15.

(d) A number of other field names might be regarded as possible 'indicators' but are neither mapped nor listed in table VI. These include "oxclose," "leys" and related words (omitted because of the impossibility of differentiating a derivation from leah or laes and also because the term "ley" is still fully current), "prys" and "greens". In each of these cases, the suggestion is that the land concerned had an earlier history of pastoral or meadowland, rather than arable, utilisation.

4. A check for contradictory indications showed fewer than a dozen conflicts.³⁰ Where unresolved, such cases were omitted from subsequent consideration.

Such of this non-documentary material as was found acceptable, was then added to the map derived from documentary study, to yield figure 27, which, although defective for 60.4% of the area, is much less so than that dependent entirely on direct evidence. An increased size of sample, however, does not per se imply improved representativeness. Since the material now comes through several different channels,

however, a reduction of the total bias, as compared with material dependent on a single source, is probable. Further, if the various strands (as they do in this case) give the same general picture, then the principal of convergence of evidence will apply. Any further attempt to eliminate bias must depend on the manner in which the data are to be used. For subsequent treatment of this particular set, see below.

The essence of the whole problem of representativeness lies in the fact that the survival of evidence may not be independent of the factors governing the events themselves. Thus, with regard to enclosure, multi-ownership not only made enclosure more difficult (and therefore likely to be late in date rather than early), but also increased the probability of dispute, or if settled amicably, the number of sets of archive. Thus a late enclosure is more likely to be recorded than an early one. Such a tendency is equally typical of those sources whose object was to inform, and for which impartiality might be claimed. All too easily it is the curiosity which catches the traveller's eye, the ordinary is too commonplace for his attention. again, the nature of the item affects the chance of its memory's survival. On the other hand, a writer setting out not only to inform but also to be objective, is of greater value to posterity. Herein lies the great virtue of Young, who tempered his record of innovation with a description of the common practice. Because of this, one is able to test the data available for the 1770s against the selection of examples which he found to be typical (chapter eleven).

Because evidence is incomplete, some conclusions are necessarily based on the testimony from individual farms, estates or parishes, and bias must be accepted. Thus, non-random case-studies of farms form much of the material on which generalizations are based. Equally, however, the farmhold (as the decision-making unit of the post-enclosure situation) has its own special place in land use studies and will be quoted to add special point to generalized findings. As a result, the line of argument may run from the general to the particular or vice versa, according to the data available, or the points requiring to be made. A rigid plan of approach would prove limiting. However, so far as is consistent with the pattern of argument and the disposition of facts at one's disposal, case-studies within the various transects will return to the same ground. In this way it is hoped that the detailed, as well as the general, consequences of change will become evident.

So far, discussion in this chapter has been concerned with general problems of data utilization and the broad structural framework of the thesis. There remain a number of specific problems which fall under the general heading of "data handling," and comprise difficulties of dating, locating and mapping evidence, with, finally, the question of analysis.

Most of the material utilized carries internal and direct evidence of date. Occasionally, however, a map or document lacks this necessary information. As an otherwise useful source might not lightly be discarded, an effort was made in each case to rectify the

discrepancy. Most such material carried one or more personal names, and the best procedure was found to be reference to manuscript or printed parish registers, rate books, land tax returns or estate account books. In this way a limited period of years could usually be defined within which all the individuals named could be shown to have the interests indicated within the document. This technique was applied successfully to a number of glebe terriers, to a map of Acklam³² and a survey of Great Busby,³³ amongst others.

Location also proved a difficulty, particularly with material from central archives. The problem is compounded by the great number of very common place-names to be found in West Cleveland (e.g. Newton, Marton and Hutton) and by others duplicated in other parts of Yorkshire (e.g. Ayton, Seamer and Acklam³⁴). The situation is made yet more difficult by the close proximity in our area and elsewhere of homonymous pairs. Seamer and Ayton near Scarborough; Stainton and Maltby near Sheffield, are examples. The use of indexes is much complicated by this feature, and even the original documents may not be more specific. The 1801 crop returns for Marton illustrate the general problem. Three York Diocese returns for "Marton" have survived. two are unsigned.³⁵ There prove to be eight localities of that name in Yorkshire. One return specifically identifies the parish as "-in-Craven", while in the return for the parish of Swine in Holderness there is a note to the effect that no separate return has been submitted for the township of Marton in that parish. Marton-le-Moor and Marton-with-Grafton were both in Chester Diocese at this

time. This leaves four "Martons" and two returns. Only Marton-in-Cleveland had full parochial status, while Marton-in-the-Forest had some independence. the others were small dependent townships of Sinnington and Sewerby. The final key lies in the comment on one return that the soil was too strong for barley or potatoes, but good for wheat and beans. The balance of crops is akin to that of Cleveland parishes it appears to relate to Marton-in-Cleveland. Confirmation comes from the silty nature of the soil in Marton-in-the-Forest and the fact that in the return which therefore almost certainly belongs there, the acreage under oats is almost twice as great as that under wheat turnips also are important. This balance is unlikely for Cleveland, but comparable with that found in other Galtres parishes. In other cases, lists of personal names have proved as useful as in the dating problem.

Mapping raised a number of problems. Particularly difficult was the reconstruction, from enclosure documents (the purpose of which was to record rights within the newly-created enclosed landscape) of maps of the pre-enclosure countryside. Without the field-name lists provided mainly by the tithe maps and apportionment deeds, and an intimate study of the ground, little progress could have been made. Equally difficult was an eighteenth century survey of Great Busby, unaccompanied by any map.³⁶ The survey showed a number of field-names in common with the tithe map, the fields listed were numbered consecutively and an admeasurement of each field was given.³⁷ Using the common field-names as 'anchors', the relative magnitudes of

the fields and a knowledge of past and present hedge-lines (obtained partly from air photographs), it was possible to trace the surveyor's progress around the township and hence finally to reconstruct his plan.³⁸

While mapping land use or crop distributions chorochromatically from survey records, one recurring difficulty was that of the field with one or more crop "plats". Occasionally the survey indicated how the field was shared, either in terms of area or orientation (e.g. "wheat - western half; oats - eastern half"), but this was rare. To circumvent the difficulty, a standard procedure was adopted. The given area was divided equally amongst the named crops (although this would tend to exaggerate the less common crops, such as roots or brassicas), which were plotted on the map from left to right in the order of listing. No doubt some distortion results, but it seemed better to opt for a definite statement rather than to leave lacunae, and (on balance) preferable to avoid subjective apportionment.

All chorochromatic mapping and a good deal of analysis was carried out at the scale of six inches to the mile, or at the "two and a half-inch" scale. Subsequently, maps have been reduced to scales convenient for quarto presentation, but all maps and sketch maps relating to the same area are, for ease of comparison, presented at a uniform scale. This means, however, that adjacent maps which are topically similar may not be directly comparable.³⁹

In addition to the various chorochromatic maps of land use categories or crops, many sketch maps are produced, showing distributions

within the West Cleveland area as a whole. Such sketch maps are based on statistical data from various sources. Since it is not always certain from what land the data derive, the choropleth technique is not much used. All values are expressed as ratios⁴⁰ (e.g. wheat acreage as a percentage of total crops) and the technique of located, proportional and divided circles is utilized, the circle being drawn to a scale identical with that of the map. In this way, the chorochromatic impression is preserved. Also, the map itself indicates both the spread and size of the information on which conclusions are based. In some series, other symbols are added to the maps: proportional hexagons represent data which is apparently based on estimation;⁴¹ non-proportional squares are used where the base value is unknown, while small triangles indicate qualitative material.⁴²

A final group of problems arose in connection with the analysis of the area's land use patterns as revealed in maps and other data. Case-study material is examined in the traditional visual manner, associations of specific use categories with other spatially distributed parameters are observed and discussed in the text. As the work has proceeded, however, there has developed a growing sense of the inadequacy of this time-honoured approach. Part of the problem lies, no doubt, in the character of the area itself. For, as Wooldridge wrote of the whole North Riding,

The land-use patterns ... show, with limited exceptions, no ... simplicity. We have seen that the area is essentially intermediate or marginal in respect of physiography and climate. Accordingly very large areas are devoted to mixed farming To recognize this fact is ... to emphasize the

wide range of farming types permitted by the physical conditions.⁴⁵

Unsatisfactory as visual analysis may prove under optimum conditions, it is virtually useless when available information permits examination of something less than the total distribution. The dominant pattern is then that created by the availability of data, the eye tends to focus on the lacunae and perception is distorted. Some other analytical approach is called for. One possible line, based on sampling technique, was applied to the pre-enclosure material, whose collection has already been described.

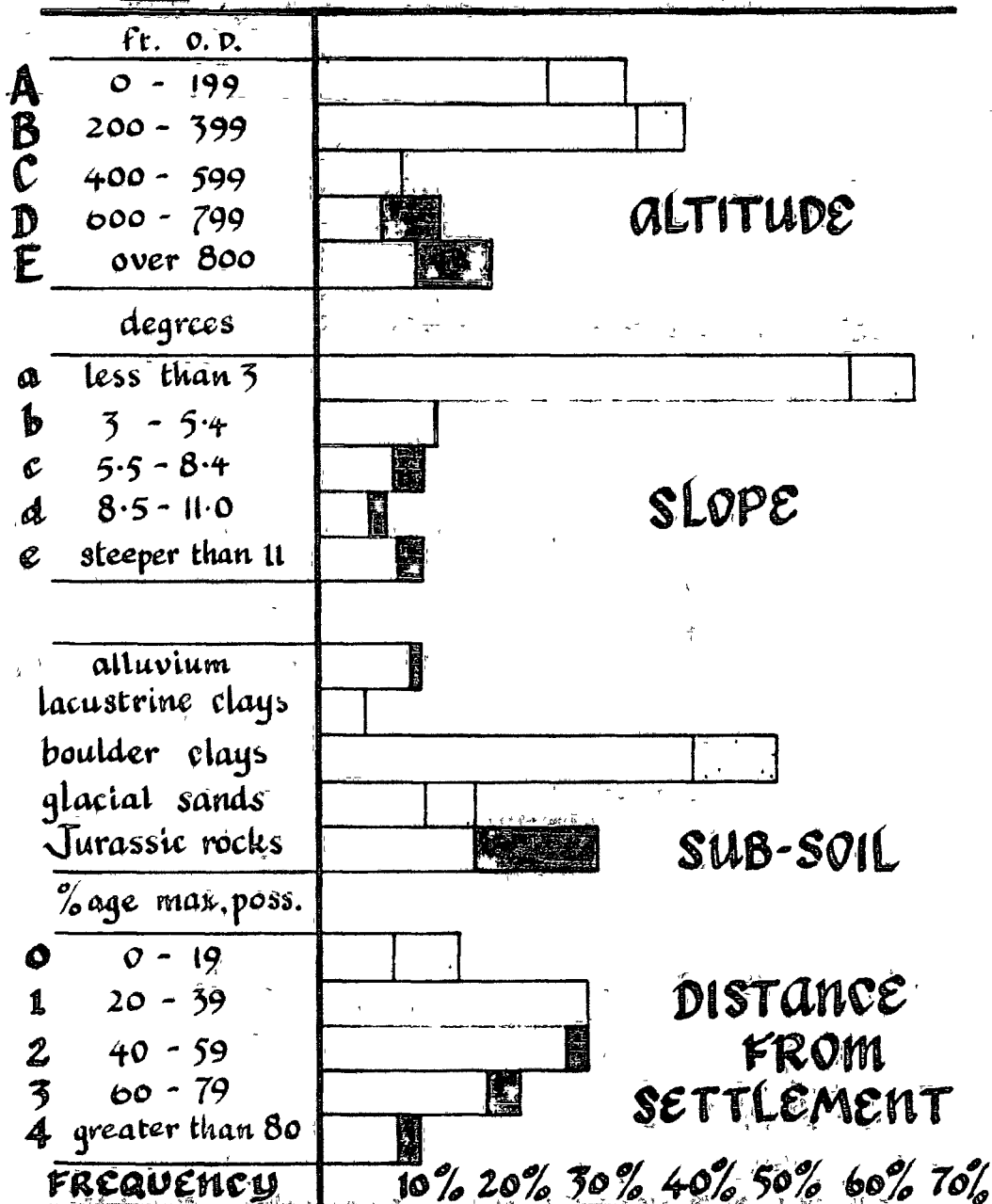
A rectangular grid, arbitrarily defined with intersections at spacings equivalent to one quarter mile on the ground, was thrown at random over the area of the incomplete map. This lattice provided 2090 sampling points within the area of west Cleveland, of which the land use was mapped for 828. Availability of data for these 828 points might be affected by innumerable considerations, some of which might exert, through bias, intolerable distortion of any findings based on the sample. For example, even casual inspection of figure 27 indicates that more data have survived on the higher drift-free slopes: since such sites were predominantly pasture land, pastoral use is likely to be over-represented in the 828-point sample.

In an attempt to remove some of the more blatant sources of bias, a method of sample control was devised. It was based on two premises

1. That the main object of analysis was the elucidation of

COMPARISON OF FREQUENCY SPECTRA FOR 828-POINT AND 2090-POINT SAMPLES

Fig. 16  Relative excess in 828-point sample
 Relative deficit in 828-point sample



relationships between land use categories and certain spatial and edaphic factors.

2. That a sample whose distribution was found to be representative with regard to an environment factor (e.g. altitude), would be more representative of the land use categories concerned than one showing bias.

The first stage was therefore to examine the characteristics of the 828-point sample viz-a-viz the 2090-point sample with regard to five classes of each of four variables - altitude, slope, sub-soil and distance from settlement. These variables were selected as being (on a priori grounds) probably significant and, unlike some other relevant factors, both known and capable of expression in spatial terms. Figure 16 illustrates this examination. Considerable discrepancies are revealed. For example, whereas there is land use information for 29.9% of those points of the 2090-point sample lying below 199 feet O.D., the proportion rises to 71.7% for points between 600 feet and 799 feet O.D. Similar gross bias is apparent with regard to heights above 800 feet O.D., the steeper slopes, soils developed from Jurassic rocks, and sites remote from the settlement.

Some measure of control was subsequently applied by ensuring a uniform sampling percentage within the classes of each variable. Thus, to take altitude once more as an example. The lowest sampling percentage was 29.9% in class A. With the random elimination of 131 points in class C, the sampling fraction was reduced from the excessive 71.7% to 29.9%. With the further random elimination of a total of

172 points in classes B, D and E, there resulted a smaller 525-point sample which, with regard to these five classes of altitude, was representative of West Cleveland. Since the pre-enclosure land use of each point was known, it was then possible to proceed to analysis of the relationship between land use and altitude.

Exactly similar procedures were adopted for the various classes of each of the other variable factors. In this way an acceptably representative set of data becomes available for the analysis of the distribution with regard to each of the environmental factors. It is not suggested, however, that these stratified samples are random in the strict statistical sense, merely that the more obvious distortions of the original sample have been removed.⁴⁴ Subsequent analysis was based on frequency distributions and application of the "chi-squared" test. Finally, conclusions could best be presented in terms of a 'model' West Cleveland Township (chapter six).

Another technique found to be of value in these circumstances was that of crop-combination analysis. The method is that of Weaver,⁴⁵ as refined by Thomas.⁴⁶ Data are drawn from surveys or other crop lists. Briefly, the approach isolates, by acceptable statistical techniques, the combination of crops (one, two, three or more in number) which best fits the overall spread of crop acreages. To illustrate this point, percentage values for four localities are given in table VII. The combination O.W.⁴⁷ best expresses the situation at Ingleby Greenhow, where the acreage of other crops is technically insignificant. The same is true at Crathorne, but the order is there

reversed - hence W:O. At Acklam, oats ceases to be significant and the combination W Pu provides best fit, whilst at Yarm a rather complex pattern is revealed. Here, all crops are found to be significant, with wheat dominant.

TABLE VII - Crop percentages in four
localities, 1801⁴⁸

	I.Greenhow	Crathorne	Acklam	Yarm
Wheat	39.9	50.4	47.6	43.9
Barley	2.3	-	3.3	6.5
Oats	44.8	32.7	14.4	21.0
Potatoes	2.6	0.2	0.3	5.6
Pulses	2.8	14.3	32.1	12.6
Turnips and Rape	6.7	2.4	2.3	10.3
Rye or Maslin	0.8	-	-	-

On the basis of such an analysis, significant spatial contrasts in cropping practice may emerge to form the basis of a sub-regional division of the area (chapter thirteen). Similarly, progress in adopting new crops or modifying rotations may be assessed from a study of a sequence of crop-combination analyses.

A summary of the contents of this chapter can do little more than re-iterate the chief handicaps imposed by the availability of raw material. Careful reading of signs and some ingenuity can maximize the utility of data, but the problems of representativeness and bias

largely remain. Analysis is inhibited, not only by the shortage of factual land-use information, but also through the scarcity of reliable evidence of the whole complex of social, political, technical and economic questions which may have been equally as potent as the measurable edaphic factors in determining the changing patterns of land use.

- 1 A good, if extreme, example of this, arises from the work of The Land Utilization Survey of Britain where the bulk of the fieldwork was necessarily carried out by hundreds of voluntary workers, but exposition passed into the hands of professional geographers. Tackling vast areas of the size of a county meant that the latter's field knowledge could not be other than fragmentary or cursory. (In making this point, no adverse criticism is implied, merely a necessary disruption of what should be a continuum is illustrated.)
- 2 Without personal field experience of the area, this aim could not have been approached; without it, one feels, historical geographical work is unlikely to prove fully rewarding.
- 3 One does not imply that commercial motives were totally absent from open-field farming or that the farmer of enclosed land did not consume any of his produce.
- 4 These techniques, whose application must be regarded as experimental, was discussed by the author in a paper read to the Historical Geography section of the 20th International Geographical Congress, London, 1965.
- 5 S. R. Eyre, "The curving plough-strip and its historical implications," Ag.Hist.Rev., III (1955), 80-94, gives a full discussion of these features, which can be seen in various stages of evolution at Laxton, Nottinghamshire.
- 6 When available, earlier survey material was utilized. For some townships, little material is available. In the case of Ingleby Greenhow, however, a manuscript map by J. Hawell compiled about 1900 from "deeds and common custom" (MPL/

CL 9 Ig) proved invaluable. For Faceby, a sale catalogue of 1862 (BM/ Sale Catalogues, "Plan and particulars of a valuable freehold estate, comprizing the manor or lordship of Faceby ...") provides a complete list of names. Other lacunae were filled from surveys listed elsewhere in this work, but gaps remain for Rudby, Carlton and part of Nunthorpe.

- 7 GET-KH/ Surveys of 1612 and 1806.
LTD-CH/ Field Book, 1780.
TRC/ Tithe Apportionments, Crathorne, Great Busby, Kirby and Ingleby Barwick
CRO/ ZK 14, _____ ZCQ, A particular and valuation ... 1816.
CRO/ Marwood Papers, Richardson's Survey, 1760.
WLC/ Emerson Papers, Minister's account of 29 Eliz.I, quoted in a letter of 1817.
J. Purvis, "Select tithe causes," YAS/RS, CXIV (1952), pp 42-46.
- 8 Nevertheless valuable assistance has been obtained from the following published works:
A. H. Smith, English place-name elements, (Cambridge, 1956), 2 vols. _____, "North Riding of Yorkshire", English place-name Society, Vol. V (1928).
P. H. Reaney, The origin of English place-names, (Routledge and Kegan Paul, London: 1960), especially chapter ten.
- 9 J. A. H. Murray, et.als, Murray's New Oxford Dictionary, (Oxford, 1888-1928), 10 vols, with supplement (1933).
J. Wright, The English dialect dictionary, (London and Oxford, 1898-1905), 6 vols.
- 10 J. C. Atkinson, A glossary of the Cleveland dialect, (London, 1868).
W. Marshall, The rural economy of Yorkshire, (1788), "Provincialisms", pp. 303-366. This latter source must be used with caution, as Marshall himself pointed out that the East Yorkshire dialect (which he glosses) differed from that of Cleveland.
- 11 "Yorkshire deeds, VII", YAS/RS, CII (1940), 153.
- 12 BI/R VII G 1871 a.
- 13 BI/R VII H 1206.
- 14 WLC/ Kitching Papers, Will of Robt. Sowler of Little Ayton, 1629. It is interesting to note that, by the nineteenth century, this term was often rendered "Firs" as in the farm-

names "Ayton Firs" and "Easby Firs," both on former open-field land with prominent curved high-backed lands.

- 15 PRO/ MPE 542.
- 16 NRRS/QSR, IX, 67-70.
- 17 J. W. Wardell, A history of Yarm, (Sunderland, 1957), p.157.
- 18 YAS/RS, CII, 153.
- 19 PRO/ E 178 5759.
- 20 M. W. Beresford, "Glebe terriers and open field, Yorkshire," YAJ, XXXVII (1950), 336.
- 21 Smith, English place-name elements, I, 165.
- 22 NRRS/QSR, VI, 149-50.
- 23 The term is probably present in the following quotation from an Ayton tithe cause (BI / R VII H 1205) of 1605, but the open-field context is not absolutely certain. The tithe owner was said to have ceremonially entered into his rights "by takeing upp Earth of a certain land called Greenhill dell."
- 24 C. S. and C. S. Orwin, The open fields, (2nd. ed., Oxford: 1954), p.57.
- 25 CRO / Kirkleatham Papers - Kildale, "A survey of the manor of Kildale ... 1623."
- 26 BI/ R III M XLVIII 2a.
- 27 BI/ R VII G 1850.
- 28 Marshall (op.cit., p.320), writes that in the damp lands of the Vale of Pickering, areas used for meadow were termed "ings", those used for pasture were "carrs."
- 29 BI/ R III M XLV 2.
- 30 Conflict of evidence occurred in one or other of the following ways:
 1. Field-names occasionally include two contradictory 'indicators.' Common examples are "Ing flatt," "Oxclose ing" and "Moor fall." In each case, the first word is an adjective, and "the furlong by the meadow", "the meadow close to the oxclose" and "the furlong on (or by) the

common pasture" are to be understood. Thus the plot's utilization is indicated by the second element, though the first is valuable in suggesting a boundary situation.

2. It is known that many field-boundaries did not appear until perhaps a century after enclosure. The possibility that some 'reverse-S' alignments derive from post-enclosure ploughing using traditional techniques cannot be ignored. In fact, this is likely only in townships enclosed very early, the majority of which have few such alignments.

3. Mis-identification of field-name elements may occur (e.g. the Newton pasture of "Rigg field" (which was named after the topographical feature of Langbaugh ridge) or subjective errors intrude through the too-ready acceptance of a name or field pattern.

4. Finally, and more damaging, there is the possibility that changes of land use within the open-fields was more common than is usually assumed. A clear case of this is the Marton "Longlands", which was common pasture in the seventeenth century, but had earlier been open-field arable (CRO/ Marton, decree in a law-suit heard at York, 9th. Oct., 1635).

31 A. Young, A six months tour through the North of England, (London, 1770), II, 93-150.

32 MPL/"Aclam Curacy: Parish of Middlesbrough," tracing of an original on vellum.

33 CRO/ZK 18(3).

34 The spurious name West Acklam which suddenly appears during the nineteenth century to describe the Cleveland Acklam was an attempt to clarify this particular name.

35 PRO/ HO 67/26.

36 CRO/ZK 13(3).

37 The measurements proved to be accurate to within 5%.

38 Most of figure 51 is based on this laborious reconstruction.

39 Because of the time-span over which the study has been carried on, there are some contrasts of style - the worst cases of this have been replaced by re-drawing, but a few remain.

40 The use of ratios is thought to overcome some of the difficult-

ies arising from inadequate estimation and inaccurate measurement of acreages or from the use of customary units.

- 41 In chap.XV, a number of crop proportion figures come from the tithe files prepared by individual Assistant Commissioners for each tithe area (TRC/TF). A printed questionnaire called for a report on local soil conditions, rotations and the quality of husbandry practices, with estimates of yields and acreages of the various crops. The Commissioners were land surveyors, but some made no more than crude estimates of acreages, based on an idealized rotation. Others appear to have taken considerable pains to compute acreages or collect data from individual cultivators.
- 42 Especially the mention of crops by J. Graves, History of Cleveland, (Carlisle, 1808), passim.
- 43 S. W. Wooldridge, "Yorkshire (North Riding)", part 51. The Land of Britain, final report of the Land Utilisation Survey of Britain, pp.388-89. One would not follow all the way his dogmatic determinism.
- 44 A similar technique was applied to the general material used in chap.XV.
- 45 J. C. Weaver, "Crop-combination regions in the Middle West", Geog.Rev., XLIV (1954), 175-200.
- 46 D. Thomas, "The statistical and cartographic treatment of the acreage returns of 1801", Geog.Stud., V (1958), 15-25.
- 47 For the sake of brevity a standard notation is adopted for rotations and crop combinations. A key is provided as appendix B.
- 48 Data are from PRO/ HO 67/26.

PART TWO -
WEST CLEVELAND LAND USE,
circa 1550 to 1850

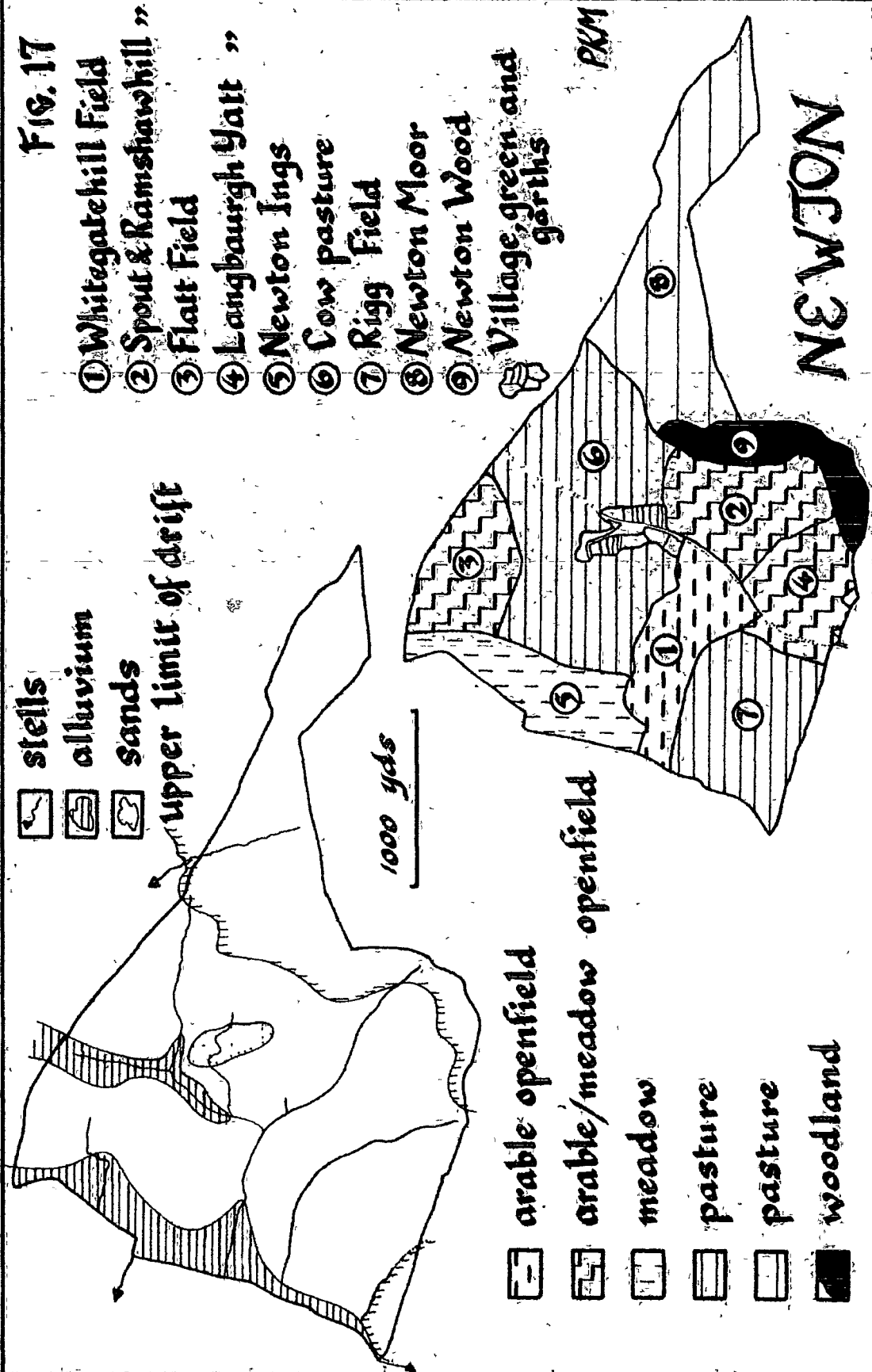
CHAPTER VI

PRE-ENCLOSURE PATTERNS OF LAND USE

This chapter seeks to demonstrate the existence of open-fields of the 'midland' type as the normal pre-enclosure system. The associated land use patterns are examined on the basis of case studies of individual townships, supplemented by material obtained from field-name and other evidence. Analysis demonstrates the influence of edaphic factors, which are finally considered as they would impinge on a 'model' West Cleveland township.

As is clear from the writings of Bishop, Waites and Beresford (chapter one), mediaeval Cleveland was an open-field area. Moreover, there is a strong suggestion in their work that the detailed structure of this landscape was comparable with the accepted norm derived from the pioneer and later studies in the English Midlands.¹ However, general works do not form a good basis for conclusions concerning a small area, and the broad range of even a regional text occasionally leads to error. Smailes² was quite firm in his conclusion that North England was dominated in the pre-enclosure phase by an 'infield-out-field' landscape. He drew support from Gray,³ but the Orwins⁴ took an entirely opposite view, arguing that 'midland-type' open-fields were widespread. Dickenson⁵ for Durham and Butlin⁶ for Northumberland have shown that both systems occurred. In Durham, midland-style open-fields were to be found in the south and east, whilst similar systems

FIG. 17



occurred on many sites favouring arable cultivation in various parts of Northumberland: in both counties 'infield-outfield' was also common. In order that no doubts concerning the nature of open-field in Cleveland should remain, therefore, it is desirable that a full account of the open-field township and its organisation should be given. Unfortunately the wealth of documentation on Laxton, for example, cannot be matched in Cleveland, but an amalgam of eighteenth century land record from Newton and seventeenth century court papers from the neighbouring township of Great Ayton reveals a clear pattern which is not contradicted by the less complete evidence from other parts of the area. The pattern is also seen to possess a strong 'midland' flavour.

Open-field Newton (Tab. VIII and Fig. 17) had four open arable fields (numbers 1 to 4), but three of these included interspersed strips of meadowland - "swayths" - among the ploughed lands.⁷ Two

TABLE VIII - Land use in pre-enclosure

Newton, 1741

Name of unit	Land use	Acreage
1. White Gate Hill Field	Arable	98
2. Spout & Ramshaw Hill Field	Arable & Meadow (5:1)	99
3. Flatt Field	Arable & Meadow (1:2)	63
4. Langbaurch Yatt (Chapel Well)	Arable & Meadow (4:1)	84
5. Newton Ings	Meadow	83
6. Cow Pasture	Pasture	297
7. Rigg Field	Pasture	136
8. Newton Moor	Low grade pasture	210
9. Newton Wood	Woodland	60
10. Village site, garths, small isolated old enclosures	Service, Pasture & Meadow	45

fields (number 3, Flatt field and number 4, Langbaugh Yatt - or Chapel Well - field), totalling approximately 88 arable acres, were managed together as one unit within a three-course rotational system. The other units were White Gate Hill field (98 acres - all arable) and Spout and Ramshaw Hill field with its approximately 82 arable acres. There is toponomic evidence for the division of these tracts into furlongs - Calf Criblands, Cott whins, and Dimbledough Hill, for example - which were further subdivided into "lands", "butts" and "gaires". In the Ings meadow, plots were termed "wand" or "swayth" and the term "piece" was also used. Meadows, excluding any small enclosures which may have been used for hay, amounted to approximately 159 acres, the better pastures to 433 acres and woodland to 60 acres. There were also poor upland grazings, a green, village garths and other small enclosures.

The unit of occupance was the oxgang, of which there were fifty-six in the township. Each comprized arable and meadow land (subject to communal grazing outside the main growing season and - for the arable - in the fallow year), together with grazing rights on the common pastures, the Moor, the fog of the meadowlands and the stubble of the cornfields. The oxgang may have had its origins in the bundle of rights which enabled a peasant household to derive subsistence, but it seems unlikely that Newton should ever have contained as many households as this.⁸ In 1741/42, four men each held (whether freely or by copyhold is not known) an oxgang, but they were also tenants of larger estates in the township. At enclosure, oxgangs were ex-

changed for between 19 and 23 acres of land, which gives some idea of the comparative value of this unit.

During the 1730s, John Jackson of Newton held:

An oxgang of land, arable meadow and pasture ... in several parcells in the townfields, that is to say, one rood piece adjoining on the Milnbeck on the south, one Milnbeck-wand adjoining also on Milnbeck, one wand called Lowsybush-wand lying within the Ings gate; another wand lying a little from Carr foot-gate all in the field commonly called Newton Ings; also two lands lying together in a field called the Flatts, about an acre. Four lands lying together in the middle of the same flatts; two butts lying together within Greenhowcar-gate in the same field, and another butt also in Greenhowcar-gate; a butt lying in Ramshaw-Hill-field or Spout-field a little from Spout Runnel. A land lying a little from Scammel Beck; half a land at the farr side of Spout-field; two lands lying together on that side towards the town on Ramshaw-Hill; two lands and a gaire lying together called Calf-Criblands in the field called Chapell-Well in Newton, a little from the Oxclose Nook, two swaithes a little from Chappel-Well in the same field; two lands lying near Littleworth-Style; a land lying at a place called the Catwhinns, a land lying upon Whitegate Hill; and a land lying at Fisher Style, also two cowgates in the cow pasture, a beastgate in Langbarugh Rig-field ... together with three avarage gates and two pasture gates till Lady Day and a gate in the Ings till the 3rd. day of May, and so many sheepgates in the Fallow-fields as do belong to the said oxgang.

To summarize: the holding was made up of sixteen and a half "lands", four "butts" and one "gaire" of arable, one "rood piece", four "wands", and two "swaiths" of meadow, a homestead, barn and a "little close", together with grazing rights.

The various plots of Jackson's oxgang were dispersed in twenty-one scattered places. There is no guarantee that a "land" or a "butt" had constant areal value. In all probability it had not, so that the distribution of productive arable within the three units of the cropping system can be indicated only qualitatively (Tab. IX). Nor is it

TABLE IX - Distribution of John Jackson's
oxgang within Newton's arable open-fields

Rotational unit	Fields	Number of plots		
		Land	Butt	Gaire
A	White Gate Hill	5	-	-
B	Spout & Ramshaw Hill	3½	1	-
(	Flatt	6	3	-
C (	Langbaurch Yatt	2	-	1

possible to see whether or not there was any regularity in the distribution of plots within furlongs. Beresford found this characteristic, which he regarded as primitive, at Wetwang, Langtoft and Butterwick.⁹ An early Potto charter indicates its presence in Cleveland: "Half a bovate lay in length and breadth throughout the whole field of Pothowe between the land of Robert del Howe on one side and that of Emma Lenedy ... on the other."¹⁰

Although the arable may have been the nucleus of the oxgang, grazing rights were also vital. These permitted the maintenance of a draught ox in the Rigg field and two cows in the Cow pasture (increased to four during the winter). After the corn was carried from the arable, but before ploughing commenced, three beasts could be turned onto the stubbles.¹¹ From late March to early May, one beast might recover from the winter's rigours on the new growth of the meadow lngs, before these were closed for the summer hay crop. Each oxgang also carried the right to graze two sheep on each arable

open-field when its turn came to be bare fallowed in the rotation: winter corn (W at Newton); spring corn (O or Pu); fallow. In this way, each of the arable fields was prepared for its primary function of producing bread grains, while simultaneously providing supplementary winter fodder for the plough-beasts and seasonal contribution to the pastoral side of the economy, in which the moor, though poor in quality, also participated.

The open-field system as described from Newton, though based on a few simple techniques of land management, was structurally and socially complex. Within its society, though far from communalist, the individual was in every aspect of his working life brought into intimate contact with his neighbours. The inevitable frictions were reduced by the establishment of a body of bye-laws, normally arrived at by general agreement among the peasant community, but bolstered, as need arose, by sanction of the manorial court. Major problems arose mainly on the pastoral side of the economy. In the Great Ayton Court, presentments might be made by individuals, as in 1647 when Dorothy Sheels sought assistance against Edmund Hall who had "broke her enclosure called Ayton Town field and broke down her corn, namely oats standing in sheaves," but the main business of the court was to hear cases brought on behalf of the community by the panel of "jurors", who were elected annually from amongst the township's farmers - tenant and freeholder alike.

Although a number of civil offences appear on the rolls: "keeping a Mastie dog unmuzzled ... entertaining sturdy beggars ... being a

brewer of Ayle and hath sold it contrary to the form of the statute,"¹³ control of the open-fields and pastures was the court's main de facto function. In the seventeenth century, control over the numbers and classes of stock permitted on the common grazings was vital to the efficiency of the system, but offenders were many:

Richard Mankin for putting an unlawfull cow in the Comon pasture.
Robert Ripplay for putting one mayre wth. foall in Ariholm.
James Wilkinson for tethering his horse in the cornfields ...
John Robinson for the same in the fog.¹⁴

Others were fined for overstinting the fallows and similar offences, but no regulation shows more clearly the quality of community control over the individual farmer, than the bye-law contravened by one commercially-minded villager: "For letting tenn averaige gates to people without the towne contrary to a paine," and who was therefore fined ten shillings.¹⁵ Trespass by stock was a common offence, but there was an equivalent obligation to maintain fences in good repair - and especially those which divided off the broad spread of the open-fields from the lanes, the common pastures, the enclosed lands and from adjoining townships. A pinfold was maintained, where stray cattle awaited return to their owners, but "rescues" were not unknown.

Offences more closely linked with the arable were less frequent. In 1648, however, John Richardson appears to have attempted to extend his cropland in that, "he hath not left a balke between his land and the land of John Kettlewell on Cray Hill."¹⁶ John Horner, probably a cottager, had the same sort of ambition two years earlier when he was "delving land in the common pasture."¹⁷

Equivalent detail is not available for other townships, but a considerable weight of topographic and other evidence suggests that Newton and Ayton were entirely typical of the area in all important respects. In other townships, the oxgang (judged by its conversion rate at enclosure) might comprise more, or fewer, resources than at Newton (Tab. X), but all such units were of the same order of magnitude.

TABLE X - Acreage of land exchanged at enclosure
for an oxgang right in various townships

Township	Extent of several land exchanged for oxgang
Newton	From 19 to 23 acres
Marton	<u>circa</u> 32 acres ¹⁸
Yarm	Between 10 and 23 acres ¹⁹
Great Ayton	A single oxgang exchanged for 13 acres ²⁰
Faceby	<u>circa</u> 20 acres ²¹

Whilst fragmentation may have been a widespread (and perhaps youthful) characteristic of the oxgang's plots, this was not always the case, thus at Great Broughton:

Of the bovate, seventeen acres and one rood lay between the land of the Abbot of Ryvaus on one side and that which John the reeve of that vill was holding, two roods lay apud Oneman and one rood at Lynberghflat between the land of John de Goulton and that which the said John the reeve was holding.²²

Whether this early example indicates maintenance of the integrity of an assarted block or consolidation of adjacent strips, there is insufficient evidence to suggest.

In chapter one, the question of evolution from a two-field to a three-field arrangement was considered. Eighteenth century Newton had four fields containing significant areas of grassland, but management followed a three-fold course. The location of Flatt field (Fig. 17) and the disparity in size between it and the other three fields (Tab. VIII) suggest a late addition to the field system. There is similar evidence at Great Broughton (Fig. 21 and Tab. XI). At Faceby, one of the three fields was mainly enclosed by 1630, but additional ploughland had been created in part of the meadows (Fitterings, figure 19). Middlesbrough and Great Ayton appear to have preserved a three-field structure into the seventeenth century (Figs. 20 and 26). The one indication cutting across this idea of a universal, if occasionally modified, three-field pattern comes from Little Busby, where it was said that in the 1590s,

... before wch said inclosure there, there was two closes thereof arable there, whereof one was called Willm Woodes close, and the other the corne steele flatts.²³ (Punctuation mine.)

The implication of the remainder of the document is that these were the only arable fields in the township, and it is possible that these so-called "closes" were the units of a two-field system. However, there is much ambiguity, and one is inclined to accept the word "close" at its face value in this case.

Evidence for open-fields has survived in documentary form from thirty-seven of West Cleveland's sixty-three localities, 'indicator' field names survive for another eleven and the evidence of 'reverse-S' field boundaries suggests open-field in a further nine (chapter four).

FIG. Evidence of former
18

opensfields in West Cleveland

■ detailed documents

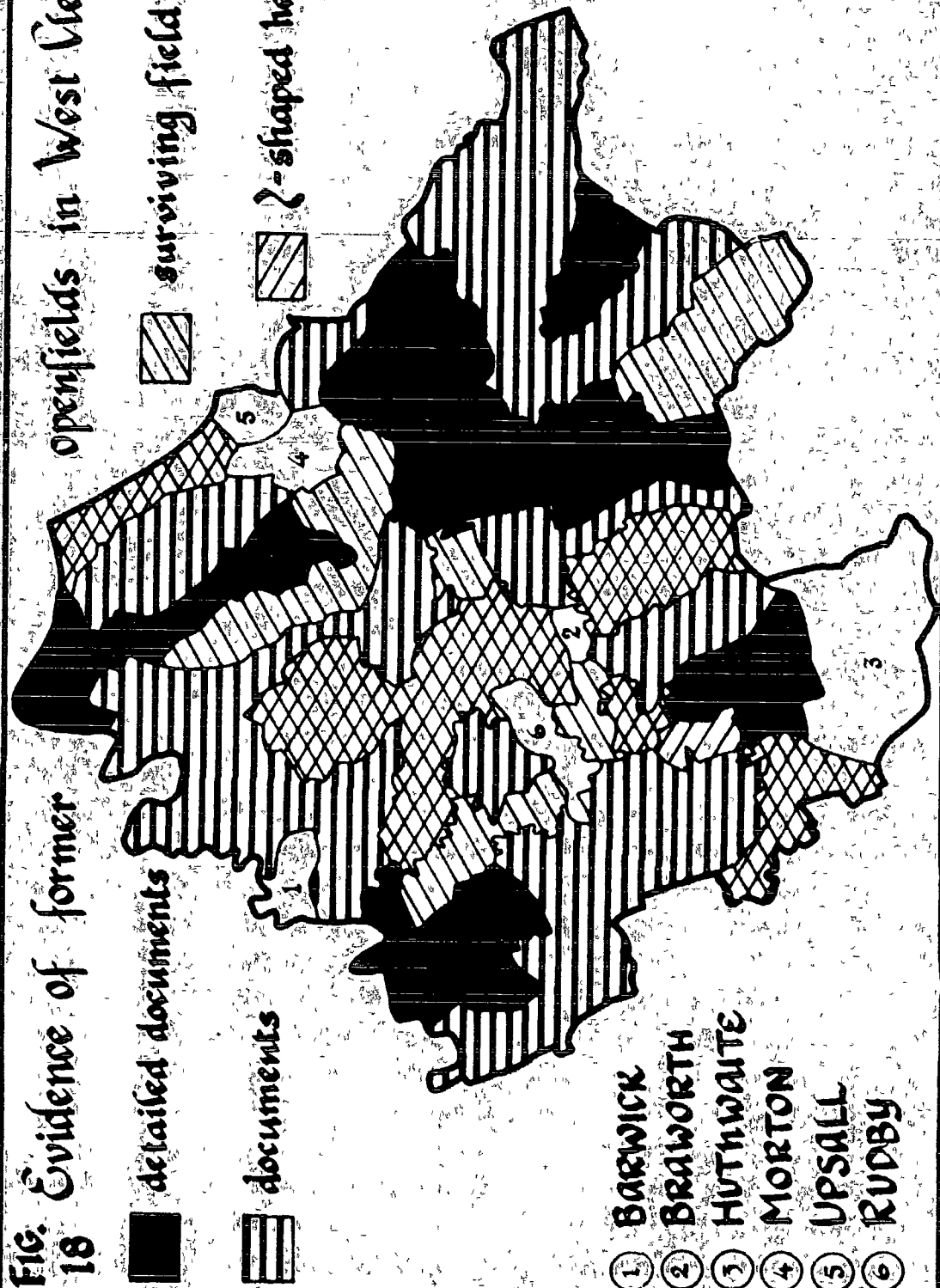


■ surviving field names

▨ documents



∩-shaped hedge-lines



- ① BAERWICK
- ② BRAWORTH
- ③ HUTNWAITE
- ④ MORTON
- ⑤ UPSALL
- ⑥ RUDBY

P.K.M.

The residual six localities (Fig. 18), are thought to differ only through absence of evidence, though it is possible that neither Braworth nor Husthwaite were townships in the accepted sense (chapter three). To take the position that pre-enclosure West Cleveland's landscape was dominated by features of the 'midland' three-field system, therefore seems reasonable.

At least in its earlier phases, the open-field system was a subsistence system in which the lands of each township provided for the basic needs of the inhabitants - specialization by township was unknown. Selection of land for particular uses must therefore have been made by the community, within the geographical limits of the township. Initial analysis of the resultant land use patterns follows the same lines.

A number of openfield townships are sufficiently well documented to serve as samples of the remainder.

Newton - Six levels of land use may be distinguished (Fig. 17).

1. The village garths and green, used mainly for pasture both winter and summer. Therefore, they received a high proportion of the available manures, but were liable to damage through excessive trampling and over-grazing.
2. The meadows, grazed at times, but mainly utilised as a source of winter hay fodder.
3. The pastures - one (Rigg field) intended mainly for draught cattle and therefore an ox pasture - the other (as its name, Cow Pasture, implies) contributing milk

and replacement stock.

4. The moor, which, though not uniformly unproductive, can never have yielded very good grass (as the name for one of its lower portions, Cockle Scar - coccel, i.e. "weeds" - suggests).
5. The woodland, providing a minimum amount of structural timber and fuel.
6. The open-fields, fundamental bases of the system, were mainly arable, but also included meadow leys. It is probable that the leys represented a relatively late development in response to commercial incentives in the field of animal husbandry.

Of these types of land use, the distributions of three show close relationships to aspects of the physical environment. The Ings meadows were almost co-extensive with the belt of wet alluvial soils, tending to acidity, which border Main Stell on the western side of the township. The somewhat similar area of alluvial soils which extends northward from the village, though wet, is less liable to total flooding, is less acid and was used, not as meadow, but as part of Flatt field and the cow pasture. It is likely, but not certain, that the moor grazings (utilised principally by sheep) were everywhere above 500 feet O.D. on slopes steeper than 1 in 8. These poor pastures were developed on a wide variety of mainly immature soils derived from the shales and sandstones (some slightly calcareous) of the Jurassic scarp. In the south-east, the parish boundary runs roughly parallel

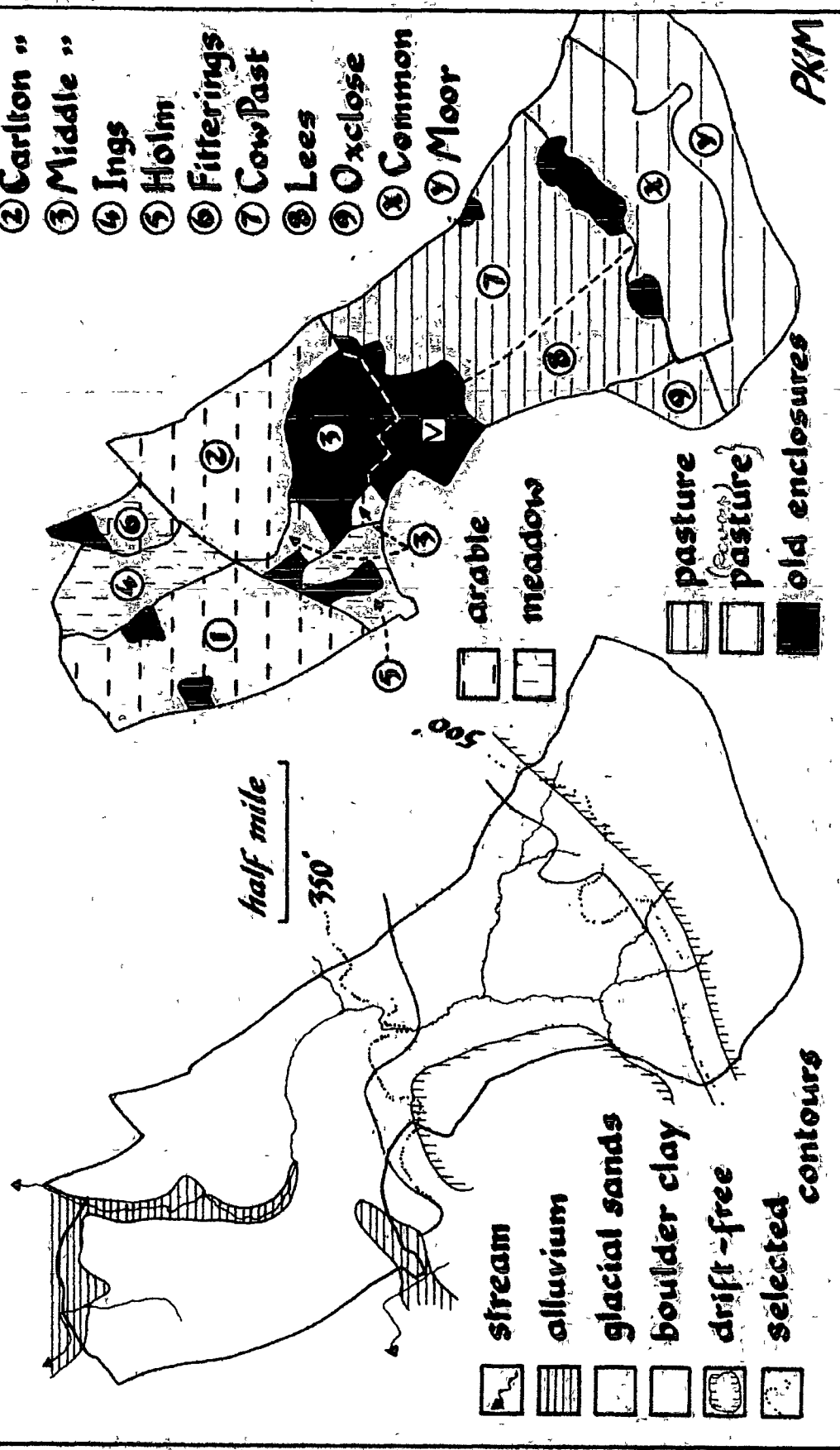
to the contours between 600 ft. and 675 ft. O.D., at the lower edge of the Middle Lias bench. Between this and the upper limit of boulder clay drift at 425 feet O.D., was a belt of woodland. The steep slopes, poor drainage (especially on the shales) and northerly aspect, would inhibit more intensive utilization. At the same time, this long narrow strip of land would, as common pasture, have presented severe problems to the village shepherd, and have cost a great deal of labour to the community in the maintenance of fences. While woodland growth on such a site must have been slow, better land could not be spared for this task.

Less clearly apparent are the factors involved in the disposition of the remaining components. A patch of glacial sands, forming a nutrient-deficient, but dry, soil underlies the eastern side of the Newton village site. In earlier times this 'dry point' may have formed a forest clearing - an initial foothold - from which the surrounding heavy clays might be developed. On the other hand, the church and hall, normally considered by settlement students as "nuclear," are located in the clay-floored western side of the village. Once the position of the farmsteads had been decided, the utilization of the surrounding areas as 'garths' followed inevitably.

The remainder of the township's land is a heavy soil, rarely more than four or five inches in depth, on a yellow clay subsoil of glacial origin. Apart from the steeper slopes of the dolerite-cored southern ridge in the pasture Rigg field, there seems to be no portion of these clays less suited for corn-growing than the remainder, though

FIG. 19

FACEBY



none, even after the sub-surface drainage carried out from the mid-nineteenth century onwards, is easily managed under the plough. The community might, with equal success, have disposed the arable, ley and pasture in a different pattern within this tract. Indeed there is no evidence that the pattern which may be reconstructed for the last stage of open-field here is a faithful image of earlier times: a few suggestive boundaries and traces of ridge and furrow in the pastures, supported by the documentary evidence of pre-enclosure 'convertible husbandry' at Marton might indicate that it is not.²⁴

Faceby - All the Newton evidence is late. This carries certain disadvantages for the study of a basically mediaeval phenomenon, but there is also the very real compensation in the increased facility with which the open-field topography may be reconstructed. At Faceby, as a result of an abortive seventeenth century enclosure attempt, made good in the eighteenth, there survive two sets of documents which permit a reconstruction of the patterns of the earlier period in which some confidence can be placed (Fig. 19).²⁵

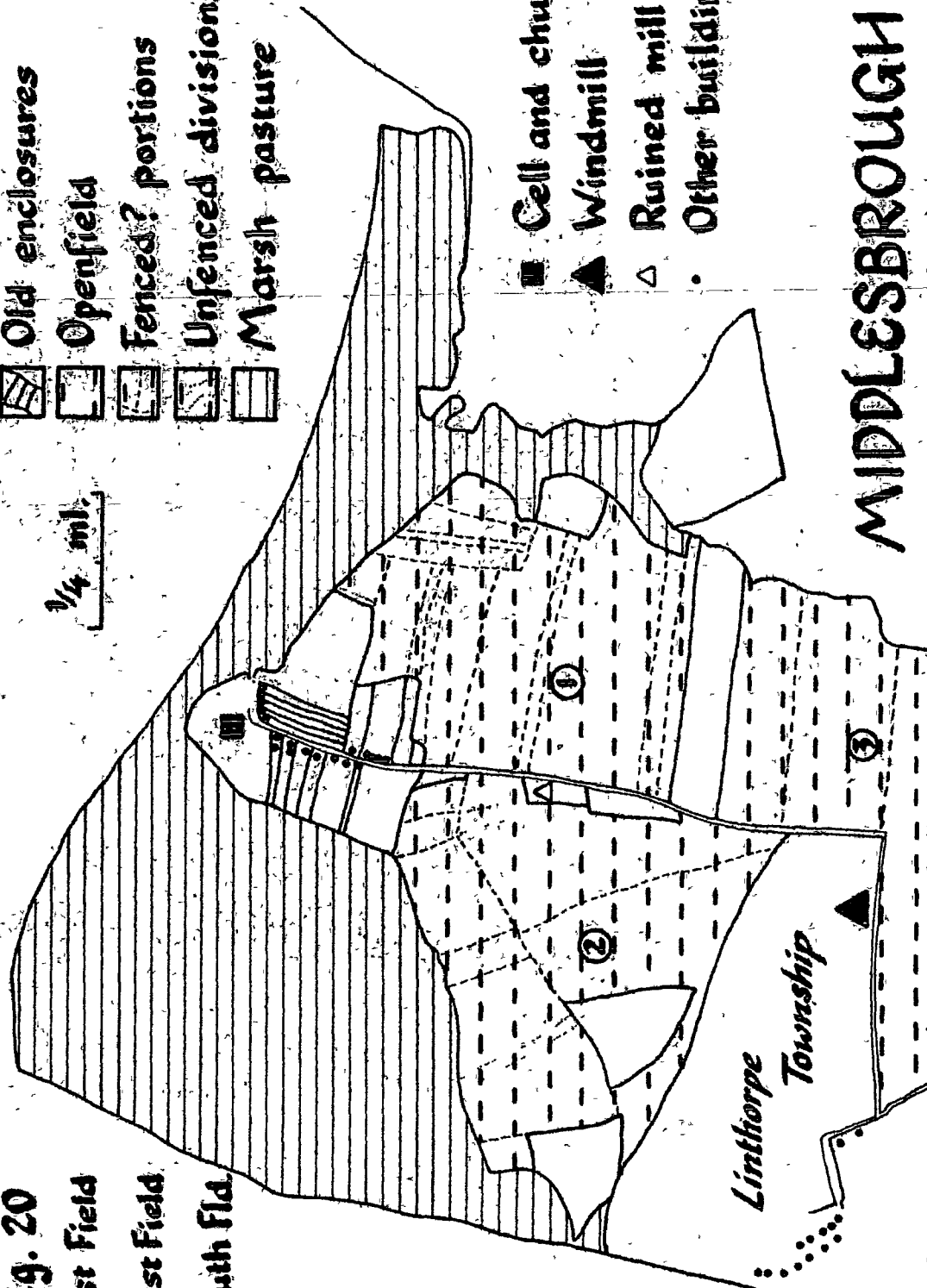
With the exception of woodland, Faceby exhibits the same levels of land use observed at Newton. There were more old enclosures, including some which were probably of great antiquity and may represent initial forest clearance. The village stood on the narrow Middle Lias bench at an altitude of 400 feet O.D. Below the village spread the alluvial and clay lands of the township, the damper portions of which (including all the alluvium) were meadow. The drier, though heavy, tracts were open-field. Running eastwards from the village, and a

Fig. 20

- ① East Field
- ② West Field
- ③ South fld.

-  Old enclosures
-  Openfield
-  Fenced? portions
-  Unfenced divisions
-  Marsh pasture

$\frac{1}{4}$ ml.



PKM

little above the 350 feet contour, is a line dividing the lower boulder clays from a broad spread of sandy fluvio-glacial material. Approximating very closely to this line was the lower boundary of the pastures, whose upper limit on the west was the territory of Whorlton. To the south, they were limited by the lower edge of a narrow strip of upper boulder clay which, some 150 yards wide, lies along the 500 foot contour. The upper limit of this boulder clay strip is accordant with the scarp-foot break of slope, above which gradients exceeding 1 in 8 have developed on the shale beds of the Upper Lias. On the strip itself, lay a belt of ancient enclosures (the Ings Closes²⁶), while the upper slopes and summit plateau were usable only as common and moor. Mardewell, another ancient enclosure, lay on the sands directly below the upper clay belt.

Middlesbrough - Unfortunately the one surviving West Cleveland open-field map is neither complete nor very detailed. An interpretation (Fig. 20) shows a village and garths, other enclosures which may have been meadows, extensive areas of marsh grazings and three open-fields. In 1618, the date of the map, significant segments of the open-fields had already been enclosed and more had been consolidated, but some was still in open-field "lands" and "butts." No part of Middlesbrough lay above the 50 feet contour, and only the small knoll upon which the village stood exceeded 25 feet O.D. The knoll is the terminal of a peninsula of laminated clays which protrudes into the ill-drained marshy alluvials. With a few minor exceptions, the garths and open-fields were limited to the clay areas, while the alluvial soils carried

FIG. 21

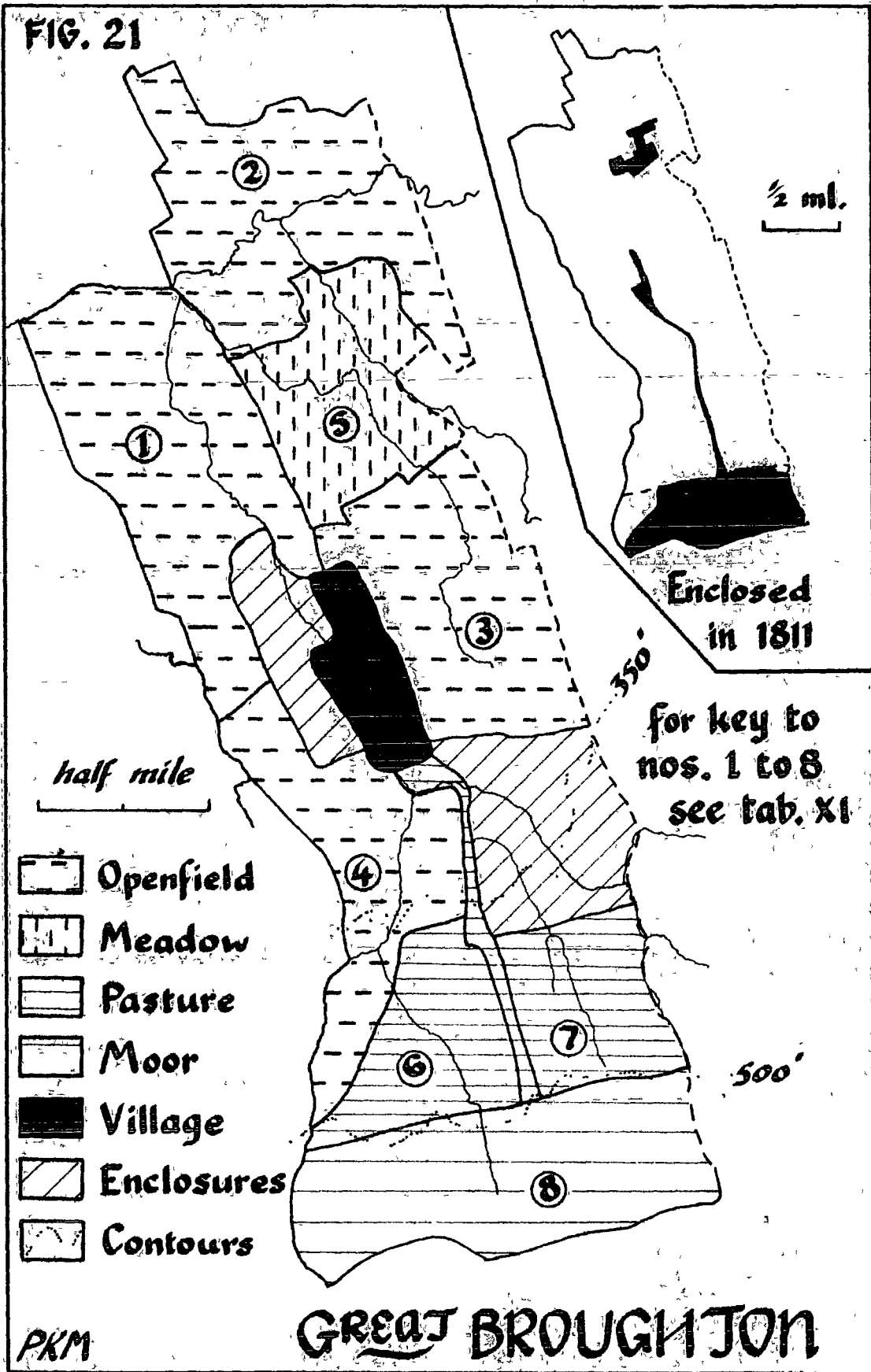
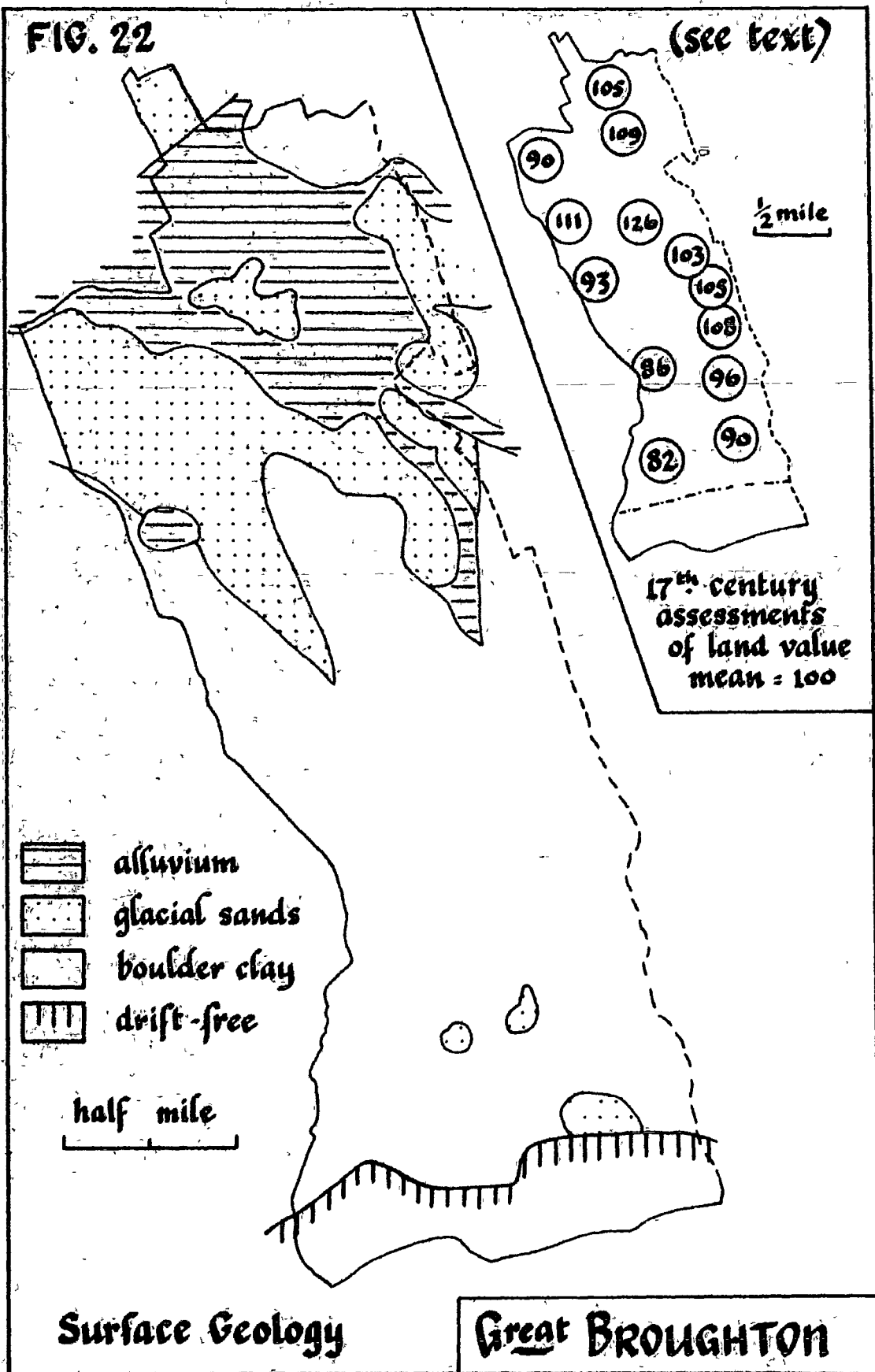


FIG. 22



marsh.

Great Broughton - Although small portions of Great Broughton remained open until 1811 (Fig. 21, inset), most of the township was enclosed in the 1630s, and a reconstruction of the open-field patterns depends almost entirely on documents of this earlier date. Some of the details of figure 21 must therefore be regarded as tentative.

The general arrangement is comparable with that of the other scarp-foot townships of Newton and Faceby. The steeper Upper Lias shale and boulder clay slopes (Fig. 22) were poor pasture, but the improved pastures of Ox Close and Hurworth Lees extended to a break of slope, which follows closely the 500 feet contour, at the base of the scarp. Hurworth Lees may have been ploughed at some time, for although it is treated as common pasture in the enclosure documents, these also contain two suggestive phrases: "certain Butts latelye belonginge hurworth lees" and "Willm Ripleye for land in the ox close and Hurworth lees." The second may simply reflect the fact that rights in these pastures were not held by all Broughton farmers, but the first is less easily explained. Except for one or two small patches of sand, boulder clay formed the sub-soil of these pastures. The meadow ings - upon which the greater part of the township's hay crop was certainly grown in the sixteenth century - had their nucleus in a tract of poorly-drained alluvial soils, but, at their zenith, spread out onto surrounding sands and clays. It was the wetter portion which remained open until 1811. The mediaeval arable open-field appears not to have extended above the 350 feet contour or onto

slopes of a gradient greater than 1:15. Apart from inadequate drainage, no other physical controls appear to have exerted any influence.

TABLE XI - Major components of open-field

Great Broughton		
Land use	Name of unit	Acreage ¹
Open-field arable	1. Beckfield	350
	2. Garth End field	320
	3. Low field	370
	4. Anwardley field	120
Meadow	5. Ings	80
Pastures	6. Ox Close	110
	7. Hurworth Lees	60
	8. Broughton Bank	340

¹ Acreages must be regarded as approximate.

Anwardley field may well have been a late addition to the arable. By the seventeenth century, similar sites on the eastern side of the township were occupied by enclosed land (Watson's Close, Little Field, Sex Lands and Whitley) which had earlier formed part of the grange property of Rievaulx Abbey. It is therefore suggested that at an earlier stage of the open-field phase, none of the Great Broughton arable extended much above the village, which would then, like Newton, Faceby, Battersby (Fig. 23) and Kildale (Fig. 34) have been sited in the junction zone of the two major land use types.

A most valuable contemporary assessment of the relative value of the different portions of Great Broughton's open-fields may be deduced from the enclosure apportionments of 1630 and 1638. Highest

assessments were given to the medium loams on the clay/sand junction north of the village and in Garth Ends Field. At the lower end of the scale, the light silts and sands of lower Brookfield were assessed low, as were all tracts south of the village where, in Ox Close at the upper limit of improvement, one allotment was regarded as having only two thirds of the average potential. Averages for the different tracts are tabulated below (Tab. XII), while more detail is shown in the inset to figure 22.

TABLE XII - Seventeenth century assessments

of land value	
Land use unit	Relative value (100 = mean)
Ings	120
Lowfield	106
Garth End Field	104
Beckfield	95
Anwardley Field	90
Ox Close	80
Hurworth Lees	80

Others - Although direct documentary evidence is insufficient to permit further full reconstructions, a number of references enable tolerably accurate identification of the boundary zones between land use types in some additional townships, and these provide valuable supplementary evidence:

- i) Battersby - Evidence in a sixteenth century tithe cause includes the following information

MARTON

BATTERSBY

FIG. 23

① "the fields"

② commons

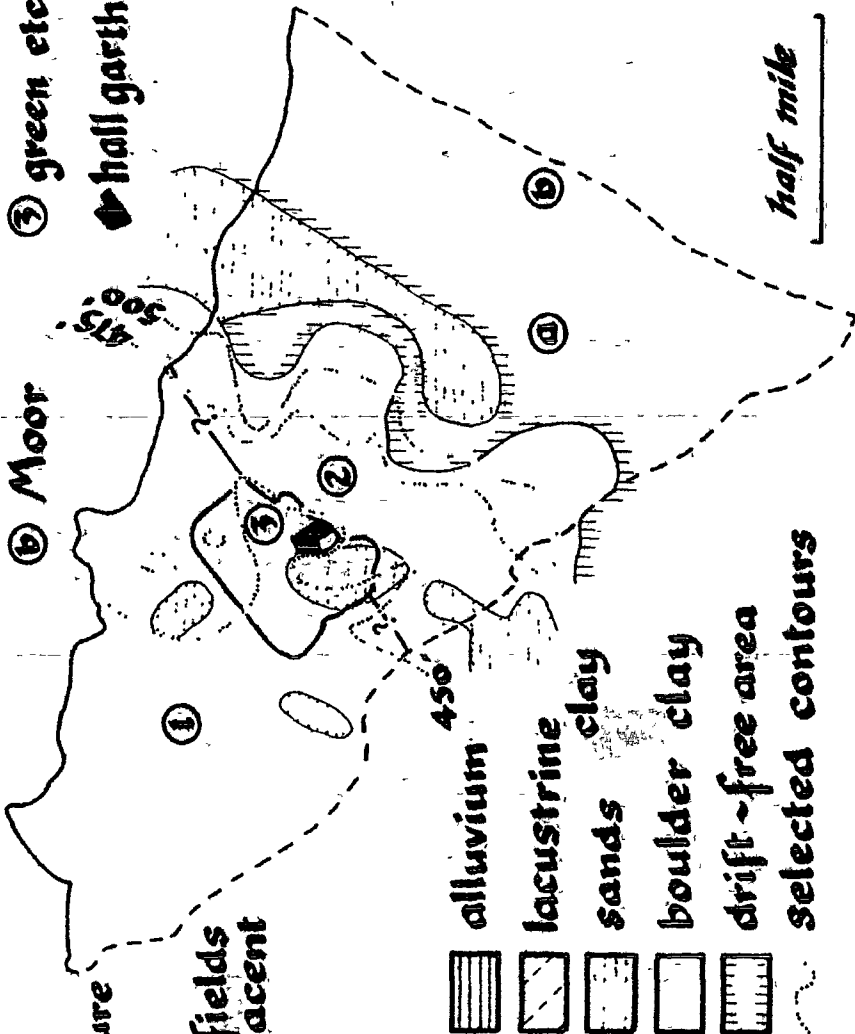
③ green etc.

♣ hall garth

Ⓐ Banks

Ⓑ Moor

① Longlands
pasture
② Moor
③ Village: openfields
adjacent



one mile

half mile

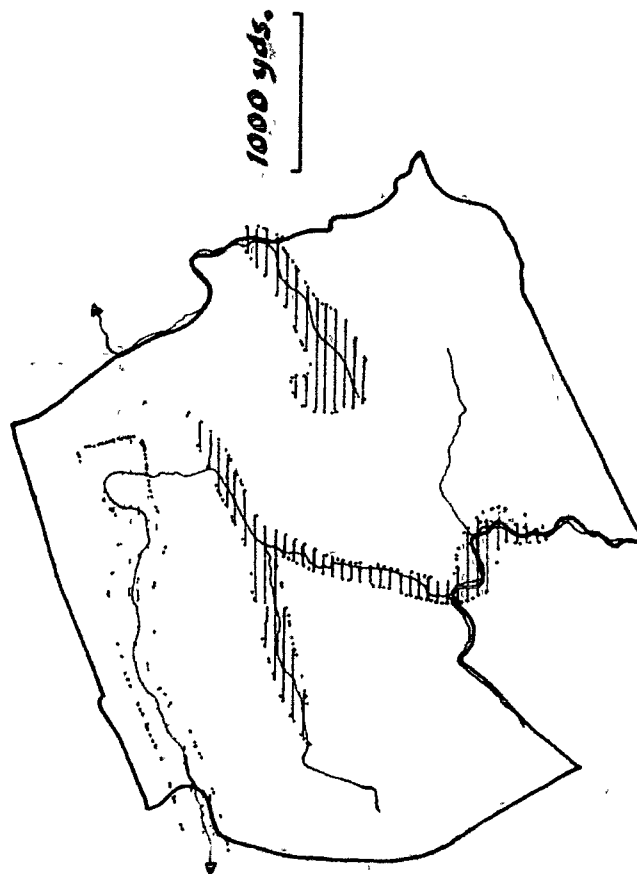
P.K.M.

[a piece of land] called the hall garth most comonlie and Joynthe battersbie comon of the one side and battersbie towne gate on the other side so that he saith he rather thinketh that it was takin of the comon in ould tyme ... for the said oxgang land [of which the plaintiff held Hall Garth to be part] lyeth in the feelds of Battersbie and on the north side of battersbie towne and the said grounds in variance lye on the south side thereof Joyninge to the comon pasture of battersbie.²⁹

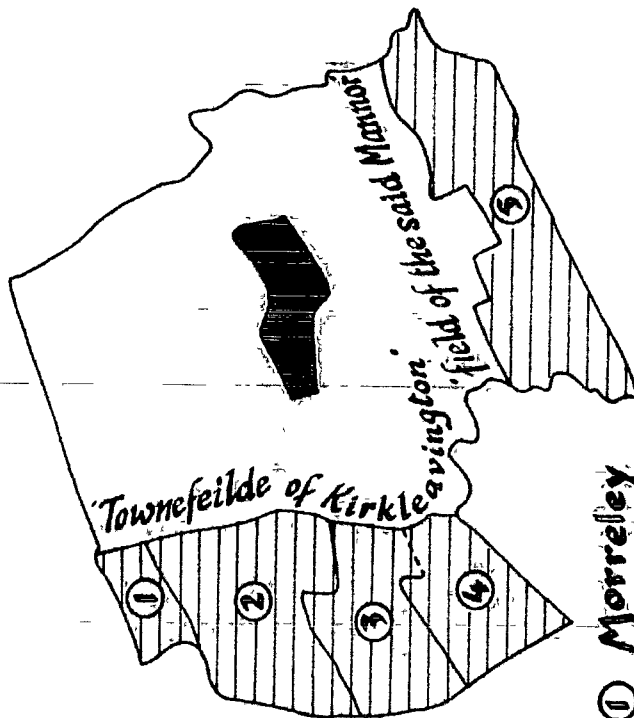
Figure 23 shows the relationships of this boundary. Although the precise alignment of the south-western and south-eastern limits of the township are uncertain, it is clear that Battersby's total land area had the same elongated form as Faceby and Broughton, with the village centrally placed. Through the village site runs a small stream, which is joined in the centre of the village by two tributaries. Together, their valleys form a shallow hollow with a rather narrow opening on the downstream side. Although there is no evidence of alluvial deposition, the basin is wet, and liable to short-term flooding after heavy rains and snow-melt. In the sixteenth century, all the village farmsteads were aligned along the northern and western margins of the hollow some ten feet above flood level. Those on the west (which included the Hall) backed onto a low hill of medium sandy loam upon which were the "West Tofts," but the farmsteads and garths of the northern group stood on rather heavy clay land. In the hollow itself was the "battersbie towne gate" or village green. Above the village (450 ft. O.D.) are mainly damp heavy clay soils developed on boulder clay and detritus with, between 600 ft. and 700 ft. O.D., a good medium loam on a terrace of glacial sands; these were utilised as the common pasture.

KIRKLEAVINGTON

Fig. 24



sands on valley sides
 streams
 alluvium
 boulder clay



① Morreley
 ② Low Oxclose
 ③ Mid
 ④ High
 ⑤ Moor

Village
 Pastures

PKM

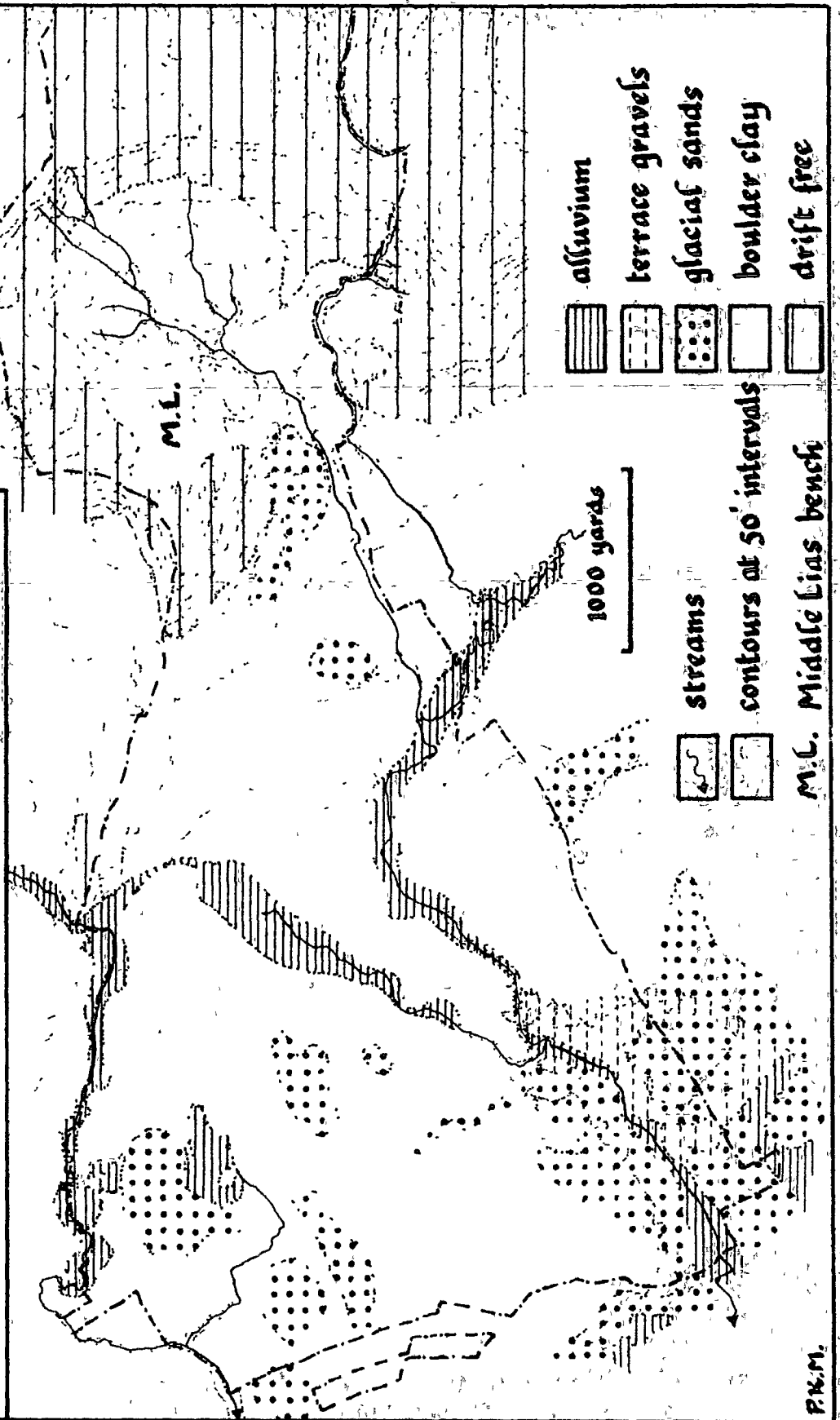
To the north and west of the village are heavy clay lands with a few small patches of lighter land - here were the open-fields. The one physical factor which appears to differentiate the latter from that portion of the pastures lying below the 475 feet contour is the presence in the pastures of greater amounts of surface water, resulting both from direct run-off from the higher land and scarp-foot seepage. This factor, while probably not critical in itself, was no doubt potent in the context of a small community with adequate land suitable for arable cultivation.

ii) Kirkleavington - At Kirkleavington, the enclosure of the pasture lands (comprising the High, Middle and Low Ox Closes, Morreley and the Moor) is documented,³⁰ whilst the enclosure of the arable and meadow is not. However, since the Moor was described as bordering on the "field of the said Mannor" and the other pastures on the "townefeilde of Kirkleavington", two of the significant pre-enclosure boundaries may be mapped (Fig. 24). Apart from the small area of poorly drained alluvium and the steep banks of the incised Saltergill, (where glacial sands are exposed) the undulating clay plateau, though far from uniform, displays no prominent contrasts. The village is centrally placed with regard to the croplands and haylands, whilst the common pastures are patently peripheral. These spatial considerations have been dominant in the establishment of the pasture/open field boundaries within the township, and probably also in other townships to the west, for, if surviving locality names are to be relied upon,

there was, in the open-field phase, an almost continuous tract of pasture and moor stretching some nine miles in that direction from Kirkleavington Ox Close. Each section of this tract stood against the township limit, and at least one section (suggested by the names "Low" and "High" Entercommon in Great Smeaton) was probably commonable land of two townships.

iii) Marton - Marton is a lowland township, but, like the townships of the scarp-foot, it is elongated, with a marked transverse zonation of physique and soil type (Fig. 23). At the lower, northern end, the soils are wet, cold and heavy on a laminated clay sub-soil. The narrow belts of lighter, but ill-drained, alluvials are restricted to the floors of the incised valleys. A little above 50 ft. O.D., a sharp change of soil type reflects the presence of the glacial sand belt. Soils there are light and very free-draining. Above about 140 feet the margins of the Cleveland moraine are reached, soils become very varied and, although drainage is generally adequate, there are many very wet hollows in the till surface and these increase in number towards the upper end of the township. The village lies on the moraine, slightly above the centre of the township. In 1635, at the time of enclosure, 260 acres at the northern extremity were the stinted pasture of Longlands. The 400-acre Moor in the south was inter-commoned with the neighbouring Nunthorpe.³¹ No specialised meadow ground is mentioned in the documents and it seems likely that the three open-fields, each of approximately 200 acres, contained both meadow and arable strips,

GREAT AYTON: RELIEF and GEOLOGY: FIG. 25



P.N.M.

GREAT AYTON

1000 yds

Westmoor

Crabtree Field

Applebridge & Hamnughill Field

Ings

Woodfield

Erholme

Common

Outbank

wood

village

open arable

pastures

pastures

openfield

wood

pastures

boulder clay

village

alluvium

boulder clay

sand & clay

sand & clay b.c.

f.e.o.d.

1000

500

Section X-Y

FIG. 26

Section X-Y

on soils varying from thin and droughty to quite wet and heavy. The pastures, as at Kirkleavington, were peripheral, but also occupied those areas in which the heaviest and wettest patches of land lay.

iv) Great Ayton - This township lies adjacent to Newton, to which it is physically comparable: one contrast lies in the large expanse of the till-covered Middle Lias bench (Fig. 25). In the seventeenth century, this was commonable pasture,³² but in the eleventh century, arable cultivation was apparently practiced there.³³ At enclosure, all the arable lay below 450 ft. O.D. on mixed soils (Fig. 26). In the north-west, the township runs into the moraine zone of indeterminate drainage (Morton Flat - Fig. 5). Here, bordering Tunstall and Nunthorpe was the pasture West Moor. The geographical indication was necessary to distinguish it from the upland moor or "Out Bank" on the plateau to the east. The specialised meadows, which lay on the damp clays and alluvials at the foot of Langbaurch Rigg, are not mentioned in the enclosure documents, having, with some of the open-field land, been enclosed in the previous century.³⁴ Their limits are not precisely known.

The sketch-maps and discussion of these sample townships suggests a very simple pattern of pre-enclosure land use, which may be deceptive. Examination of detailed pre-enclosure maps from other parts of Britain indicates that this is highly likely. No doubt the real landscape was more varied, with small ancient enclosures or patches of grass-land in the arable, for example. With this qualification in mind

table XIII, which attempts to summarize the quantitative aspects of the pre-enclosure pattern in those townships where data are sufficient, may be examined.

TABLE XIII - Land use proportions in
certain townships

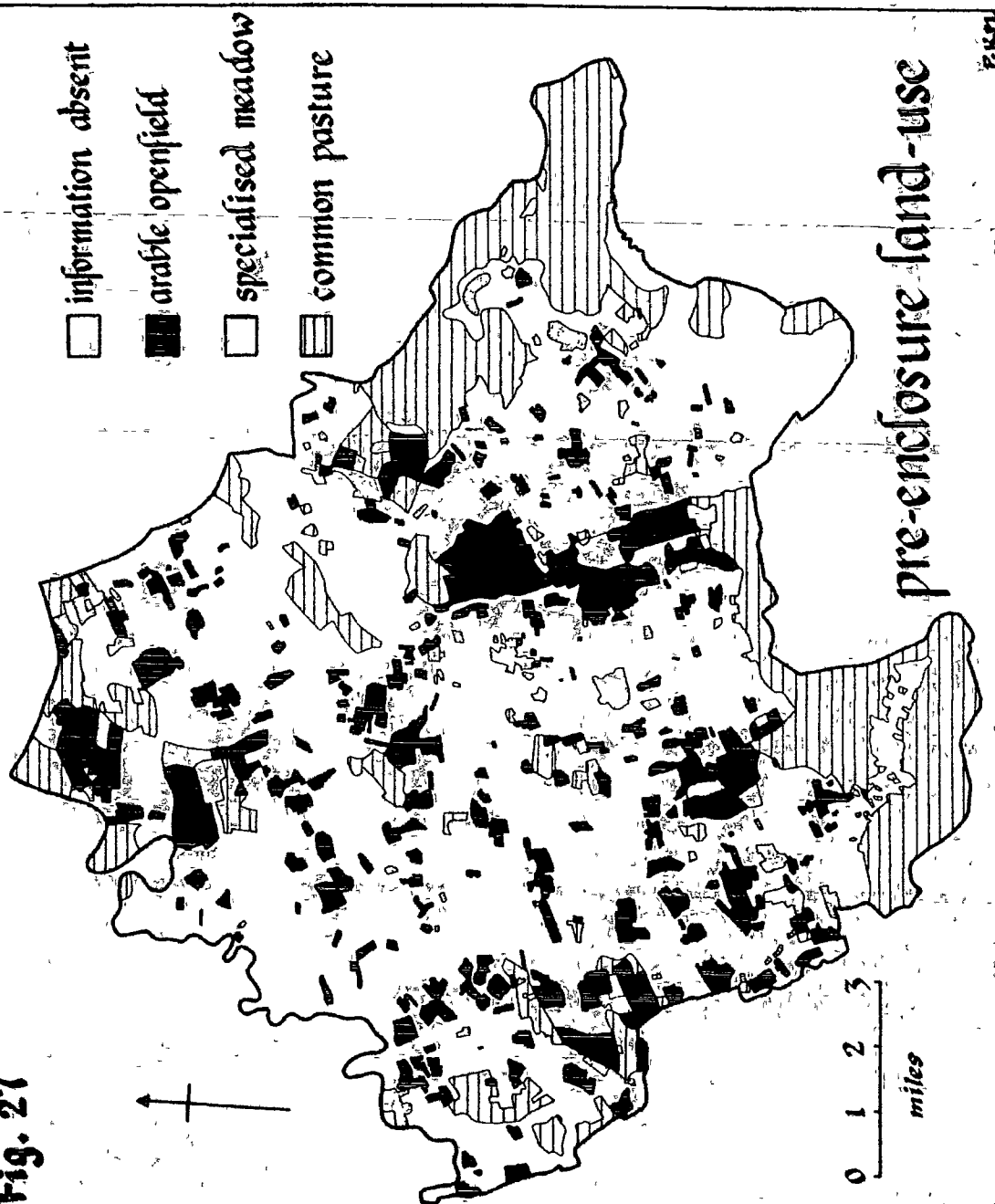
Township	Percentage of total				
	Open-field arable	Specialized meadows	Pastures	Low-grade pastures	Others
Newton (1723)	29	7	37	18	9
Gt. Broughton ⁱ	54	4	8	16	18
Gt. Broughton ⁱⁱ	48	8	14	16	14
Kirkleavington	..	..	38	-	62
Raceby (1748)	27	7	26	25	15
Marton	..	..	31	-	69
Battersby	..	..	16	47	37
Gt. Ayton	30	..	20	14	36
Middlesbrough	51	..	45		4

i Based directly on figures in PRO/E178 5756

ii Based on mapped reconstruction, using PRO/E 178 5756 and other information.

In each case, a certain amount of piece-meal enclosure had taken place before the dates to which these estimates relate. This applies least to the Newton, Kirkleavington and Marton data. A bold generalisation might therefore suggest that between 30% and 40% of the land was common pasture, rising to 50% or 60% where much of it

Fig. 27



was of low quality. Specialised meadow grounds occupied 7% or 8% of the surface, and, in the later stages, this was supplemented by meadow leys in the arable open-fields. These latter took up 50% of the ground in the zones favourable for crop husbandry, falling to 30% in townships with a greater proportion of upland grazing.

Individual site characteristics are clearly of importance in their influence on the land use patterns observed in these case-study localities, but some generalization is possible. The township unit is normally elongated, especially along the scarp-foot, but also occasionally elsewhere. Within the township territory, the settlement is centrally-placed (except - as at Middlesbrough - where special considerations such as navigable water have intervened).³⁵ In lowland townships, the arable open-fields surround the village on all sides, but in the scarp-foot zone, the settlement lies on the boundary between arable and pastoral uses. Communities clearly attached less value to those portions of the pastures which lay on steep, drift-free slopes or on the plateau summit. Moist land was preferred for the production of hay.

In an attempt both to verify and to evaluate these generalized conclusions, attention is now turned to figure 27 and more especially to the series of controlled stratified samples derived from this map (chapter five).³⁶ Of the six categories of land use identified at Newton, two (better pastures and moorland) cannot readily be separated and are considered together. Few sampling points coincide with settlements and their associated garths, so that these are excluded from

direct consideration. Woodland also fails to come into account.

In the sixteenth century, there were few areas of woodland of more than an acre or two - this may well have been the position as early as the Norman Conquest.³⁷ In 1634, the timber supply situation was critical: "The inhabitants of Cleveland (since Wharleton Park was cut downe) ... are daily forced to buy their wooden implements for tillage at other places."³⁸ Apparently, the parks had for some time been the main sources of timber. Chief among them were Whorlton, Ingleby Greenhow, Kildale and Crathorne. Crathorne Park was converted to farmland about 1716,³⁹ but timber was left on the steeper slopes and some similar sites may have been planted (Fig. 58). The parks in Ingleby Greenhow were said, in 1808, to have existed "anciently" and "A considerable part of the enclosed grounds is now laid open to the adjoining common."⁴⁰ At Kildale, also, some parkland had reverted to poor moorland grazing and the rest disforested by 1806.⁴¹ There are suggestions that its main use was as a grazing ground as early as 1667.⁴² There were other woodlands. Newton Wood still flourished at the time of enclosure, as did Claverick Wood at Ayton, but the latter was the only one of seven woods and "haggies" which could be found there by a Special Commission of 1582.⁴³ Analysis is therefore limited to a consideration of arable, meadow and pasture.

Table XIV indicates the land use/altitude relationship. The final column shows the quantitative value to be expected for each of the three land use categories if altitude played no part in determin-

TABLE XIV - Relationship between altitude
and pre-enclosure land use

Altitude classes (ft. O.D.)	Percentage frequency			
	Openfield	Pasture	Meadow	All
0 - 199	41.4	25.4	29.5	33.4
200 - 399	52.0	22.7	57.4	40.2
400 - 599	6.6	11.0	13.1	9.1
600 - 799	-	16.3	-	6.9
800 and above	-	24.7	-	10.4

$$\underline{\text{Chi}}^2 = 200.5$$

ing the land use pattern. In almost every case the departure of the actual values from this expectation is wide, and the result of the "chi-squared" test indicates an insignificantly small probability that chance would produce such a pattern. Altitude was therefore clearly an important factor in the control of land use decisions in the pre-enclosure phase. Altitude sets a clear upper limit to open-field and meadow uses, being more restrictive for the former. For pasture, the influence of the scarpland margin is clear, but the influence of the lower lands along the Tees bank is also apparent, since the frequency in the lowest altitude class comes closer to expectation than in the next bracket, where the deficit is very marked. Above

400 ft. O.D., altitude was a highly significant determinant of land use during the open-field phase, but below this level altitude per se played little part.

TABLE XV - Relationship between slope
and pre-enclosure land use

Slope classes (degrees)	Percentage frequency			
	Openfield	Pasture	Meadow	All
Less than 3	90.3	40.6	76.1	65.0
3 - 5.4	8.8	14.6	20.9	12.7
5.5 - 8.4	0.3	15.7	3.0	8.0
8.5 - 11	0.3	11.5	-	5.7
steeper than 11	0.3	17.6	-	8.6

$$\chi^2 = 232.8$$

The environmental factor considered in table XV is slope, which had a significant effect. Both meadow and open-field are concentrated on flatter tracts, slope being most critical for the latter, despite a small number of instances of very steeply sloping land in this category. Pasture values are greater than expectation on all slopes steeper than three degrees.

TABLE XVI - Relationship between sub-soil
and pre-enclosure land use

Parent Material	Percentage frequency			
	Openfield	Pasture	Meadow	All
Alluvium	5.1	9.6	43.7	10.3
Lacustrine clay	6.2	4.0	10.4	5.6
Boulder clay	68.1	33.1	41.7	50.4
Glacial sands	20.5	15.1	4.2	16.8
Jurassic rocks	-	38.2	-	16.8

$$\text{Chi}^2 = 210.2$$

In the absence of soil survey data, the various classes of land use are considered in table XVI in their relationship to the underlying geology, the bulk of which is drift. Since practically all the Jurassic rocks are exposed only at higher levels, where altitude has already been shown to be a powerful control of land use, no attempt has been made to subdivide this group. Of the highly significant relationships shown in this table, perhaps the most significant is the affinity between the distributions of meadowland and alluvium. This latter was, in general, avoided for open-field cultivation, drainage being a major problem. By contrast, over-free drainage inhibited the development of meadowland on the glacial sands, especially at lower altitudes. The laminated clays supported little more than their share of open-field arable, which was concentrated on the boulder clays. Pasture acreage was significantly low on these clays and had a monopoly of the drift-free hills.

TABLE XVII - Relationship between land use
and distance from settlement

Distance classes (D = max. poss.)	Percentage frequency			
	Openfield	Pasture	Meadow	All
0 - D/5	26.1	7.8	5.9	15.5
D/5 - 2D/5	31.4	25.2	47.1	29.5
2D/5 - 3D/5	29.3	25.7	29.4	27.5
3D/5 - 4D/5	11.7	24.8	17.6	18.6
4D/5 - D	1.6	16.5	-	8.9

$$\text{Chi}^2 = 68.5$$

One feature of the open-field system was the centrally-placed nucleated settlement. The data of table XVII were assembled to investigate the spatial inter-relationships of land use and settlement. To accomplish this, each point of the stratified sample was allocated to a category according to the ratio borne by its distance from the centre of the settlement to the maximum distance possible within the appropriate township. Thus low numbers indicate proximity to the settlement. On test, the differences apparent in table XVII prove to be significant. Distance appears to have no bearing on the distribution of meadow, but there is a clearly discernible tendency for the open-field land to be close to, and the pastures to be distant from the settlement.

The figures in the right-hand column of table XVII are not without inherent interest, since they illustrate the asymmetry of the west Cleveland township/settlement relationship. In a perfectly

MODEL to illustrate the spatial relationship
of the mean lowland West Cleveland town-
ship and its controlling settlement
(D = distance from centre of village to furthest
boundary)

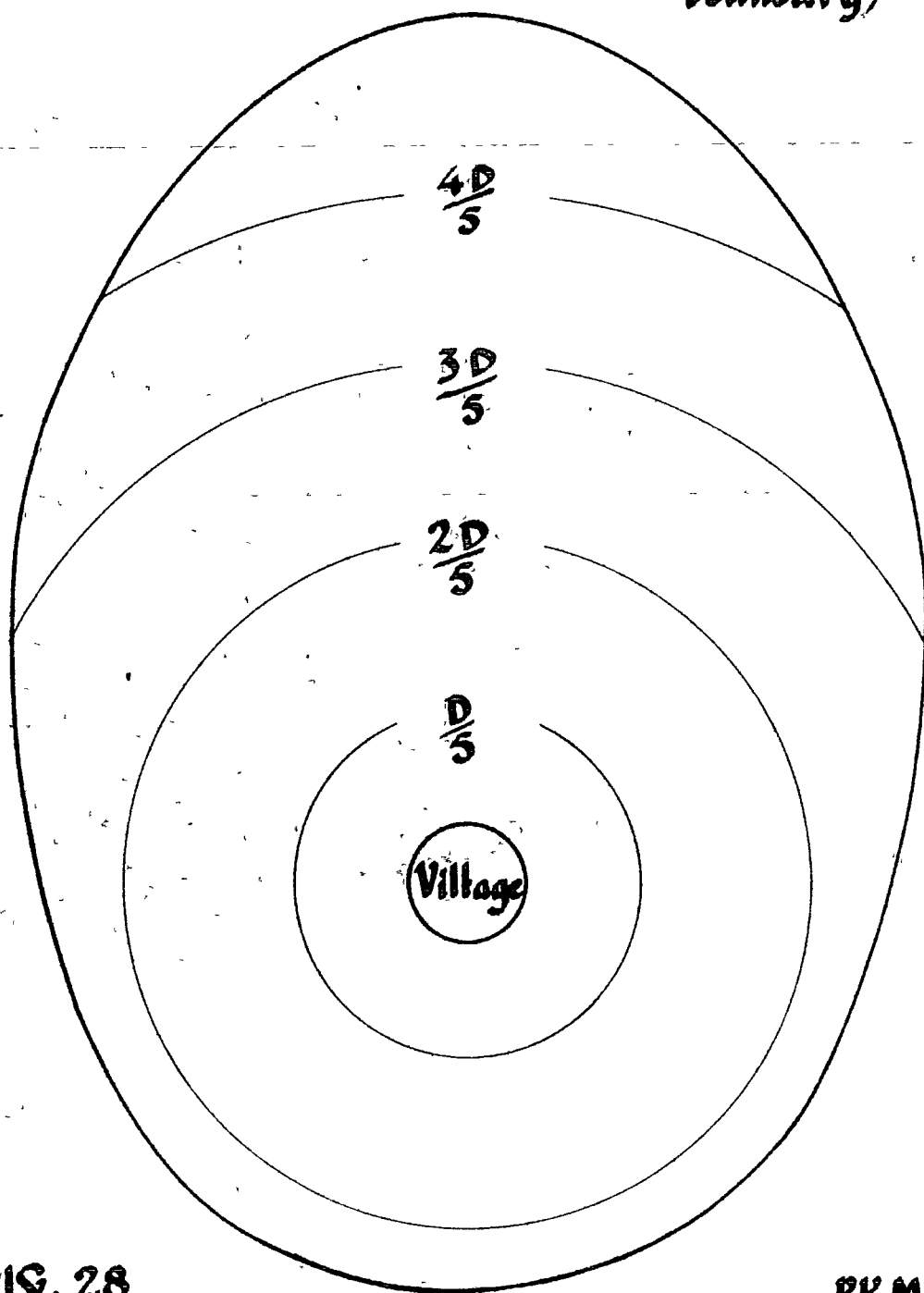


FIG. 28

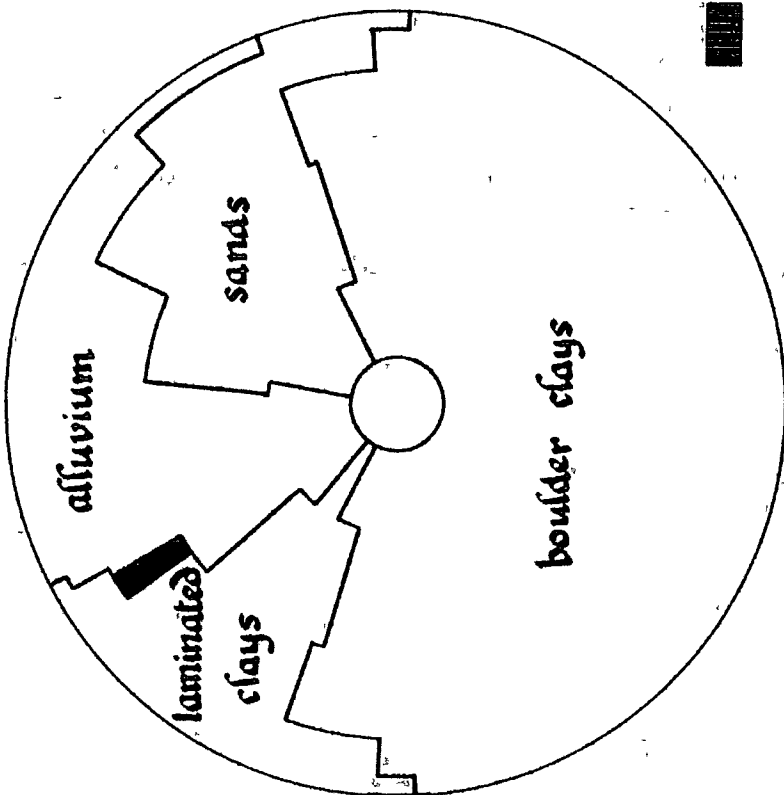
P.K.M.

MODELS based on mean lowland township of West Cleveland Fig. 29

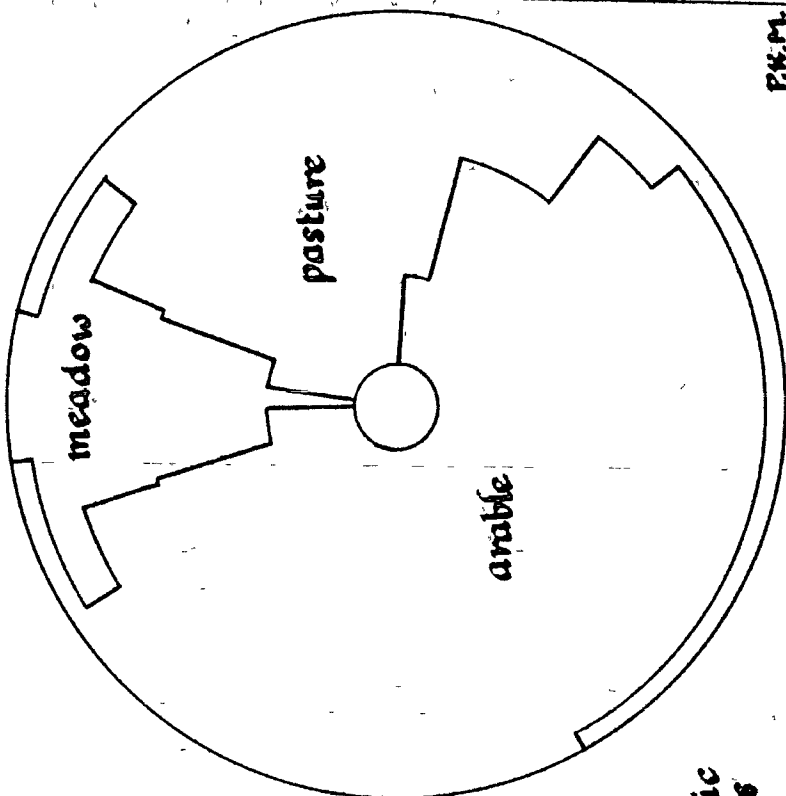
AREA/DISTANCE RELATIONSHIPS

a. Sub-soil types

(breaks along radii correspond to equidistant circles of figure 28)

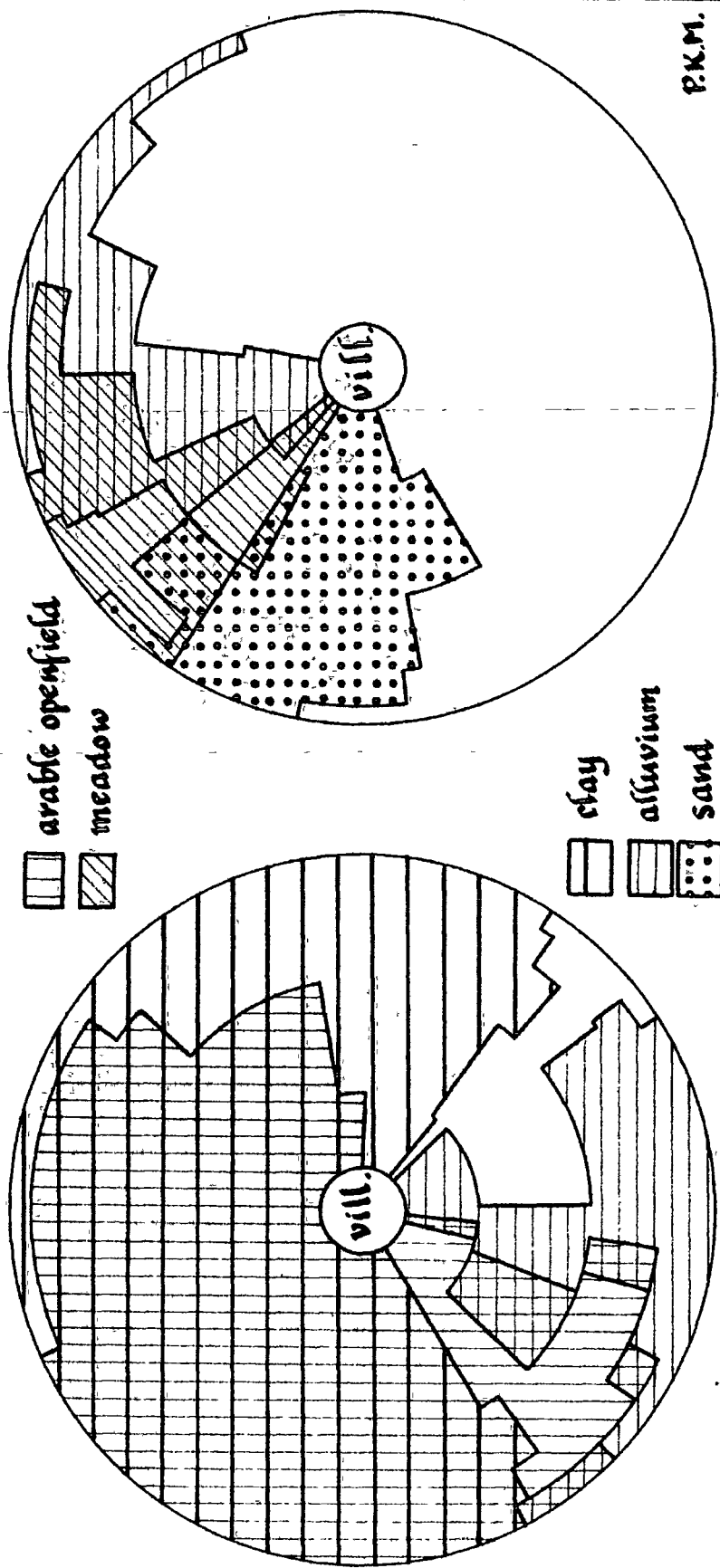


b. Land use categories



MODELS based on mean lowland township of West Cleveland Fig. 30

Illustrating relationship between land use, subsoil type and position



circular township the values would read. less than 2.8 (since this figure includes the area of the settlement itself), 8.5, 17.3, 28.4 and 43.0. A model such as that of figure 28 would fit West Cleveland data adjusted to exclude townships which are mainly upland in character.

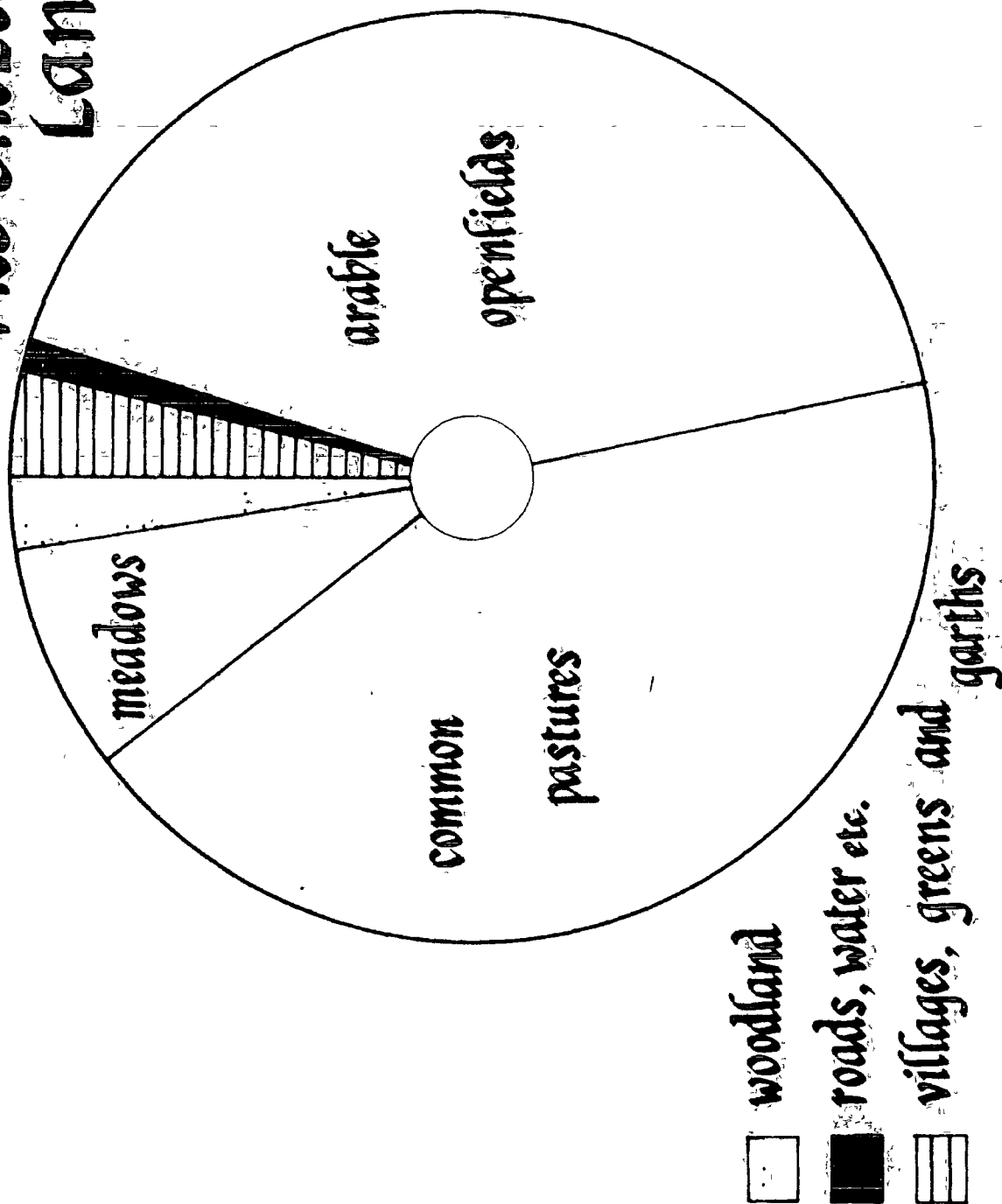
Analysis of this wider body of data therefore reinforces the main conclusions drawn from the study of the few well-documented townships. The open-field land tended to occupy the flatter, boulder clay areas lying close to the settlement, well below the 600 feet contour. For meadows, the farming community sought out the well-watered areas of alluvium, wherever these might lie in the township. Pastures were relegated to the higher, steeper, more distant sites when more favourable locations were not available.

These tendencies notwithstanding, it should be stressed that (the more extreme conditions of altitude and slope apart) each category of land use may be found to have existed on sites of widely different edaphic and spatial character. Attempts to produce a simple model for the open-field township have foundered on this inherent complexity. A number of models based on particular aspects of the data are given at figures 29 and 30. These, together with the maps of specific townships, must serve (in the inevitable absence of a complete map) to illustrate the patterns of land use which prevailed during a very prolonged phase of the area's agricultural history.

So far as the quantitative relations of the various alternative land uses are concerned, this approach through non-random samples can yield no controlled results. The contents of table XVIII must there-

FIG. 31

PRE-ENCLOSURE LAND USE



P.R.M.

fore be accepted only with considerable reservation.

TABLE XVIII - Percentage estimates of areas
occupied by principal land use categories

Source of estimate	Openfield	Pasture	Meadow
Uncontrolled sample (828 points)	39.5	52.3	8.2
Sample stratified by <u>altitude</u>	48.0	42.2	9.8
Sample stratified by <u>slope</u>	42.8	48.1	9.0
Sample stratified by <u>subsoil</u>	47.2	44.0	8.4
Sample stratified by <u>distance</u>	42.7	49.5	7.7
Mean stratified sample	45.3	46.0	8.7
Case-studies - table XIII	42.5	49.4	8.1

Estimates based on the various samples vary widely and differ also from an estimate based on late documentary evidence. However, the range of variation shown is probably no greater than one might expect from all but the most complete sets of data. Arable openfield, it is therefore tentatively suggested, may have occupied 42.5 to 48.0 units of area, pastures 42.2 to 49.5 units, and meadows 7.7 to 9.8 units. Were an average taken, and estimates made for the other categories of land use, the area of the model township would appear to have been utilised as illustrated in figure 31.

In conclusion, it should further be stressed that the quantitative data and some of the qualitative conclusions derived from them are less firmly established than their graphical and tabular presentation might suggest. This caveat is necessary because the data depend on two levels of generalization. The second level is the more obvious

and is related to the statistical techniques discussed in the preceding pages. But earlier, there has been an even more fundamental stage of rationalisation. Data have been abstracted on the basis of a conceptualized open-field landscape in which, at some date, all land in all townships and territories has been managed under the open-field system. Such complicating elements as parkland, several holdings and monastic granges have had to be eliminated from the conceptual system, not because they did not exist, but because information concerning them is too limited. Similarly, the field units of the system have had to be regarded as uniformly arable, meadow or pasture land, despite our awareness that this was not strictly true. Nor can the idea be strictly maintained that the balance and location of the various land use categories was completely unchanged throughout the many years of the open-field phase. Our data therefore refer to an abstraction, not to reality. However, since material deficiencies prevent access to reality, an attempt had to be made to obtain an approximate image of the land use patterns of the pre-enclosure period. This one has tried to do.

-
- ¹ E.g. F. Seebohm, The English village community, (Longmans, 1890) and W. G. Hoskins, The midland peasant, (Macmillan, 1957), chap. IV.
 - ² A. E. Smailes, North England, (Nelson, 1960), pp. 92-96.
 - ³ H. L. Gray, The English field systems, (reprint Merlin, 1959), pp. 62-63, 105-107, 206-227.

- 4 C. S. and C. S. Orwin, The open fields, (Oxford, 1938), p.62.
- 5 P. Dickenson and W. B. Fisher, The mediaeval land surveys of County Durham, (Durham, 1959), p.9.
- 6 R. A. Butlin, "Northumberland field systems", Ag.Hist.Rev., XII (1964), 99 - 120.
- 7 NRRS/QSR, IX, 67-70 and NRRD/ Award on an agreement for the enclosure of Newton-in-Cleveland, 1741/2.
- 8 There were eight tax-payers in 1301, YAS/RS, XXI, 31.
- 9 M. W. Beresford, "Glebe terriers and open field, Yorkshire", YAJ, XXVII (1950), 337.
- 10 YAS/RS, C II (1940), 88. Bovate is the anglicized latin form of "oxgang."
- 11 This period was "avarage time."
- 12 YAS/DD 92, Roll of 1651.
- 13 Ibid.
- 14 YAS/DD 92, Roll of 1655.
- 15 Ibid.
- 16 R. Kettlewell, Cleveland Village, (Great Ayton, 1938), Roll of 1648.
- 17 Ibid., Roll of 1647.
- 18 CRO/ Marton, decree in a lawsuit heard at York, 9th Oct., 1635.
- 19 J. W. Wardell, A history of Yarm, (Sunderland, 1957), pp. 153-167 where the "Deed of submission and award for the division of Yarm, 1657" is printed.
- 20 YAS/ MD 23 (3rd packet), Wm. Lenge to Robt. Lenge, 1650, _____, Thos. Ling to Robt. Ling, 1668, and _____, Thos. Ling to Jas. Stockton, 1670.
- 21 NRRD/ Faceby Enclosure Award, 1749 and PRO/ E 178 5759. The 1749 award refers to "large" and "small" oxgangs.
- 22 YAS/RS, CII, 24.

- 23 BI/ R VIII H 1346.
- 24 CRO/ Marton, loc. cit.
- 25 PRO/ E 178 5759 and NRRD/ Faceby Enclosure Award.
- 26 Derivation of "ings" in this case is through "innings" from innám "a piece of land taken in or enclosed".
- 27 PRO/ MPE 524.
- 28 PRO/ E 178 5756.
- 29 BI/ R VII G 1850.
- 30 PRO/ E 178 4886.
- 31 CRO/ Marton, loc. cit.
- 32 YAS/MD 23, _____ MD, 24
WLC / Kitching Papers, Indentures etc. relating to Great and Little Ayton.
- 33 This was the site of a Domesday vill (Fig.2).
- 34 PRO/ E 164/37, f.421, and
BI / R VII H 1209.
- 35 No judgment is implied as to the priority of the settlement or the territorial limits.
- 36 For the verification process, it would have been better to have limited discussion to the material contained in Figs. 12-15, since this was derived quite independently of the case-studies. However, this advantage has been foregone in the interests of evaluation, which is based on the maximum amount of data as mapped in Fig. 27.
- 37 There is no local reference to woodland in Domesday, nor do place-names offer much evidence of woodland clearance (chap.I).
- 38 Quoted by T. Richmond, The local records of Stockton and the neighbourhood, (Stockton, 1868), p.33.
- 39 TRC/ TF 11922.
- 40 J. Graves, The history of Cleveland, (Carlisle, 1808), p.255.

- 41 GET-KH / "Particular of the Manor or Lordship of Kildale,
1806"
- 42 CRO/ZCQ - Kildale, Richard Turner to Nicholas Wilson,
17th Feb. 1667/8.
- 43 PRO/ E 178 2809.

CHAPTER VII

LAND USE ON ENCLOSED LAND, MID-SIXTEENTH CENTURY TO MID-SEVENTEENTH CENTURY

As evidence produced in chapter eight will show, a great number of the area's open-fields disappeared during these one hundred years. Alongside the patterns of the open-fields, therefore, there co-existed patterns peculiar to the enclosed farmhold. Such arrangements came to dominate by the end of the seventeenth century. Analysis is based on a case-study of Kildale. The township is, however, rather 'special' in that it lies in an upland area. Although the arable and meadow were enclosed, a large tract of upland common remained. Supporting the Kildale material are other less complete accounts, and general information on the character of crop- and stock-farming on enclosed lands of the period.

Although enclosure often came simultaneously to the component parts of the open-field township, piecemeal transformation was also common. In some townships, individual farms may have comprised both enclosed and open-field land for quite long periods. Economic pressures, or other circumstances, might more readily produce responsive changes of land use upon the former. In mid-sixteenth century, the enclosed Greenhow demesnes were subdivided amongst tenant farmers. A third, including the closes of Great and Little Bonohill (now Bonnyhill), was leased to one Robinson, who, having laid the closes to grass, compounded with the tithe farmers for the hay tithe. Later, they were ploughed out for wheat and oats, while

a much reduced yield of hay came from the margins of the closes and the headlands. This double-change of use occurred over a period of less than a decade.¹

As the sixteenth century price structure appears to have favoured livestock farming, so it is found that enclosed lands were frequently used for grass. Thus at Great Broughton in 1587, a landholding included ten oxgangs of arable in the open-fields (amounting, it was said, to a mere 40 acres) and 350 acres of enclosed grassland, of which more than half was pasture.² This large area was not managed as a single unit - in 1552 there were at least four tenants upon it. It is known that at least 200 acres of the grassland had been enclosed and converted from open arable circa 1520 to 1530.³ Similar patterns are found both at Great and Little Ayton in 1615.⁴ At Battersby, in 1570, a tenant held four closes "et quinze bovat terr arrabil prati et pasture."⁵ Here again, the closes were grass, and might alternate as pasture or meadow. Enclosure seems often to have led to a reduction in the proportion of arable land. Experience of this tendency led tithe owners to take an unenthusiastic view of enclosure, especially in those cases where the great and small tithes had become separated. In the Yarm enclosure agreement of 1657 this situation was anticipated:

And Whereas it is not hereby intended that Lawrence Sayer ... Farmer of the Tythes of Yarm ... may or shall be damnified in the decrease of his ... Tythe Corne in the fields of Yarm, but in lieu thereof shall have the sume of Sixty pounds ... yearly.⁶

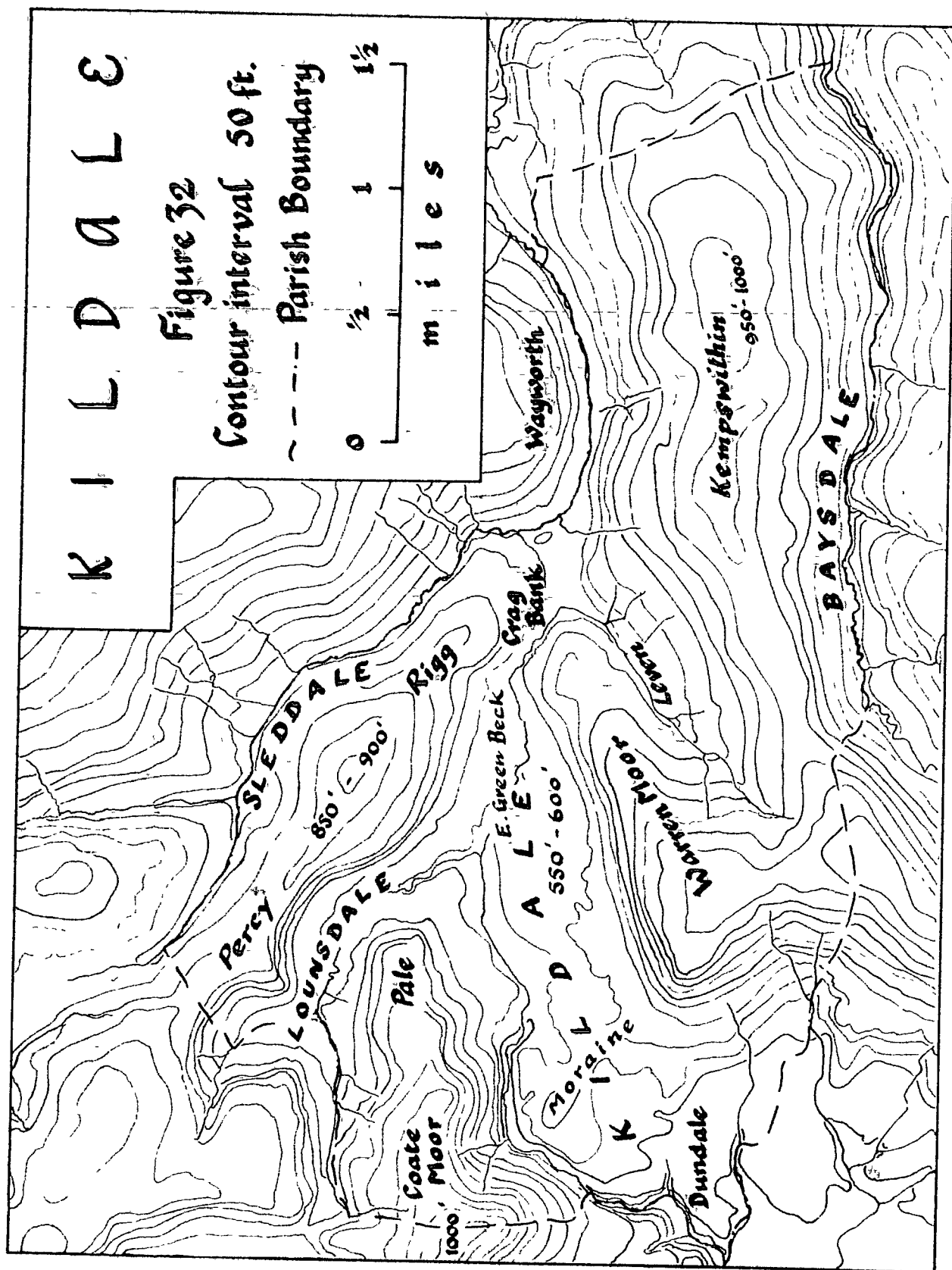
Here, it appears to be taken for granted that the corn tithe yield

would decline as a result of enclosure. Since one would expect an increase in yield per acre, it follows that a fall in cropped area was anticipated. This expectation can only have been based on local experience.

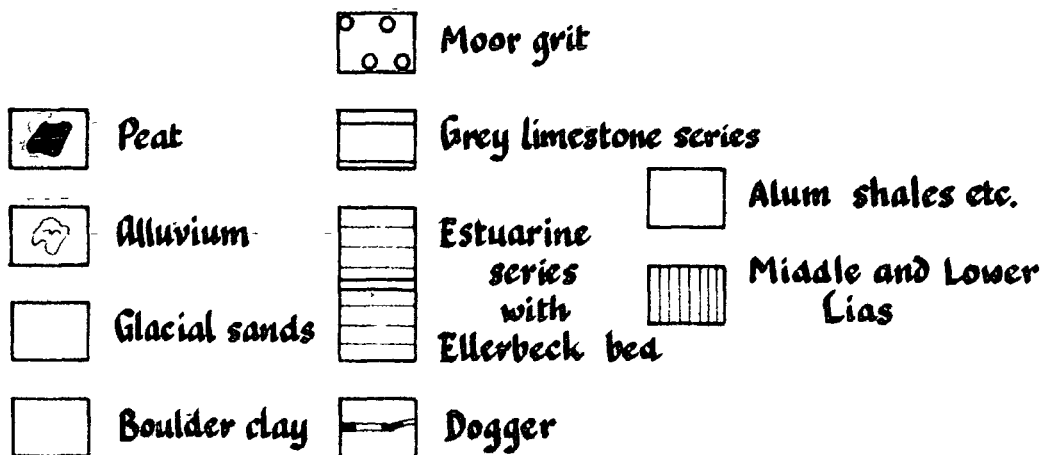
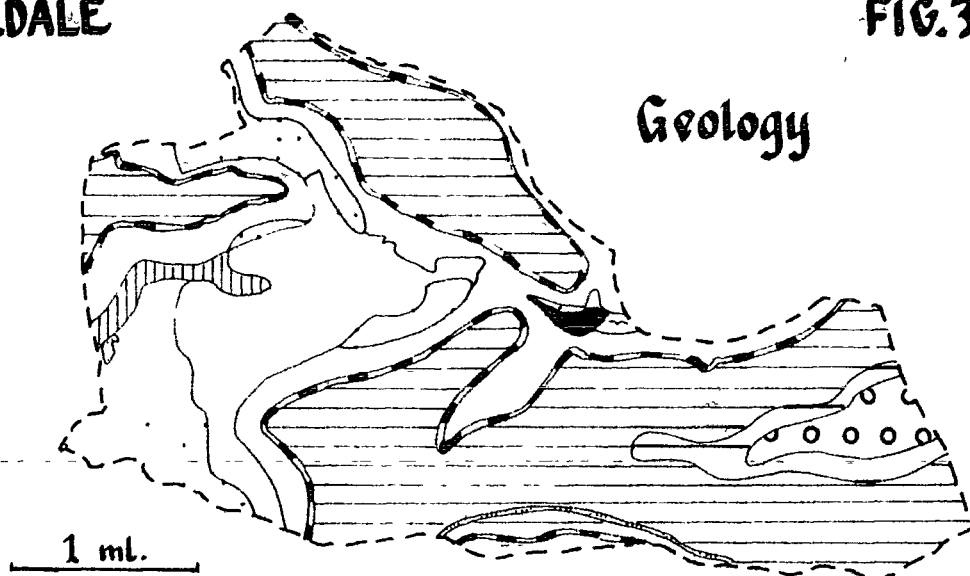
However, the trend towards grassland closes must not be overstressed. At Greenhow there was arable cultivation of demesne closes, while at Crathorne in 1555, when the township was still mainly open, there were two arable closes yielding wheat, barley and oats. The name of each was "the new ryft" - one was next to the "moor" and the other next to the "winter-field." Both appear to represent the encroachment of several arable husbandry upon common grazings.⁷ A straight reading of an ambiguous Little Busby report suggests arable cultivation of enclosed land there.⁸

Within a matrix of open townships, the early enclosed townships such as Castle Leavington, Tunstall and Nunthorpe provided valuable supplementary grazings for those farmers anxious to increase both the quantity and quality of their livestock. Hay was also led from these areas, but in none was arable farming completely neglected. Typical of the enclosed lowlands, perhaps, was the situation illustrated by a series of leases from Barwick.⁹ It can be estimated that 27% of the township's 700 acres were arable at mid-seventeenth century, and that most of the larger farms were kept to about that figure.

This arable proportion of approximately one quarter recurs in a very different environmental context at the other end of the district in Kildale. In 1623, 24% of the enclosed land was arable, 55% was

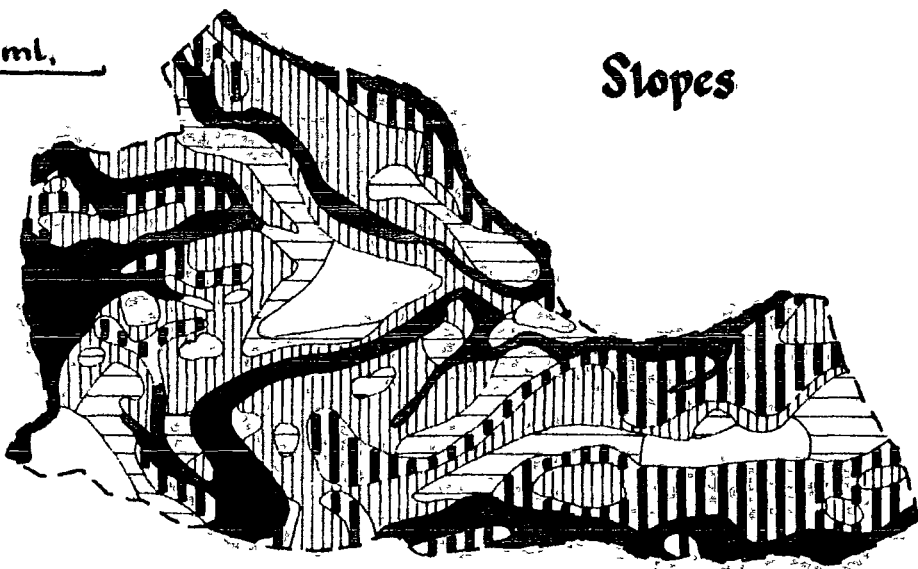


Geology



1 ml.

Slopes



pasture and 21% was meadow.¹⁰ As compared with 1612,¹¹ both arable and meadow showed a small net increase. The total "improved" area had also increased. At this time slightly more than two thirds of the township was open "commons and wastes", but having regard to the inherent quality of this moorland it is yet legitimate to regard Kildale as an example of the enclosed township.¹²

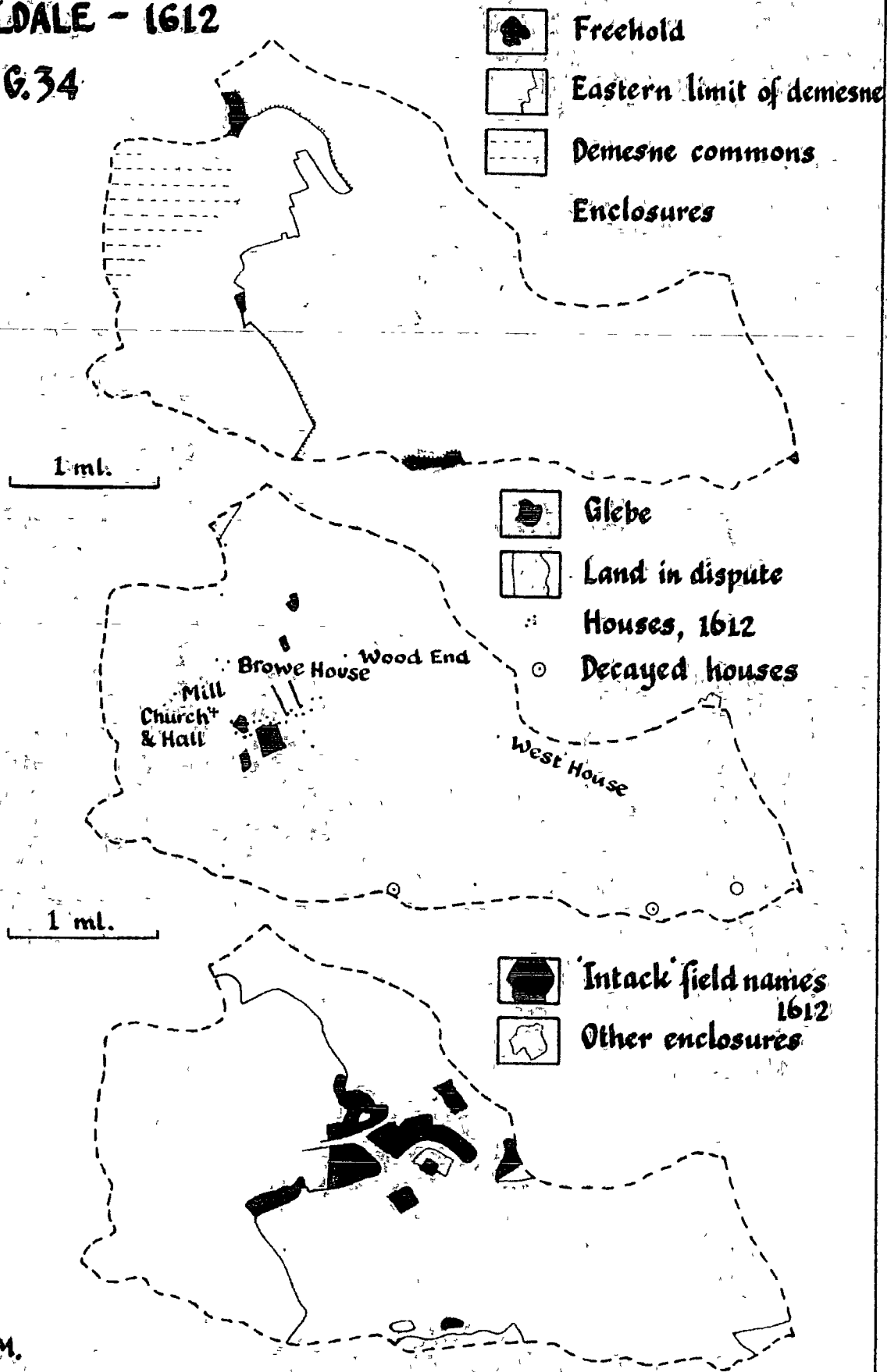
Within the parish of Kildale a wide spectrum of environmental complexes is to be found and, although the most beneficial are yet more rigorous than the best of lowland sites, the range is fully representative of the more elevated portions of West Cleveland (Figs. 32 and 33). The dale proper is a glacially modified obsequent valley cutting back from the main escarpment (which here faces westward), to capture the headwaters of the Esk drainage. The most westerly of the valleys formerly tributary to the Esk - Lounsedale - is now an open annexe to the Kildale valley, which narrows eastward into a glacial overflow feature at Crag Bank. Through this gorge, the obsequent drainage appears to have captured a second Esk tributary, the Leven, which is separated at the elbow of capture from Sleddale Beck by an area of indeterminate drainage which forms the Esk/Leven watershed. Further east, Sleddale Beck flows through another gorge feature below Wayworth and past Comondale to Scale Foot, where the first right bank tributaries (draining Baysdale and Westerdale) join to form the Esk proper. This valley-system has been cut into the quasi-horizontal strata of Jurassic and Liassic age from the summit level of the Moor Plateau at about 1100 ft. O.D.

Glacial modification of this landscape may have included the upper Leven capture, but more significant was the Kildale moraine, which has forced the Leven to cut a fine gorge in the shales and sandstones of the Middle and Lower Lias, below Coate Moor. The crest of the moraine (620 ft. O.D.) and the valley above, are surfaced by locally-derived fluvio-glacial material. The outer face of the moraine, most of the floor of Lounsdale, a collar-shaped area on the southern, and a strip on the northern, sides of the valley are of boulder clay. Patches of the latter are quite sandy. A few patches of boulder clay, with peat and alluvium, are found at the ill-defined Leven/Esk watershed. Elsewhere, soils are derived in situ from parent rock. Although these rocks belong to the Inferior Oolites, limestone is found only in bands of limited thickness among ironstones, sandstones and shales. This, together with the humid upland climate has given most of the rather thin Kildale soils a high acidity. While surface drainage is mainly good, and even excessive on some of the sandier upland sections, the valley-side slopes of Upper Lias shales are wet, and where these abut onto the heavier boulder clays of the valley floor, as in Lounsdale and at East Green Beck, low gradients for potential artificial drainage have defeated twentieth century techniques.

Although the parish and township is the direct sociological expression of the valley of Kildale, the relationship between the territorial and natural boundaries is far from direct. If the situation of the church and moated hall may be regarded as the

KILDALE - 1612

FIG. 34



nucleus of the colonising settlement,¹³ and cultivation of the light valley soils as its primary aim, then subsequent expansion of cultivation over the moraine and down to Dundale on the one side, and into the annexe of Lounsedale on the other, may be envisaged. But upland grazings were also important, and considerable tracts of high moorland were taken into the township, including the three watershed spurs of Coate Moor and the Pale, Percy Rigg and Kempswithin. It is interesting that so much of Kildale's boundary should lie along stream beds. This is by no means characteristic of the North York Moors and argues for an early stabilisation of inter-community boundaries on terms favourable to the farmers of Kildale, as well as for the importance of watering-places for stock.

Each of the three subsidiary valleys has in some measure the characteristic form of the Moor Dales - a broad, open, upper section with a narrower, steep-sided lower portion - which is the morphological expression of the "slashed sleeves" of the early geological descriptions. Only small portions of these upper valleys came to be included in Kildale. At an early date (probably twelfth and thirteenth centuries¹⁴) they were reclaimed and enclosed. In Baysdale and Lounsedale the improvement included some Kildale land. This history led to the establishment of small freeholds at these points which, apart from two village garths and the church's glebe, was in 1570,¹⁵ and is today, the only freehold in the parish (Fig. 34).

In 1612, the main settlement was a loose-knit strassendorf of a score of dwellings stretched half a mile along the road which

ran down the centre of the main valley. At its eastern end, the village street opened out into a narrow green which continued beyond the village as a green lane or driveway leading to the commons. A spur road left the village street near its western end and led the three hundred yards to the church and hall, passing the vicarage on the way. Across the river on the south-facing valley side stood a small group of three dwellings - the Browe House -, while under the steeper southern slope stood a further two, perhaps close enough to be considered part of the main village. On a natural waterfall site in the Leven gorge was the "water corne milne."

At this date, most of the land of the Kildale valley was still farmed from the steadings of the village or from Browe House, but one holding (Wood End) already had its centrally-placed buildings. Other dispersed farmsteads served the isolated patches of better land in Lounsedale, West House and Baysdale. That this latter group belong to an early primary colonisation rather than to a secondary dispersal as is suggested for Wood End, may be judged from the distance involved and the evidence that these four were the survivors of a denser pattern, especially in Baysdale, where there were three houses already "decayed" by 1612.

With two small (but significant) exceptions, improved land was restricted to the valley floor and slopes. In the north-west, the steep slopes of the river gorge (and of Coate Moor beyond) had effectively limited improvement in that direction, but further east along the Coate Moor/Pale spur the river no longer undercuts and gradients as

low as 1 in 15 occur on a south-facing slope of loams and clays. The whole of the glaciated section of the spur was enclosed and improvement had extended across the shales to the foot of the pre-summit 12% slope. The terminal portion of the ridge, overlooking Lounsdale, was occupied, from the 825 feet contour down to the stream, by the 90-acre Paile Close, but the higher portions of this "pasture" must have been of mediocre quality. Inherently the poorest land enclosed at this date was the steep, shaly, eastern slope of Lounsdale. Although named Goosendale "Wood" it carried no timber, having probably been felled as recently as 1607,¹⁶ and the optimistic tenant of Wood End Farm was attempting piecemeal improvement. At the head of Lounsdale, the improved land extended only so far off the glacial materials onto the Lias shales as the lower limit of the 1 in 10 gradients.

East of the village, virtually all the enclosures were, in 1612, classified as "intacks," which implies relatively recent enclosure. Improvement covered the whole valley floor, even where it narrowed in the glacial spillway, but the peat of the Leven/Sleddale watershed was still part of the common land, and so left the West House lands as an isolated group of enclosures. As Kildale opens from the spillway at its head there is a marked contrast between the abrupt southern slope and its more gently sloping northern counterpart. On the south, improvement was established up to the break-of-slope at 600 ft. to 650 ft. O.D., about fifty feet above the drift. On the north there was, at this date, little correspondence between the uppermost field boundaries and any edaphic factor.

KILDALE - 1612

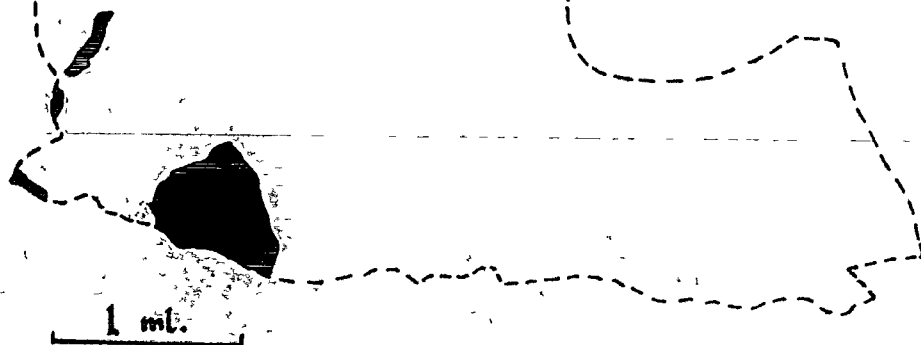
FIG. 35



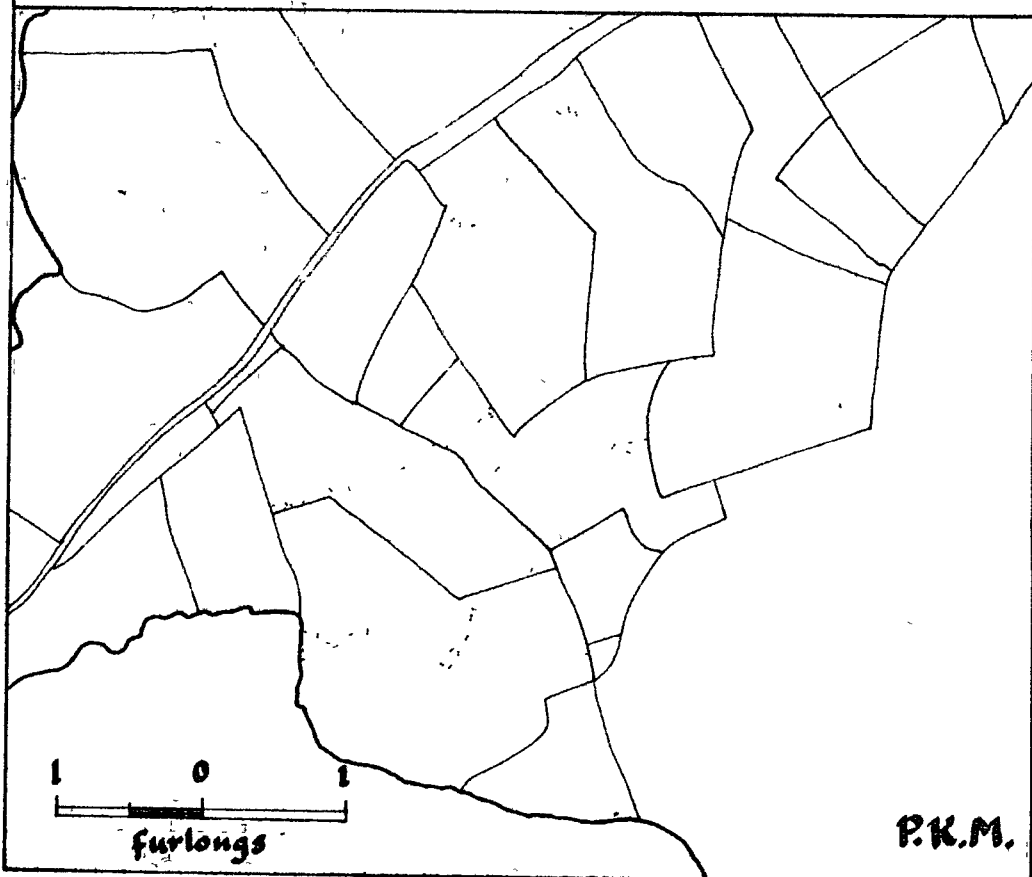
Grazed woodland



Hedge-row trees



Section of S.E. Kildale showing 1612 enclosures and [stippled] parcels of meadow which the parson of Kildale has the forecropp and the Earl of Northumberland or his tenants the aftercropp



KILDALE - 1612/23

FIG. 36



Arable, 1612

Enclosed land

1 ml.



Meadow, 1612

Enclosed land

1 ml.

Enclosed 1612-1623



Ploughed out "



Laid to grass "

P.K.M.

At the mouth of the dale, occupying the full sweep of the scarp slope from the parish boundary to the plateau summit at 1000 ft. O.D., was the grazed woodland of the park (Fig. 35). It enclosed land grading in quality from fertile, but heavy, clays through deep loams, to thin peaty podzols at the summit, where trees were absent. The unity of this tract owed much more to historical than to edaphic factors. On the steep northern shale slopes of Baysdale a few enclosed plots were maintained - they had earlier been more extensive.

The two exceptional cases of improved land remain to be dealt with. These occupied small patches of the Warren House and Percy Rigg spurs, where several tens of acres of gently sloping, sandy, rather thin, but improvable land lay between 675 ft. and 800 ft. O.D.

The largest single tract of arable (Fig. 36) lay on the loams and medium clays of the moraine to the west of the village, but considerable plots, running up to the margin of the common in some cases, surrounded the village and also occurred in the spillway. Smaller single plots of arable show that the outlying farms were not purely pastoral. The smaller plots of hay meadow were intermixed with the arable near the village, but two larger tracts (in the floor of Lounsedale and on the flattish clay area below the park) demonstrate the usual relationship of heavy soils and sluggish drainage with meadowland use. Enclosed pasture, relatively scarce near the village (where there was, however, direct access to the commons), had a not entirely peripheral distribution and occupied land of all qualities.

A noticeable feature of this distribution was the stretch of grassland set across the valley in the neighbourhood of the church and hall.

It is clear from the random distribution of the changes which took place in these patterns between 1612 and 1623 that neither the nature of the environment, nor the level of techniques, set very rigid limits to the variable use of much of the improved land. In the case of some of the meadows, however, an archaic tenural element served to fossilize utilisation. On these lands, ownership was not complete, in that the first mowing of part (often a strip) of a field belonged to the glebe, while other rights went to the landowner's tenant. The pattern (Fig. 35) was clearly a legacy from a pre-enclosure period - an anachronism which would affect farming practice over a much greater area than the eleven acres from which the parson got his hay.

In addition to the trees in the park, there was a continuous belt along the river gorge below the mill. Many of the hedges in the lower demesne lands also bore timber, but east of the hall the landscape was bare of this useful decoration.

Although no Kildale land was in the owner's hands at this date, a careful distinction was maintained between the demesne (which, though mainly enclosed, included commons on Coate Moor) and the remainder of the township (Fig. 34). The demesnes were on lease "for 99 years determinable upon 3 lives, whereof the late Mrs. Wells was the longest liver."¹⁷ But these 1362 acres were not a single working unit, being sublet to an unknown number of "Demeyne Tennants". The rest of the parish was shared by the freeholders, the parson (their

holdings together accounted for less than 5% of improved land) and the ordinary tenants. Tenant holdings were fragmented, though not as severely as the glebe farm (Fig. 34), and of variable size. As there is no indication of precisely what common rights were appended to the tenements,¹⁸ table XIX can indicate size solely in terms of enclosed land. The majority of holdings lay in the 15 to 40 acres

TABLE XIX - Kildale tenements, 1623

Size ranges ¹ (acres of improved land)	Number of tenements
70 to 89	2
50 to 69	2
30 to 49	4
10 to 29	5
5 to 9	2
3 to 4	1
2 or less	2

¹ Each of the eighteen tenants also held unspecified common rights.

range. Having regard to the additional value of the common rights, but recalling the relative severity of the upland environment, it yet seems likely that these farmers were in a stronger position economically than the holder of a single open-field oxgang.

Kildale rents varied from 6s. to 7s. per acre close to the village to 3s. on the recently improved "intacks" to the east. Common land might, with permission, be taken in rent-free, for improvement,

but payment was demanded once the initial costs had been defrayed. Throughout Cleveland, rent was somewhat lower on larger holdings than on the smaller. At Easby in 1578, for example, an 80-acre leasehold went for 3s/6d per acre, while a 25-acre farm on similar land reached 7s. per acre.¹⁹

The taking of land on leases of a term of years or lives is one indication of the increasing commercialization of Cleveland farming in this period. An example comes from enclosed and depopulated Castle Leavington, where open-field farmers from neighbouring Kirkleavington took additional land to extend the size of their enterprise. The lands of such "out-holdings" were most frequently used for grazing or hay. The latter, especially, increased the carrying capacity and availability of dung at the home farm; but medium-scale arable or mixed farming was also carried on. For example, in the 1630s, Francis Harrison cropped, in one year, some 20 acres with mixed wheat and rye, a further 25 acres with barley and led fifty waggon-loads of hay from the meadows. He also depastured, over a spell of four years,

forty younge beasts of a year old and better wch he intended to use for the yoke or the pale, and five horses wch he did imploy for riding and other services about his occasion.²⁰

Arable farming on enclosed land probably maintained the traditional three-course rotation of the adjacent open-fields, but flexibility was known. In mid-sixteenth century Greenhow, it was occasional practice to sow wheat onto a stubble rather than onto the prepared tilth of a year-long fallow, but the suggestion that two crops of

oats might be taken in successive years was firmly resisted by a contemporary witness.²¹ Crop yields of this period can only be estimated, since details are based on tithe arrangements, and the tenth (when taken in kind) was calculated in the field, not the threshing barn. A count of stooks or sheaves was usually made, and it was reckoned as common knowledge that a stook of grain would thresh out at a bushel or even five pecks. In 1792, when traditional harvest practices were still maintained, Ormesby farmers were systematically stooking at twenty to twenty-four stooks per acre.²² If the (admittedly large) assumption is made that this was also seventeenth century practice, then yields of the order of 21 to 26 bushels per acre for wheat and 23 to 29 bushels for oats would be indicated.²³

Estimates of crop proportions on the enclosed fields of early seventeenth century West Cleveland are more securely based,²⁴ and are

TABLE XX - Relative importance of the various crops
grown on enclosed land, early seventeenth century

Percentage share of total				
Crop	Upland valleys	Scarp-foot zone	Vale	West Cleveland
Wheat	-	11	19	16
Oats	53	56	27	32
Barley ¹	-	16	33	28
Rye	47	11	1	5
Maslin	-	6	21	18
Beans & Peas	-	1	-	0

¹ Bigg is included with barley.

sufficiently widespread to indicate significant regional variation (Tab.XX). Taking the area as a whole, oats apparently occupied most (32%) of the cropland, followed by barley and bigg, maslin - a wheat/rye admixture -, wheat, rye and the pulses - beans and peas. The latter were grown mixed or in single stands. A little mustard was also grown. In the light of later cropping patterns, the importance of barley is surprising, but it had long been important. The 1528 Corn Certificates for the Wapontakes of Langbrough [sic] and Allerton listed surpluses of 143 quarters of wheat and 126 quarters of barley and malt.²⁵

In the upland valleys, the more rigorous environment lent the advantage to rye, which completely replaced wheat and maslin, though oats was the dominant crop. In the scarp-foot zone, where modern farmers find it difficult to exceed one ton to the acre of wheat, rye was wheat's equal; but in the vale, pure stands of rye were rare. Rye, however, was in great demand and quantities of trans-shipped foreign rye were brought from London to the Tees in 1635/36.²⁶ Vale-grown rye was cultivated as maslin, no doubt a reflection of the heavy lowland soils for which wheat was eminently suitable. Two centuries later, Cleveland soils were considered too heavy for barley, but this was evidently not the case at this time, since it occupied one third of cropland in the lowland. The balance of the five major crops varied from sub-region to sub-region very much in the manner that ecological considerations would lead one to expect.

For stock-farming, no equivalent regional data exist. Stock of all kinds were kept. Cattle were reared, though the success rate was

under 0.7 calves per cow in the period 1601 to 1625.²⁷ Yields of milk surplus to the needs of the calf were very low, at no more than two quarts per week.²⁸ Sheep were important, both in the uplands and on enclosed lowlands. It is normal to think always in terms of the simple ownership of livestock, but in the special case of the moorland sheep, where each flock is bred for generations on its own familiar "heaf," other arrangements might pertain. An example comes from Westerdale, where, in 1619, glebe included sheep. As parts of the commons were relatively inaccessible from the village, some of the flocks were leased, with the corresponding grazing rights, to farmers in neighbouring parishes, such as Rosedale and Ingleby Greenhow.²⁹

Acclimatization problems lay at the root of this practice and no doubt also helped in the development of distinctive breeds. Early in the seventeenth century, a characteristic "Wold" sheep was experimentally introduced onto the Kildale moorlands, but this was not successful. The ewes failed to rear more than half their own number of lambs, despite the local practice of bringing ewes in from the moors to the sheltered valley meadows for the five weeks of lambing time.³⁰ The wool clip was also poor, "most of the sheepe being borne [*sic*] and broken wooled." Amongst local breeds the lambing rate was close to unity at this time.³¹

Rot was a problem to the shepherd on the heavier clay lands. The prevalence of rot was given as one of the reasons for enclosing the Marton commons and may also have been encouraged by the rapid

turnover of stock on some of the enclosed lands. A lowland farmer of the second decade of the century gave the following evidence:

In February 1614 he,

had lxiij sheepe feedinge and lyinge within the pisse and places art till St. Ellenmas next after, anno 1615 ... [i.e. three months later] ... wch. he sould of before the said St. Ellenmas all but ten, wch. ten he kept the same yeare tyll Martinmas after of wch ten sheepe he had and converted to his owne use the same yeare ten lambes & ten fleeces of wooll, And at Martinmas aforesaid, he sould those ten and their lambes, And bought xxxv sheepe wch he kepte till Mayday following 1616. At wch time he sould twentie of the same sheepe and soe remained xv sheepe of which he had xv fleeces and thirteene lambs that year 1616. And at Martinmas he sould those fifteene and their lambs and bought other fifteene sheepe wch he hath yet. And of these he had and converted to his own use fifteene fleeces of wool and fourteene lambes.³²

If this fully commercialized buying and selling of stock was in any way typical, then the spread of contagious diseases, both of sheep and cattle, should cause no surprise.

Certainly by the opening years of the seventeenth century and possibly somewhat earlier, subsistence had ceased to be the principal aim of the Cleveland farmer, though the period when the family larder was independent of the barn and dairy lay four centuries ahead. Before commercialism could influence the overall land use patterns, however, it was necessary for the open-field farmers to emulate those of their colleagues who farmed in severalty. This they were not slow to do.

¹

BI/R VIII G 509, __523, __508, __542, __538, __553.

- 2 WLC/Emerson Papers, Ministers account of 29 Eliz I, quoted in a letter of 1817. It seems likely that the 40 acres of open-field arable was simply a remnant of the ten oxgang holding.
- 3 J. Purvis, "Select tithe causes", YAS/RS, CXIV, 42-46.
- 4 BI/R VIII H 1206, _____ 1209.
PRO/E 164/37, f.421.
- 5 PRO/ loc.cit., f.239.
- 6 J. W. Wardell, (A history of Yarm, Sunderland, 1957), p.154.
- 7 BI/R As. 22/18.
- 8 BI/R VIII H 1346. A possible alternative reading of this document is discussed in chap. VI.
- 9 CRO/ZK 16, Bdle. H.
- 10 GET-KH/ "The trewe plott and mappe of the Manor of Kildale in the Countie of Yorke belonging to the Right Hon. the Earle of Northumberland - 1612".
- 11 CRO/Kirkleatham Papers - Kildale, "A survey of the Manor of Kildale, taken by Fran. Mason A.Dom. 1623".
- 12 There is, for example, a sharp contrast with neighbouring Westerdale where twenty-one oxgangs were enclosed in 1660 (J. Chapman, "Changing agriculture and the moorland edge in the North York Moors, 1750 to 1960" - unpublished M. A. thesis, University of London, 1961 - p.70), and some properties still lay "dispersedly in the Common Fields" as late as 1781 (SPCh/Glebe terrier, 1781).
- 13 Viking burials were found here in 1867 (VCH-Y, II, 96).
- 14 B. Waites, "The monastic settlement of North-East Yorkshire", YAJ, CLIX (1961), 478 - 495.
- 15 PRO/E 164/37, f.239.
- 16 M. E. James, "Estate accounts of the Earls of Northumberland, 1562-1637," SS, CLXXIII (1955), 222 has "Received ... XXX li of Robert Ridley for woodes sold by him 1607 at Kildale."
- 17 CRO/Kirkleatham Papers - Kildale, loc.cit.

- 18 It is probable that the common rights on the 2945 acres were shared by the tenants, freeholders and the parson in proportion to their holdings of improved land. However, other interests may have been involved. Certainly by 1663, residents of Commondale were paying rents of between 1s/6d and 14s. for turbary and pasture in Kildale commons (TBL/ Hustler Papers, brief of circa 1772 concerning Kildale commons). On the other hand, at least one Kildale farmer had his cattle feeding "promiscuously in and upon" the grounds of neighbouring Westerdale (BI/R VIII H 1671). The economic integrity of the township unit had broken down.
- 19 PRO/E 178 772.
- 20 BI/ R VIII H 1858.
- 21 BI/ R VIII G 509, ____523, ____508, ____542, ____538, ____553.
- 22 BI/ R VIII I 2407-2411, ____2413-2417.
- 23 Too much reliance should not be placed on this estimate. Not only are the assumptions involved rather large, but there are also internal inconsistencies of the documentary basis. For example, whilst the witness in one cause suggested five pecks as the yield of a stook, the respondent's statement of cash value of the crop would indicate a figure closer to two pecks per stook!
- 24 Data from a large number of tithe causes during the period 1601 to 1633.
- 25 Sir W. Ashley, The bread of our forefathers, (Oxford, 1928), p.188.
- 26 T. S. Willan, The English coasting trade, 1600-1750 (Manchester, 1938), p.78.
- 27 BI / R VIII H 447, ____1168, ____1208.
- 28 Ibid.
- 29 BI / R VI A 19, Archbishop's Court Book of 1619, entry under Ingleby Greenhow.
- 30 BI / R VIII H 1671.
- 31 BI / R VIII H 447, ____1346.
- 32 BI / R VIII H 1353.

CHAPTER VIII

NEW ATTITUDES AND ORGANIZATION -

ENCLOSURE IN WEST CLEVELAND

This chapter seeks to demonstrate the major facts concerning the enclosure of West Cleveland. The motives for enclosure are almost self-evident and arise from increasing discontent with arrangements devised for subsistence corn-growing in an era of commercial livestock or mixed farming. Problems of documentation call, once more, for the use of indirect evidence in dating enclosure, but all evidence points to a period of maximum activity from 1620 to 1670. Some townships were enclosed much earlier, others rather later. Although it is difficult to see what factors were responsible for variation in timing, examination of enclosure processes suggests "human" rather than "environmental" causes were responsible. Finally, the effects of enclosure and other changes taking place in the rural economy are considered, in preparation for the second major transect study at the end of the seventeenth century.

The enclosure of West Cleveland was spread over a long span of years and may never be complete,¹ although the area remaining open in 1750 was but a mere fraction of the total. Most of it was marginal (or worse) in quality. Since the time-span is so broad, each of the enclosers must, in his day, have been influenced by different sets of economic, social, political and technical factors. For the earlier years, and for those township-estates where enclosure lay (except for intermittent and largely ineffective state interference) within the power of a single man, there is no direct evidence of motivation. By the seventeenth century, townships with more diverse ownership were

being enclosed. To ensure successful re-distribution, resort was had to legal process and the various Courts of Record. As a result, some sort of case had to be made for altering the status quo. The extent to which the case presented was a true statement of motive is uncertain, but these public motives are certainly revealing.

The most usual argument served the opponents of open-field from the early days of dissatisfaction with the system through to Arthur Young and the Board of Agriculture reporters:

Inconvenience which happened as well to the said ... Lord of the said Mannor ... and other the freeholders and tennants of the said Mannor by the p[ro]miscuous lying together of their several & respective lands in open & Common feilds ... without severance which caused many suites and much disquietness.²

Intermixture had always been an important element in the system and township bye-laws attempted to minimise the resulting difficulties. That the demerits of the system had outgrown the time-honoured control mechanisms is perhaps an index of the changes which had taken place in the countryside since the end of the mediaeval period. Amongst these changes, the acquisition by laymen of former monastic properties may have been significant. Whatever the origins of the earliest tracts of enclosed land, it is clear that these local examples of freedom to manipulate the use of land disturbed the old contents based on a tradition of partial, if not complete, self-sufficiency.

Evidence of a growing consciousness of the need for change in the open-field communities of Cleveland is particularly strong at Yarm³ and at Marton.⁴ The geographic relations of both places on and near the navigable Tees is significant, but the Yarm case was

unique in that a powerful group of "Burrougholders" (burgage tenants) held land in the open-fields. The larger farmers held customary grazing rights "of baiting horses, stint or stints for horses and sheep, in the pastures, fallow fields and averidges..." including the freeholds "... dispersed here and there within the Common Fields". The influence of commercial contacts through the port of Yarm is also evident in the fact that Yarm burghers were attempting to grow roots in the open-fields as early as 1657. It was the conflict of interest between the farmers and the burghers with the "great Trespasses of Roots... committed and done", which precipitated the enclosure.

At Marton, the technical disadvantages of the rigid application of the open-field system were apparent to the local community, which had clear ideas of a solution. Their case is comprehensive and expressed in terms as forceful as Cobbett himself might have used. It is worth quoting in full.

There is a great Moore or Common pasture, a great part whereof in former tymes hath beene inclosed but now lyeinge common was utterly unprofitable to all the plaintiffs; yea a rott ground to theire sheepe; and by overstint not able to mainteyne theire cattell: and that there is likewise a stinted pasture there called Longlands; wch sometymes hath also beene arrable and other feilds lyeinge land by land in open feilds and much of it farre from the dwellings of the occupiers thereof wch the said plaintiffs and theire tennants are not able sufficiently to manure and till for want of some pasture; which if it were laid and were tilled in Change with the Moore and other pasture would bringe forth much corne: And as it now lyeth; severall high wayes lyeinge therein, the corne that is in the same is exceedingly spoyled and wasted, with goods goeing and chasing through the same; for remedye whereof upon the six and twentieth day of March which was in the yeare of our Lord God one thousand six hundred thirtie foure, it was mutually agreed amongst the said parties and all the freeholders within the same towne Mannor and Lordship that there should be a generall inclosure and devision.

This document indicates a clear appreciation of the limitations which current patterns of land use imposed, but also an advanced awareness of basic good husbandry in the proposed establishment of ley-farming and the close integration of crop- and stock-farming. Similar, but unrecorded, arguments must have been placed before many a township meeting in seventeenth century Cleveland.

Marton was enclosed in 1635 and Yarm in 1658. Newton's agreement was enrolled at Northallerton in 1742.⁵ According to a witness called in 1618, "the Lordship of Litle Busby was inclosed xxii^{ty} yeres agoe".⁶ For many localities, however, neither the historical nor the geographical terms of the problem are as free from complexity as these statements imply. In the majority of cases, no definite date can be assigned to the enclosure process, and even where some enclosure can be dated, this may have affected no more than a portion of the 'champaign' lands of the parish. This applies very forcibly to the parliamentary enclosure of Great Broughton,⁷ which dealt with a small residue left open one hundred and fifty years earlier. Piecemeal enclosure was normal in the sixteenth century. Even at Great Ayton, where more than 1700 acres were enclosed in 1658,⁸ there is evidence of appreciable enclosure a century earlier.⁹ Mapping of the progress of enclosure on a township basis is therefore highly unsatisfactory, but the ideal alternative - a map showing the date at which each circumscribed unit of the modern landscape was withdrawn from communal control - is patently impractical. As a first approximation, therefore, the township must form the basis of the work. Expressed in

township terms, the extent of data on the progress of West Cleveland enclosure, is illustrated in figure 37. Direct documentary evidence makes known the date of enclosure of the more significant elements of a township's open lands in no more than nine cases.¹⁰ It is therefore necessary to devote some space to a discussion of the indirect evidence and assumptions which contribute so much to the content of figure 37.

The possibility of any enclosure of significant tracts of improved land later than 1750 can be ruled out. By that time, enclosure by Act of Parliament was accepted procedure and, in any event, the North Riding Registry of Deeds had then been established for some years. A negative search in Parliamentary Reports and in the Registry can be taken at face value. Such a conclusion has been reached by the author and also by previous writers. Indeed, the nineteenth century historians and topographers were so eager in pursuit of enclosure acts that several spurious examples were unearthed.¹¹

Beresford has been the Yorkshire pioneer of the indirect approach to the problem, in his utilization of glebe terrier material for a "preliminary clearing of the ground."¹² This source has clear advantages,¹³ but also certain drawbacks. The sequence of terriers can offer little if it was preceded by enclosure, or if no parochial glebe farm has survived the expropriation of a living. These disadvantages Beresford admits, but there are others. Where parish and township are not synonymous, glebe land is unlikely to be representative of more than one of the constituent townships, and will be silent for the remainder.¹⁴ The approach has therefore been extended to include all

available land records. Expansion of data means loss of some of the terriers' advantages, particularly as regards continuity and representativeness of the properties described. The final, and in some respects crucial, question lies in the interpretation of documents - what criteria can distinguish the open landscape from the enclosed? The answer to this question should probably be "none", because, as the following instances show, criteria are occasionally contradictory. A definite conclusion can only result when several pieces of convergent evidence impinge on a single tract of land.

Stokesley. - Beresford, on the basis of the 1685 glebe terrier, suggested Stokesley as a "doubtful" case of open-field survival.

The relevant portion of the churchwardens' return reads:

Six Oxgang of Land with house and Ordhards and gardens all
in good Repaire.¹⁵

Since "oxgang" is a term redolent of open arable fields, it is clearly suggestive of survival, but twenty-two years earlier a truer picture was given:

Stoxley the 16th of April 1663
In the psons hands for *mine*
six oxange of Gleabe ... 75ac. 3ro. 35 poles.¹⁶

The bounds of this accurately measured glebe are subsequently defined and coincide exactly with the modern limits. The Stokesley glebe must therefore have been enclosed before 1663. There is a suggestion of fairly recent enclosure in the phrase "for six oxange of Gleabe," with its echoes of the terminology of enclosure apportionments. For example, the Great Broughton allotmentpaper of 1631 records "Mr. Matthews

for his Tyeth acres next Samuel Raybanks and the highways through the ings two acres".¹⁷ (*Italics mine.*) That the term "oxgang" had gone out of use by the time of the 1716 terrier argues in the same direction.¹⁸ A phrase in a will of 1631 suggests that some Stokesley pastures were recently enclosed:

... and two Acres of land or ground situate in that pt of the lordship of Stokesley heretofore called Stokesley oxe pasture.¹⁹ (*Italics mine.*)

An extensive property of enclosed land was detailed in 1717,²⁰ and this gave only one inconclusive suggestion of residual open-field:

Two parcellls of ground lying near Bense Bridge and intermixt with the land of John Rudd, Esq..

The weight of evidence therefore suggests that the enclosure of most of Stokesley township took placing during the second quarter of the seventeenth century.

Newby. - A deed of 1628 describes a property of one messuage and two oxgangs of land. The same property, in 1715, consisted of eight named closes together with "two acres of land lying and being in Comon with other lands in a Close or parcell of ground comonly called and known by the name of Stonesike close."²¹ The closes are described as the "two Grinning Hows and thre[e] West Pastures." A Newby will proved early in 1682 referred to "fower oxgang of the said land in all."²² Taken together, the use of the archaic term "oxgang", the hints of a recent division of the West Pasture and the Hows and, finally, the remnant of communal occupance - all suggest enclosure of Newby township between 1680 and 1710.

Hutton Rudby. - This is a parallel case. In March 1628, a ewe was described as grazing "in the south feild."²³ A property sold in 1642 included "one beast-gate, and five sheep-gates in the Outlays, all lying within the townfields and territories of Huton."²⁴ In 1696, leases refer to closes in "Huttonfeilds" and "Hutton Outleys", while, twenty years earlier, properties are described as "closes as they are now devided ... commonly called Hutton Moore" and in 1685/6 "two oxgangs of Land arrable Meadow & pasture as the same is now devided into severall closes."²⁵ A total enclosure of the township between 1642 and 1685 seems likely, and the further evidence that William Tunstall (died 1686) lived on his farm called "Hutton Middlefield" suggests a date early in the period.²⁶

Kirkleavington. - The expression used by the legal draftsman at Hutton in 1642: "the townfeilds and territories of ..." became, by the eighteenth century, merely one formal item in his vocabulary. This is demonstrated by a will dealing with closes "within the Townefields and territoryes of Pickton."²⁷ But earlier, phrases of this type had referred to an open-field context, as in the sixteenth century reference to "ii acres of arrable lande lieing in the felde of Thormanby (Thornaby) which was geven to the finding of fyve lamps in the chapel there."²⁸ There is clearly the same interpretation in mind, and a contrast implied, in the Interrogatory to a Leavington tithe cause:

wheather is not the Lordshipp of Castleleventon and the groundes thereunto belonginge distinctly severed by hedge and ditch from the townefields and territories of Kirkleventon?"²⁹

The date is 1630, and Castle Leavington was certainly enclosed. Kirkleavington still had open arable in 1617, when the common pastures were enclosed. The 1630 file includes the description of a perambulation which, though vague, is suggestive of an open township.

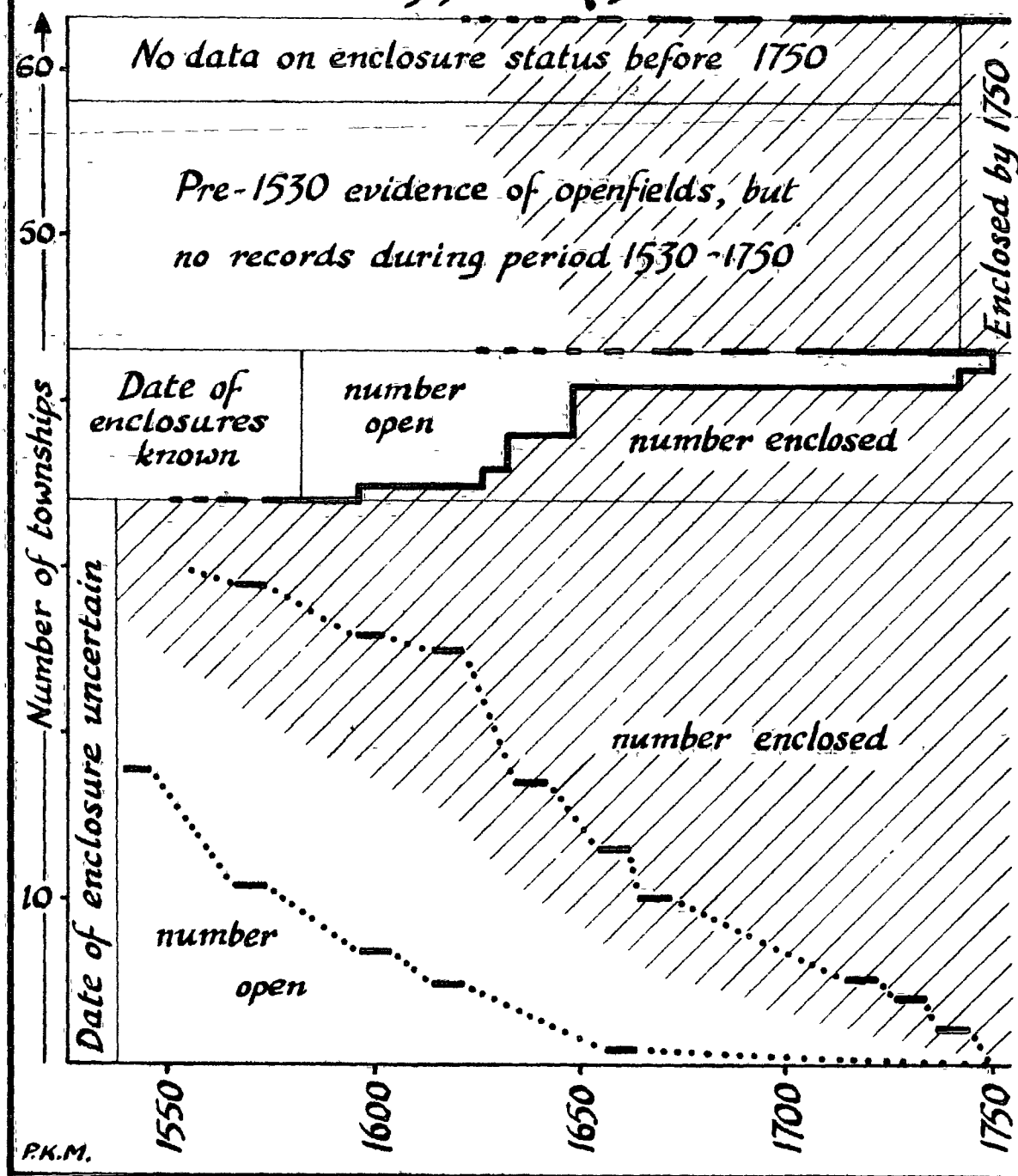
That the parish perambulation no longer seemed of practical significance to the farmer-churchwardens of post-enclosure Cleveland is suggested by the plea of some of them that Kirby and Ormesby had not been perambulated in 1633 because those parishes were enclosed. It may be significant also, that neither Crathorne, Ingleby Greenhow nor Marton had been perambulated in preparation for the Visitation of 1662.³¹

Enclosure, and the increased individualism which promoted it and which it nurtured, made the task of the clergy and lay improver of tithe much more difficult. The extant files of over twenty sixteenth and seventeenth century tithe causes include only one which clearly concerns tithe on open-field arable, and four uncertain examples relate to townships listed by Beresford as depopulated by early enclosure.³² The very existence of tithing problems suggests a disruption of the old peasant relationships - that disruption may have been enclosure.

It is on the basis of evidence of the type reviewed in the preceding paragraphs that figure 37 is based. Detailed citation, with discussion as appropriate, is given in the checklist of enclosure data at appendix C. For the construction of the figure,

Data on the progress of enclosure 1530~1750

FIG. 37



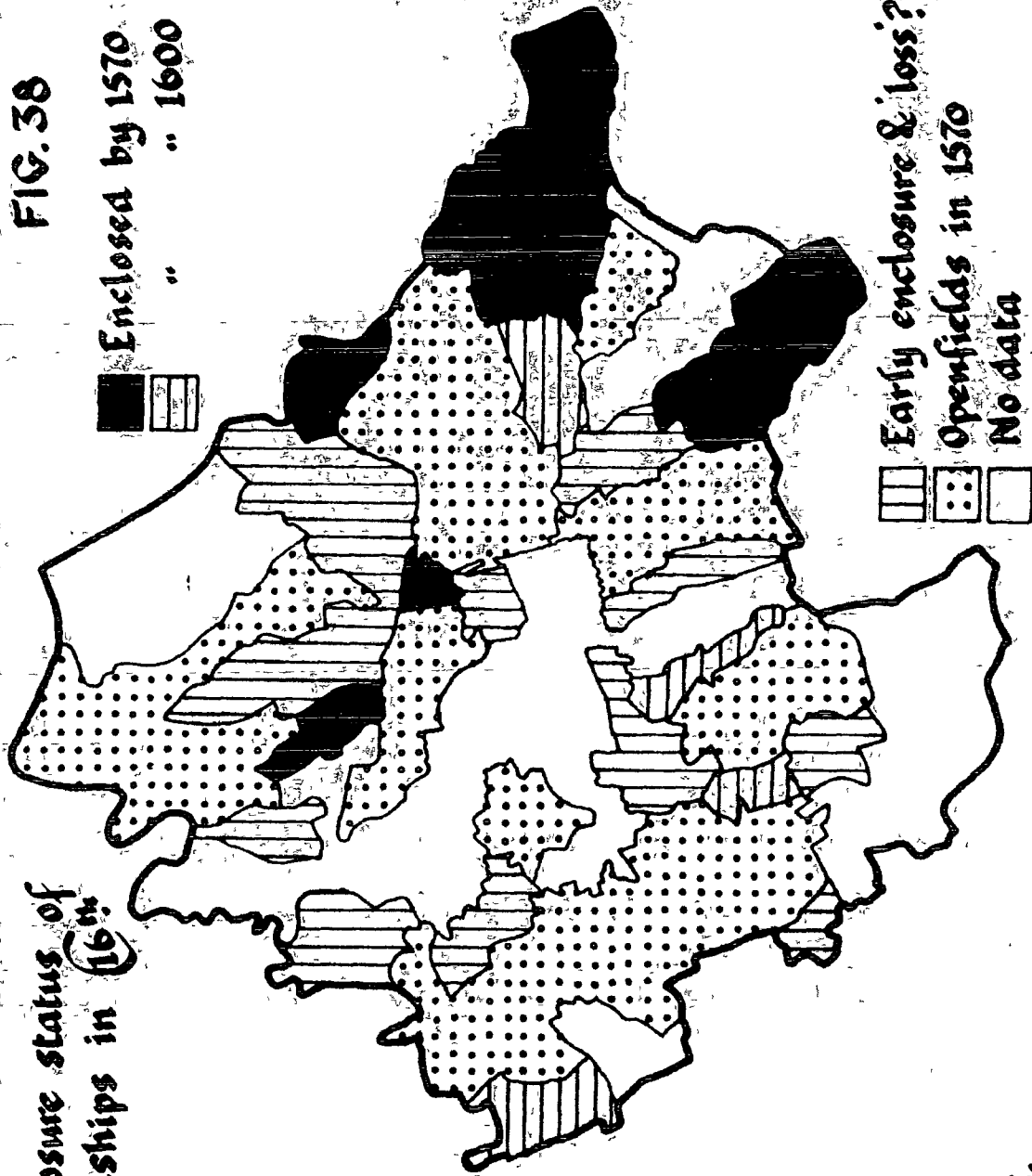
townships have been grouped according to whether the evidence suggests the survival of open-fields or virtually complete enclosure at a series of dates from 1530 to 1750. It will be recalled (Fig.18) that no evidence of former open-field has been traced for six localities. For a further fourteen, while there is earlier evidence for open-field, nothing significant has been found for the critical period. This leaves forty-three townships with relevant data, and these are relied upon to give an indication of progress. For nine of them, the date of enclosure is known and is plotted appropriately in the centre of the diagram. Of the remaining thirty-four, there is evidence of substantial open-field survival to 1540 in eighteen townships. This statistic declines progressively to seven in 1600, four in 1620 and one only in 1660. Directly opposed to this trend runs the count of townships believed to be enclosed: five in 1570, nine in 1600, ten in 1620, but seventeen by the 1630s and twenty-four by 1670. In 1740, all but two of the forty-three are known to have lost their open-fields. The two opposed trends are plotted in the lower section of figure 37. It will be noticed that direct and indirect evidence lead to the same general conclusions.

By far the most significant feature is the indication of great activity in the period 1620 to 1670. From the latter year until circa 1720, little appears to have been accomplished, but the next two or three decades saw enclosure completed. Earlier, there is the suggestion of steady progress in mid-sixteenth century (to which years many of the partial enclosures also belong) slackening off circa 1600.

FIG. 38

Enclosure status of
townships in 16th

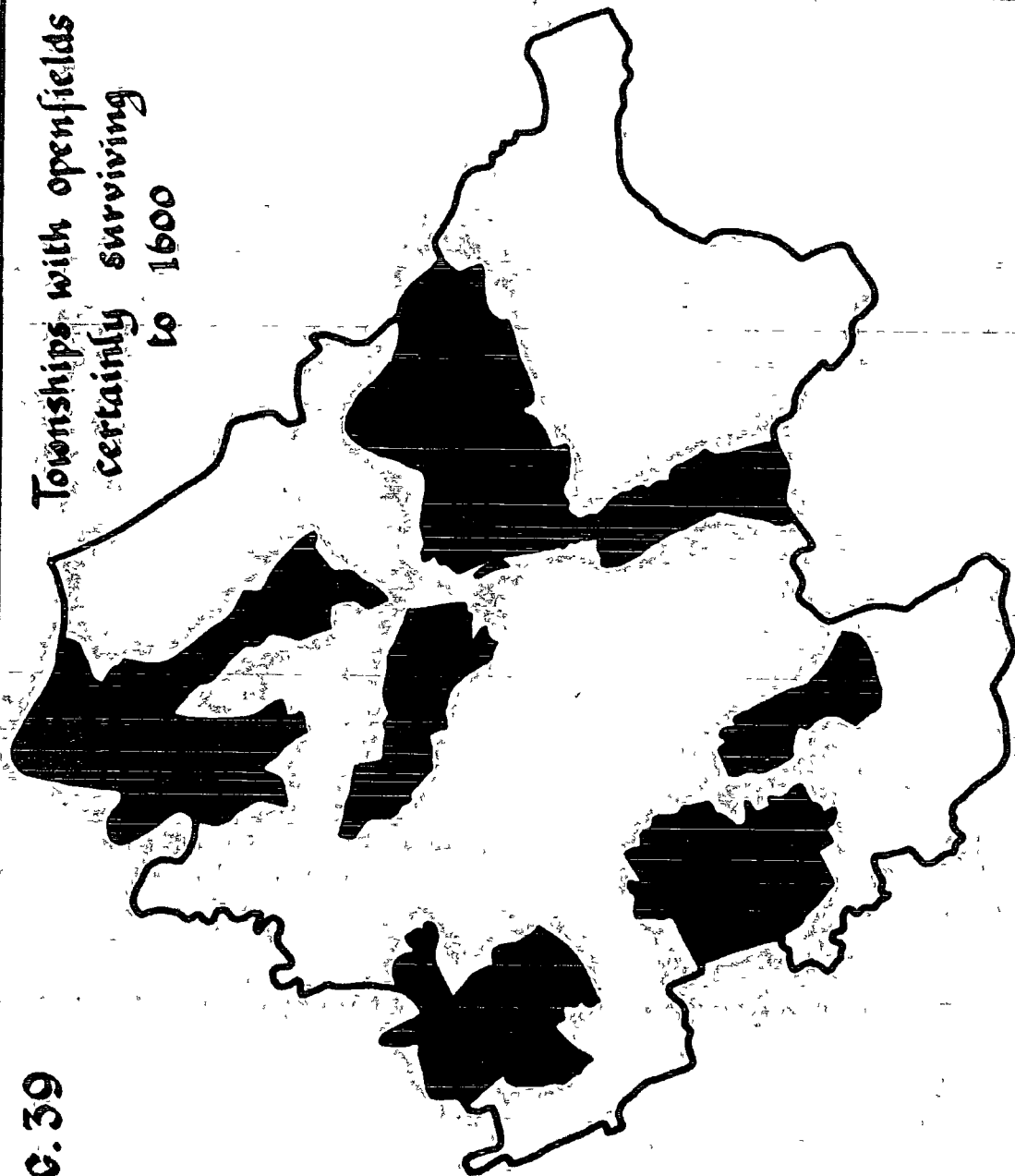
Enclosed by 1570
" " 1600



P.K.M.

FIG. 39

Townships with openfields
certainly surviving
to 1600



P.K.M.

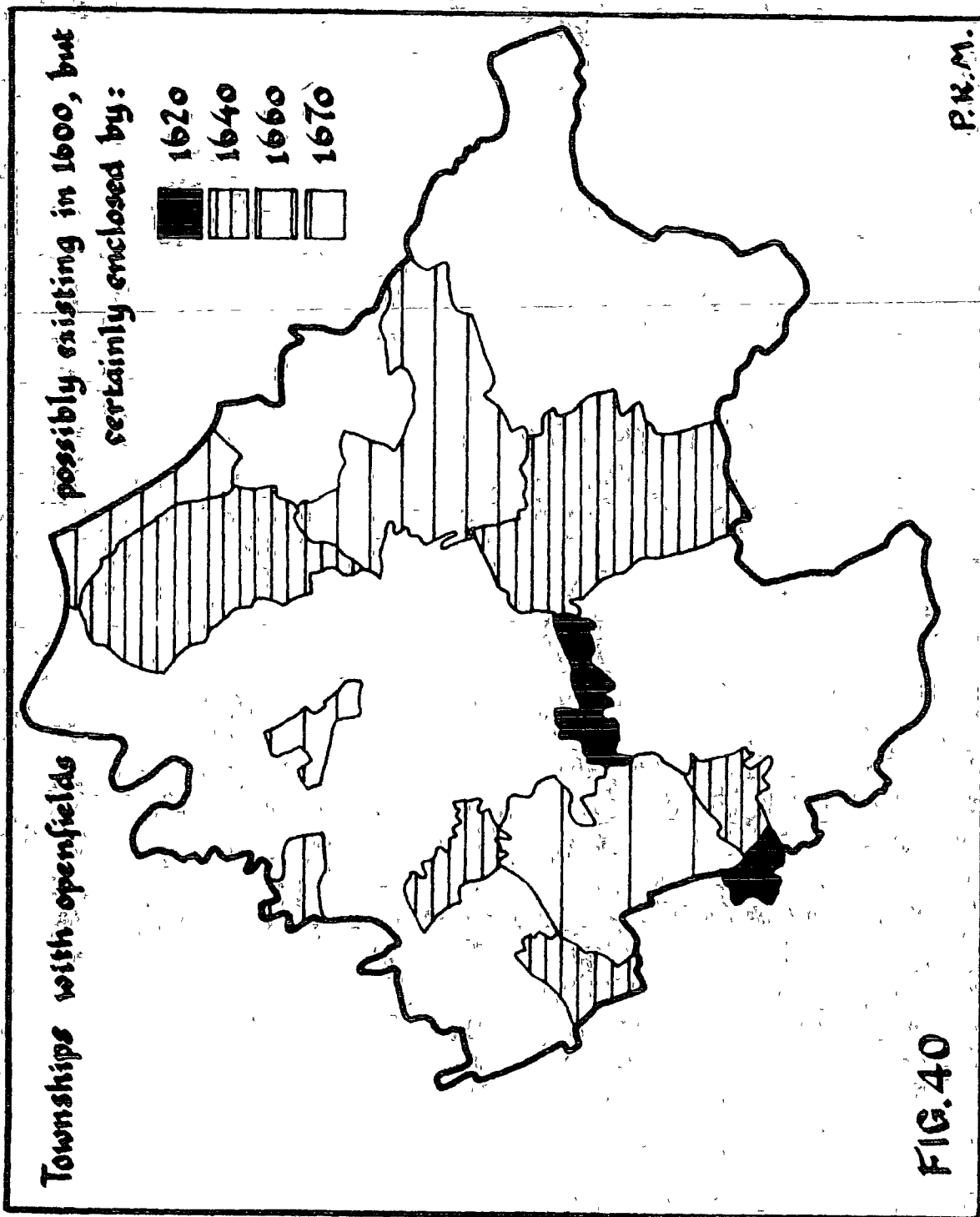
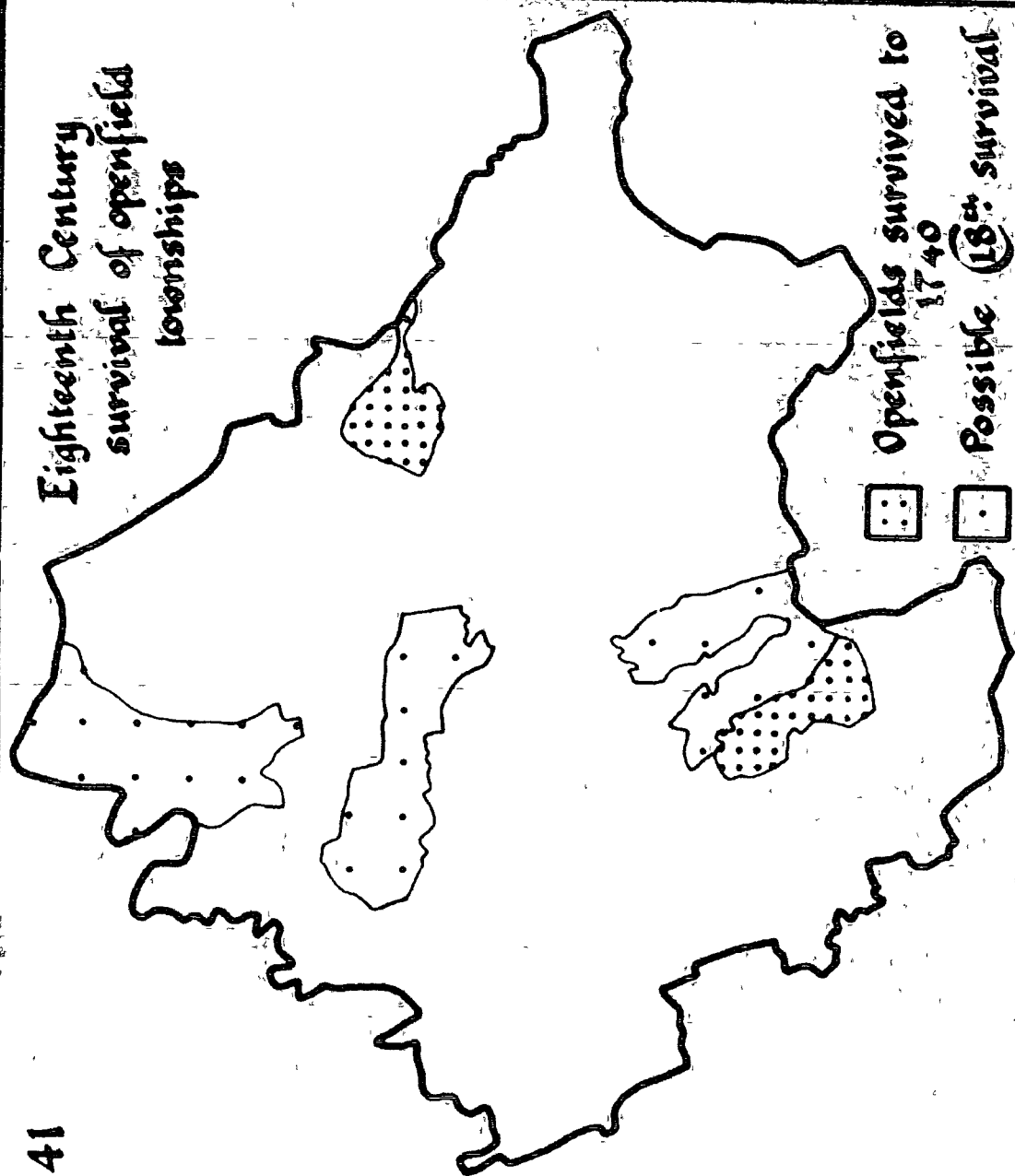


Fig. 41

Eighteenth Century
survival of openfield
townships



P.K.M.

The cross-hatching attempts to give an impression of this general trend. Thus, while the experience of Tudor enclosure, at least some of which led to depopulation, was shared with Midland England, experience in the seventeenth century more closely paralleled that in the counties to the north where both 'run-rig' and 'midland' open-fields were being enclosed. By 1727, what Laurence said of Durham applied equally south of the lower Tees: "Nine Parts in Ten are already inclosed," and most of the tenth part was in East Cleveland.³³

Smailes's suggestion that the early enclosure of North England was the more easily accomplished because of the low demands made on the open arable as grazing,³⁴ may be applied with somewhat changed emphasis to the West Cleveland case. That such grazing was still vitally important in the open-field townships is clear, and, except for one or two townships with pastures on the Middle Lias bench, upland pastures offered little relief. But two factors were important: the lowland pasture commons had remained proportionally larger than in the Midlands; and grazings were available on lease in neighbouring enclosed and depopulated townships. That Cleveland farmers of the seventeenth century were thinking in terms of a mixed husbandry of crops and stock is demonstrated by the evidence of their activities on enclosed lands, as well as attitudes implied or made explicit during enclosure.³⁵

The material of figure 37 is mapped in figures 38 to 41. There emerges neither a clear pattern of distribution, nor any obvious relationship to factors of the physical environment. Nor are

relationships with the poorly documented human circumstances at all clear. Singular ownership of a township might well have made enclosure easier when economic and natural circumstance proved favourable, but multiple ownership at Yarm, Great Broughton, Great Ayton and Marton did not prevent enclosure, though the added problems are apparent in the latter case. Failure to agree may have been a cause of the prolonged process at Faceby, but until full parish histories are produced, which include full data on pre-enclosure ownership, tenurial patterns and population, no valid generalized conclusions are likely to be drawn.

A wide variety of different processes were adopted for the enclosure of Cleveland townships. Slater listed fifty-two North Riding parliamentary acts dealing with the enclosure of open-field arable.³⁶ His list begins with Faceby (1748). Parliamentary Acts were also used to enclose a significant area of moorland at Kildale (1775), a small area of upland common at Normanby (1811) and, in the same year, 300 acres of common grazing with 32 acres of meadow which had survived the seventeenth century enclosure of Great Broughton.³⁷ The Faceby Act was unique in dealing with a large tract of arable. It is also interesting in that this act was the culmination of attempts begun at least one hundred and twenty years earlier.

In 1630, a Special Commission of the Exchequer Court was issued for the enclosure at Faceby, local Commissioners were appointed by Letters Patent and jurymen sworn in.³⁸ George Hall of Oswaldkirk was made responsible "for the surveying writings drawing pfecting fullye

finishing and ending of the said ptition and devisiion." A Commission was possible here because the township included a small amount of Crown Land (a mere four or five acres, some already enclosed). Despite this interest and a complete apportionment of land on paper, however, most of the parish remained open until 1749. That Hall himself had satisfactorily completed his work is confirmed by the conveyance to him of fifty acres of land valued in 1630 at one hundred pounds. The conveyance (dated 1650) refers to his employment

For the devisiion of the lands within the said Lordshipp being then [i.e. 1630] dispersed in many small parcells and for laying the same together in flatts according to each mans due proporcion ... and hath perfected the said division as by the retorne of the Commissioners and Jurors verdict certified."³⁹

This could be read as indicating simple consolidation rather than enclosure, yet the Commission document makes allotments in the common pastures in lieu of open-field arable, and these pastures were certainly still common in 1749. As they were not allocated, it is difficult to see how the other provisions of the award could have been implemented; the fact that Hall was experiencing considerable delay and difficulty in obtaining his payment suggests that they were not. This view is supported by the 1716 glebe terrier.⁴⁰

Apart from the power of coercion, the procedures under Special Commission and Parliamentary Act were very similar. However, the techniques of re-apportionment, fairly well understood in the seventeenth century, had developed by the eighteenth. A comparision of the Faceby Award of 1749 with the Newton Award of 1741 makes it clear that existing procedures of enclosure by agreement were adopted for Parlia-

mentary apportionments. Land was measured, its quality assessed and other rights established by a surveyor acting under the instructions of appointed Commissioners. Together they allotted land or cash compensation, adhering so far as possible to the principle that each farm should lie within a ring-fence. They also laid down the alignment and width of roads and footpaths and established appropriate regulations for any commonable lands which were to remain. Concern was also taken for the smooth changeover of land: the Newton Award is very detailed on this point, establishing the crops to be grown in that year and the "onstand" rent to be paid for a crop harvested from another's allotment. Conditions were laid down for the recovery of the costs of apportionment.

Newton's enclosure, already intended in 1723, took a further nineteen years to achieve. At Great Broughton, the Special Commission had to be several times renewed, and proceedings continued from 1629 to 1638.⁴¹ Something of the difficulties which might cause such delays is made clear from the Marton experience.⁴² On March 26th., 1634 all those with negotiable interest in the township's lands agreed "that there should be a generall inclosure and devision, both of the same open feilds, comon pasture; moore and such closes as could be conveniently exchanged". A later agreement also included the vicar. By autumn, the surveyor had made an apportionment, which formed the basis of a third agreement which was duly signed by all but one of the parties. He was absent in London and, being a prime mover in the business, had previously agreed to abide by "whatsoever they, or the

greater part of them should agree unto or set downe." Immediately, a portion of the moor was handed over to the inhabitants of Nunthorpe to satisfy their rights of inter-common. Land sales, on the basis of the improved value, were initiated and the local farmers began to prepare for change. They "allowed [sic] theire course of husbandry". Into this scene of activity the absentee signator threw his challenge: he would withdraw his agreement unless he was allotted land for his cottage holdings. As he also held oxgangs, this was directly counter to the earlier agreements which he had signed. An earlier, similar threat had obtained for him part of "Toftfeild nearest to him, and by farre the best land in that Lordship." To overcome the impasse, for without his agreement nothing could be done, bonds were settled in which all parties agreed to accept the opinion of independent arbitrators. The earlier decisions were confirmed, but still the recalcitrant land-owner refused to accept them. It was not until the matter was placed before the Council in York that he finally acquiesced. It is important to observe, however, that the Court could only lend its support because he was breaking a prior agreement. Otherwise, no matter how large the majority against him, as a free land-owner he could prevent enclosure. This, of course, was the stumbling block finally removed by Parliamentary means, but in West Cleveland (with the one possible exception of Faceby) the landholders' self interest had always lain in the direction of enclosure, even if temporary delays might prove advantageous. Recourse to arbitration, initially by a local worthy, and later to the courts,

with the proportional division of the costs of the suit, are early reflections of the trends which produced the standard procedures of a century later.

Without the benefit of appointed Commissioners or court action, the establishment of title to the post-enclosure allotments might prove difficult. At Great Ayton this particular problem was solved by a series of fictitious sales and leases. Two local gentry, one from Ingleby Greenhow the other from Kirkleatham were given the land in trust.⁴³ Subsequently it was reconveyed. Typical documents read: "for one year at a peppercorn rent to facilitate enclosure and conveyancing ... All that part or share of ... Crabtree Feild" and, "in consideration of the sum of five shillings," the Lord of the Manor was "sold" 1500 acres of good farming land.

The more obvious effects of enclosure are inherent in the very nature of the act: the creation of a new parcelled landscape of hedge and field, fence and road which had its precursors in the early-enclosed demesnes or in areas of assarts which had never been thrown open to the common fields. With this went the change from community control and occupance of land to several ownership and new possibilities of individual land management. That is not to say that common use of land was totally abandoned. Quite apart from the survival of odd portions of open-field until relatively late dates, as at Great Broughton, some of the enclosure agreements arranged for the physical enclosure of certain parcels, but ruled that they were to be utilised in common by specified groups. At Faceby, the abortive seventeenth

century Commission had specified that a portion of the poor out-commons on the steep slope of the Jurassic scarp was to be enclosed, but grazed in common "bye bitt of mouth according to the quantitie of each mans right as above-said until such time as it is further agreed upon to be subdivided amongst them." A similar arrangement was made in 1749, and this sub-marginal land remains common to the present day. At Yarm, it was the meadowlands which were to remain partially common, to the extent that, although the land was awarded to new owners in much larger parcels than formerly, yet the Burroughholders were to retain common grazing rights over the aftermath.⁴⁴ It is not certain when these rights were finally surrendered, but there are indications that the practice continued into the nineteenth century.⁴⁵

While it is clear that the ideal enclosure gave each occupier one tract of land within a ring-fence, this was frequently not practicable, especially where a township comprised a wide range of qualities of land. Thus, at Great Broughton, William Flintoft's award consisted of 23 acres of better land on the former arable in the north and 55 acres on Hurworth Lees, in the poorer south of the township. When pre-existing enclosures were awkwardly placed and fragmentation seemed inevitable these were frequently thrown in with the open land at reapportionment. On the other hand, even after final enclosure, odd strips were sometimes left. As late as the 1741 enclosure of Newton the commissioners re-asserted the status quo in regard of Richard Thomas's four pieces of meadowland, deciding not to "intermeddle therewith." Similar results obtained in the enclosed township of Hutton

Rudby where, in 1683, a bequest was made of "one rige of ground lying in John Gray garth,"⁴⁶ and at Stokesley, where, in 1717, a property included intermixed plots. The length of time which sometimes might elapse before enclosed but fragmented holdings were consolidated is illustrated by the nineteenth century pattern of holdings at Newby which had probably been enclosed some two centuries earlier (Fig. 98).

Notwithstanding these cases, which might be regarded perhaps as "imperfect" enclosures, the changes were apparent both in the countryside and the deedbox. From enclosure springs the great increase in building of farmhouses and steadings (many placed at the centres of the new allotments) which superimposed upon the old pattern of nucleated village and hamlet a new overlay of dispersion.

In some townships, as the Tudor pamphleteers thundered and as Beresford has reminded us,⁴⁷ the new patterns replaced the old so sparsely as to represent a radical reduction in the density of human occupance. But not every desertion of a village site meant a reduction in the number of homes, as Turner's reorganisation of Kildale after the enclosure of 1775 testifies (chapter twelve). However, West Cleveland had its share of depopulations, although many of these enclosures, being early and in townships where the number of land-owners was small, are poorly documented. It was suggested in a Little Busby tithe cause that the enclosure of 1596 had been accompanied by a reduction in the number of ploughs, that standard preliminary to depopulation, but the witnesses were unable to agree, except to the extent that formerly there had been "some tymes two plow tilts & some

tyes one plow tilt" and that in 1618 there was still ploughing for one team.⁴⁸ Middlesbrough's depopulation between 1618 and 1730, (enclosure having taken place before 1716) is illustrated in an unusual series of maps which suggest a considerable concurrent reduction of arable.⁴⁹ But the period covered is too long for a causal relationship between enclosure and depopulation to be firmly established. Indeed, there is a hint that the settlement was already losing its virility at the earlier date.⁵⁰

For most townships, there was little suggestion of a sudden shift to pastoralism or of wholesale evictions, but only the aim at a new efficiency in the mixed farming of crops and stock, which had not been attainable in the open-fields. Once severalty was established, however, there were created new potentials for specialisation, which were to be drawn upon during the ensuing centuries.

The quantitative picture of land occupance changed little at first, the area of land which a man might call his own was increased by a portion of the common grazings (or its equivalent), but he shared the township with the group who had shared the open-fields. At Newton (Tab. XXI), the smaller owner received proportionally more than the larger, despite the loss by cash purchase of his cottager's grazing rights. A cottager with no arable may have fared less well. This analysis, of course, fails to present a picture of farm size, because the larger estates were each divided amongst several tenants, who included Jackson and the Thomas brothers. In the seventeenth century, however, the documents appear to name the occupier rather than the

TABLE XXI - Redistribution of land
at enclosure - Newton, 1742

Owner	Previous holding	Acreage of new allotments in:			
		Open-field	Pasture	Ings	Total
Gabetis Norton	25 oxgangs	118 $\frac{1}{2}$	207 $\frac{3}{4}$	42 $\frac{1}{4}$	368 $\frac{1}{2}$
Ann Peirson	27 oxgangs	141	226	37 $\frac{3}{4}$	404 $\frac{3}{4}$
John Jackson	1 oxgang	21	-	-	21
Jno. Bennison	1 oxgang	23	-	-	23
Len Hoggard	1 oxgang	21	-	-	21
John Thomas	1 oxgang	19	-	-	19
Lord Ilchester	"3 $\frac{1}{2}$ acres"	-	-	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Richard Thomas	"4 pieces of meadow"	"4 pieces of meadow"			

owner, so that some picture of farm size does emerge. A further distinction between the two phases lies in the higher regard which was given at the earlier date to the holders of grazing rights, who habitually received small plots of land as compensation. Whether these were large enough to represent a realistic recompense (3 or 4 acres according to quality at Marton, 2 acres at Great Broughton) is a point upon which the record is mute, but some of these diminutive holdings survive today. Changes at Yarm are summarized in table XXII. Here the great increase in numbers of smaller landholdings (which had a special urban basis) is quite outstanding.

At Great Broughton the initial apportionment was not fully successful. Some of the inhabitants began to work land within their

TABLE XXII - Re-distribution of land
at enclosure - Yarm, 1658

(Frequency analysis by size group - before and after)			
Pre-enclosure		By terms of award of 1658	
Size group	Number	Size group	Number
31 oxgangs	1	350 to 399 acres	1
7 $\frac{1}{2}$ oxgangs	1	100 to 149 acres	1
3-4 oxgangs	5	75 to 99 acres	1
2 oxgangs	1	50 to 74 acres	2
1 oxgang	2	25 to 49 acres	3
Under 5 acres	3	10 to 24 acres	2
TOTAL:	13	5 to 9 acres	7
<u>plus</u> 135 Burgage Tenements		3 or 4 acres	11
with grazing rights in com-		1 or 2 acres	51
mons, fallows and aftermath.		TOTAL:	79

new allotments and yet attempted to retain control of their former strips within the allotments of others. Litigation was rampant. Others complained bitterly "that they wanted in qualitie or quantitie of their proper shares." The resultant re-survey and re-apportionment provides evidence of the buying-up of freeholds or absorption of tenancies in the decade following enclosure. Surprisingly, it was not the newly created "cottage-holds" which disappeared in this way, rather was it the small and medium yeoman holdings of 25 to 100 acres. Before enclosure, Great Broughton had thirty-five open-field holdings

ranging from under 2 acres to six oxgangs. The first apportionment (1629) laid out forty-six holdings and the later (1638) established forty-three. Small freeholds were being bought up in Great Ayton, following the enclosure of 1658, for £8 or £9 an acre.⁵¹ This same process of consolidation cannot, however, be regarded as peculiar to the newly enclosed townships as the data from open-field Faceby demonstrates (Tab. XXIII). While some of this decrease in the number of allotments may be unreal, and represent the differing approach of the legal draftsmen of the seventeenth and eighteenth centuries,

TABLE XXIII - Consolidation of open-field estates - Faceby
(Frequency analysis by size of allotments in the
abortive enclosure by Special Commission of 1630
and the enclosure by Act of 1749)

Size range (acres)	Number of allotments	
	1630	1749
400 to 599	1	1
200 to 399	0	1
70 to 89	1	0
50 to 69	4	1
30 to 49	4	0
10 to 29	3	2
5 to 9	2	1
3 to 4	1	0
2 or less	1	0
TOTALS:	17	6

a deed of 1645, signed by twelve Faceby freeholders, states the general position quite clearly: "And whereas ... diverse persons ... interested ... are dead and likewise others have sold away their lands."⁵²

By mid-eighteenth century, the open-fields were gone - but not without trace. Apart from the legacy left in the visible landscape, such as a fragment of ridge and furrow, a boundary dike or a village road network, the system had permitted the build-up of a substantial population of peasant farmers with their livestock and other capital. The new techniques of the so-called "Agricultural Revolution" were to impinge on a rural environment, already tamed and intimately understood by the quasi-communal farmers of the open-fields. From the point of view of land use analysis, the most significant aspect of the new organisation was the creation of hundreds of smaller units, for each of which the fundamental choices of land use determination were to be made independently. The resulting overall pattern may have been less bold than the earlier, but the change was more than a simple reduction in scale. New attitudes, techniques and commercial opportunities made possible not only a finer adjustment to the details of the environment, but also brought forth the possibility of specialisation. Amongst the new units, there was no longer the constant repetition of a fundamentally similar pattern. In a sample of farms, a whole range of variation from all-arable to all-pastoral utilization became possible.

Other changes were also taking place. Within an economy which

generally favoured the grazier, the balance swung in favour of the cultivator at least for some periods during the seventeenth century. Landlords, in their anxiety to preserve established grasslands, appear to have regarded this as a retrograde trend. At Barwick in the 1650s, not only was the arable acreage limited (to 27% of the total) and further ploughing-up forbidden, but the tenant was required to restore all the grassland ploughed during the previous fourteen years, which included the dear corn years of the Civil War.⁵³ Barwick rents at this time amounted to 5s/7d an acre on farms of 150 acres or so. Foxton rents in the 1660s and 1670s were 5s. per acre for short terms, rising to 9s. per acre for a seven-year lease of an all-grass holding of 200 acres.⁵⁴ This contrast indicates appreciable long-term demand for tenancies. By 1700, Barwick rents had risen to 7s/4d for a farm of some 470 acres and 8s/5d for another with half this quantity of similar land.⁵⁵ This rent increase was evidently related to the returns from stock-farming, since Barwick tenants were now permitted no more than 20% of their land under the plough. However, by this time the full option was not being taken, and the actual arable proportion fell below one fifth.

Whilst enclosure opened the door to technical innovation, traditional practices long outlasted the open-fields. A few harbingers of the widespread changes to come were already apparent in the eighteenth century, however. It has been shown that roots were already being grown at maritime Yarm by 1657,⁵⁶ but it is noticeable that it was the framework of the open-field system which brought these

essentially garden crops cheek by jowl with the traditional field crops. Root cultivation was very slow to spread, and the bare fallow long remained a significant element in Cleveland crop patterns. Paring and burning was apparently the standard technique for preparing old grassland for the plough, but some landlords were beginning to insist that this should only be done on the more acid soils - "the moorish oat grounds" of one late seventeenth century agreement. However, the destruction of old pastures was in general frowned upon. Tenants' efforts were directed rather towards the maintenance of the newly-made enclosures by the systematic planting of ashes, quicksets and crabs to strengthen hedgerows and river banks.⁵⁷ Liming was probably also coming into use, but the only specific reference comes from Ingleby Arnecliffe (outside our region), where a farmer died in 1683 owing £1/11/- for that commodity.⁵⁸ Increased use of such aids was to depend in part on an increasingly efficient transport system; and in part on an increased prosperity, associated with the specialism of dairy farming, which was to envelope West Cleveland in the early eighteenth century (chapter ten).

¹ The 110 acres of Faceby (Holey) Moor and a number of village greens, grass verges etc. appear to be the only truly un-enclosed land in the area. L.D. Stamp and W. G. Hoskins, The common lands of England, (Collins, 1963), p.339.

² PRO/ E 178 5756

³ J. W. Wardell, A history of Yarm, (Sunderland, 1957), pp 153-167, prints the enclosure document in full.

- 4 CRO / Marton. Decree in a law suit heard at York, 9th Oct., 1635.
- 5 NRRD / Newton-in-Cleveland, agreement for a division, 15 Geo.II.
- 6 BI / R VIII H 1346.
- 7 NRRD / Broughton enclosure award, 1811.
- 8 WCL / Kitching Papers, Indentures, leases, releases, bargains of sale and a schedule of deeds relating to Great and Little Ayton.
- 9 PRO / E 164 37 f.421.
BI / R Bp 5/57.
- 10 Faceby (1749), Great Ayton (1658), Great Broughton (1630 to 1638), Little Ayton (1658), Little Busby (1596), Marton (1635), Newton (1741), Potto (1630?) and Yarm (1658). For details, see appendix C.
- 11 For example, VCH-NRY follows J. J. Sheahan, ed. Whellan's North Riding, (Beverley, 1857), p.762 in listing an enclosure act for Seamer-in-Cleveland. J. W. Ord, History and Antiquities of Cleveland, (London, 1846), p.481 writes "An enclosure act for Seamer was passed 49th.Geo.III." In fact, the act cited deals with Seamer with Irton, near Scarborough. A similar confusion between Stainton-in-Cleveland and a West Riding parish of that name was also current.
- 12 M. W. Beresford, "Glebe terriers and open field, Yorkshire", YAJ, XXVII (1950), pp.325-68.
- 13 These are: (1) many documents are collected together at a single point relating to parishes within a broad area; (2) compiled for one organization, they tend to have a standard format; (3) for each parish, there is often a "run" of documents referring to the same properties over a period of two critical centuries, commencing circa 1620; (4) the glebe farm - where it existed - was often typical of the peasant holdings in the parish; hence (5) any significant change in the parish landscape would affect the glebe farm; and (6) would be reflected in the terrier description.
- 14 For example, the earliest terrier for Kirby-in-Cleveland (BI/ R III M XXX 1a - undated, but probably 1667) describes "one acre and an halfe of meadow Ground lying in Broughton Inge." The 1716 terrier is rather more explicit - "the Tythe

Acre ... in a common field called Broughton Ings" (BI/ R III M XXX 2) - in its suggestion of an open-field context. Yet the land described had been awarded to the living in lieu of the tithes from a large area of meadow enclosed in the 1630s. That enclosure had left some common grazings and a mere 32-acre remnant of meadow un-enclosed. It is clear that this small portion of the glebe was totally unrepresentative of Great Broughton township, and still less so of the whole parish of Kirby. The remainder of the Kirby glebe (closes adjacent to Kirby village) was more typical, as both Great and Little Broughton were certainly enclosed at this date, Dromonby was a "lost village" and Kirby was one of the parishes which had not been perambulated in connection with the Archiepiscopal Visitation of 1633 because it was already enclosed (BI/ R VI B4, f.400).

- 15 BI/ R III M XLIX 1b.
- 16 BI/ R III M XLIX 1a.
- 17 PRO/ E 178 5756.
- 18 SPCh/ Terrier of 1716.
- 19 BI/ Will of John Tompson, prob. May, 1631.
- 20 NRRS/ VII, 12 and 96.
- 21 YAS/ MD 35.
- 22 BI/ Will of Henry Eden, prob. February, 1681/2.
- 23 BI/ Will of Wm. Tunstall, prob. July, 1629.
- 24 YAS/ RS, XXXIX, 199.
- 25 CRO/ ZK 16 (c) 4.
- 26 BI/ D & C Wills, William Tunstall, prob. August, 1687.
- 27 BI/ Enrolled wills, vol. 59, f.164.
- 28 SS/ XCII, 485.
- 29 BI/ R VIII H 1905.
- 30 BI/ R VI B4 f.400 and 405.
- 31 BI/ R VI A26.

- 32 M. W. Beresford, "The lost villages of Yorkshire," pt 4, YAS, XXXVIII (1955), 290-309 is a checklist of North Riding depopulations.
- 33 John Laurence, A new system of agriculture, (London, 1726), p.46
- 34 A. E. Smailes, North England, (Nelson, 1960), pp 149-50
- 35 e.g. the viewpoint expressed by the Marton enclosers, and by those at Kirkleavington who first enclosed the common pastures (PRO/ E 178 4886), before tackling the arable.
- 36 G. Slater, English peasantry and the enclosure of common fields (London, 1907), p.312.
- 37 Relevant enrolled awards are at the NRRD.
- 38 PRO/ E 178 5756.
- 39 CRO/ ZK 19 (N) 8.
- 40 BI/ R III M XVI 2.
- 41 PRO/ E 178 5756.
- 42 CRO/ Marton, loc.cit.
- 43 WLC/ Kitching papers, loc.cit.
- 44 Wardell, op.cit., passim.
- 45 TRC/ Yarm tithe apportionment and map shows part of the meadows to be in several ownership, but unfenced.
- 46 BI/ Enrolled wills, vol.60, f.188.
- 47 M. W. Beresford, The lost villages of England, (Lutterworth, 1957).
- 48 BI/ R VIII H 1346.
- 49 PRO/ MPE 542.
MPL/ "A survey of the Lordship of Acklam ... MDCCXVI".
MPL/ "Aclam Curacy : Parish of Middlesbrough", tracing of an original, (n.d. but circa 1730).
- 50 BI/ R VI A 19, Archiepiscopal Visitation Court Book of 1619 contains presentments for failing to repair the church. There was a repetition in 1662 (BI/ R VI A 26).

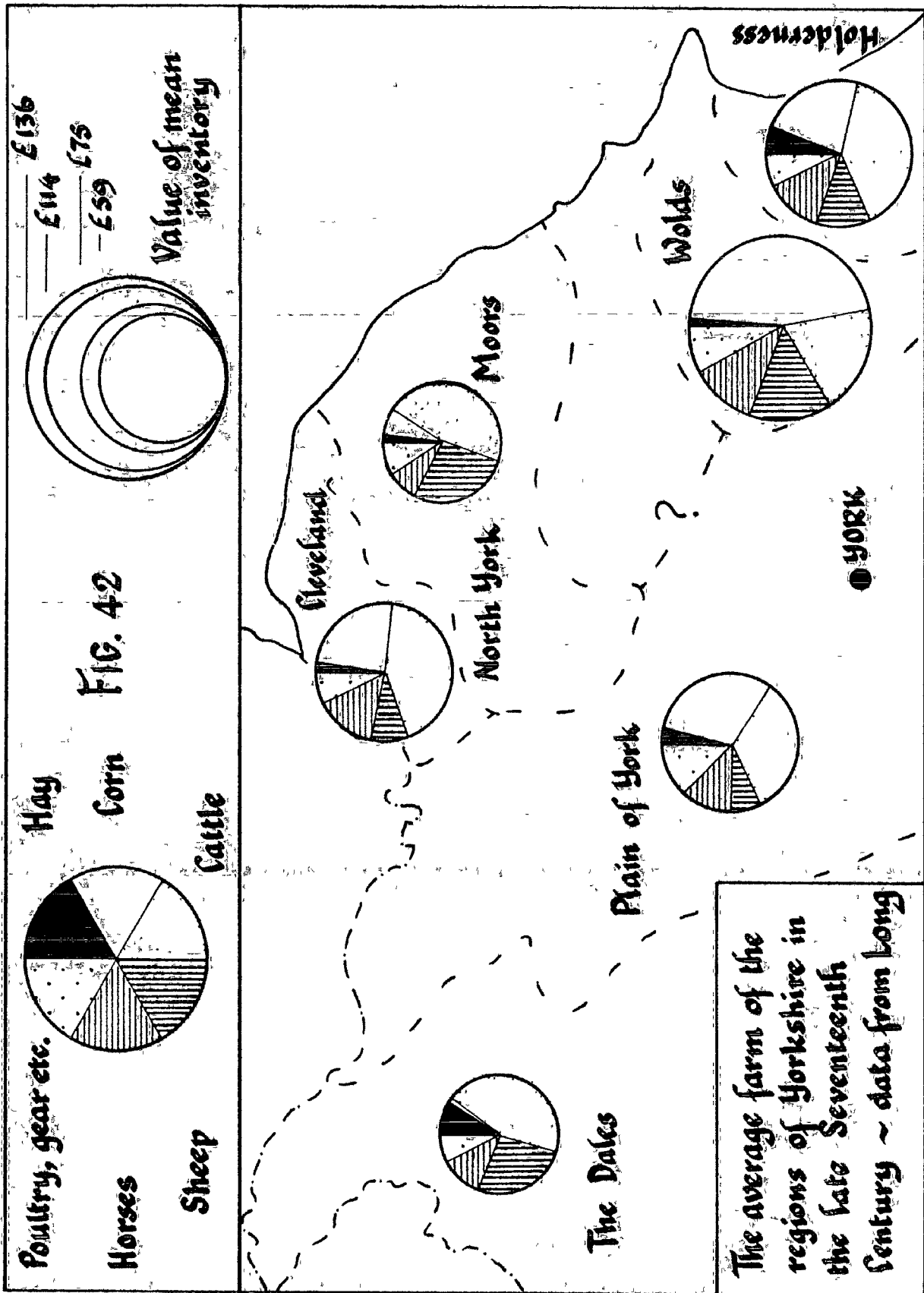
- 51 YAS/ MD 24, letter of Geo. Smalwood to James Stockton, 1672.
YAS/ MD 23 (3rd packet), passim.
- 52 CRO/ ZK 19 (N) 8.
- 53 CRO/ ZK 16, bundle H, Thos. Fisher to Bartholemew and Thomas Asleby, June 29th., 1653, _____, leases of Lady Herbert to several tenants, July 9th., 1660.
- 54 CRO/ ZK 14, "An account of the lands belonging to Franc. Harker at Foxton," (n.d., but circa 1677).
- 55 CRO/ ZK 16, bundle C(5), Charles Turner to Wm. Metcalfe, _____, Turner to Christ. Metcalfe.
- 56 Wardell, loc.cit.
- 57 CRO/ ZK 16, bundle H, passim.
- 58 BI/ D & C Wills (Vacancy), Addam Dale, prob. March, 1683.
This lime may not have been used for agricultural purposes, however, but in building.

CHAPTER IX
COW AND PLOUGH - FARMING PATTERNS
OF THE LATER SEVENTEENTH CENTURY

Already, by the late seventeenth century, the various natural regions of Yorkshire were showing distinctive regional patterns of farming type. Cleveland was no exception, and, although there was less corn-growing there than on the Wolds, for example, the "average" farm was a mixed enterprise, not one entirely devoted to animal husbandry. At the same time, examination of individual farms demonstrates a wide variety of aim, and various specializations are seen to be grouped geographically. Such sub-regional patterns continued to be valid for the following two centuries.

As a preliminary to his analysis of the records of some one thousand seventeenth century Yorkshire farms, Harwood Long divided the county into eight regions - The Dales, Craven, Cleveland, the North Yorks Moors, The Wolds, Holderness, The West Riding Industrial Area and The Plain of York.¹ His "Cleveland" includes the lands of the Guisborough valley and the townships east of Normanby, which are excluded from the present study, but none of his "Moors" farms come from the upland portions of West Cleveland. Having thus delimited his regions, he strikes averages (for the farms within each region) of the valuations of hay, corn, cattle, horses, sheep and gear. On this basis, fairly clear contrasts become apparent as is shown in figure 42.

In size, the average Cleveland valuation lay intermediate between



those of the areas to the south and south-west: this, in a general way, reflects the relative benevolence of the three environments. Similarly, the proportions of the valuation represented by hay and corn were lowest in the Moors, highest in the Plain; whilst the order was reversed for cattle and sheep. But the affinities of Cleveland were inconstant. Thus corn was much more important in Cleveland (25%), than in the Moors (9%), but for cattle the respective proportions of 43% and 47% show a marked contrast with the Plain (34%). Sheep (27% on the Moors) were relatively unimportant either in Cleveland (9%) or the Plain of York (8%).

One characteristic clearly differentiates the Cleveland average farm and this is the high value placed on horses (14%). Taken with the unusually high ratio of "young" to "adult" horses in both Cleveland and the Moors, Harwood Long interprets this as indicating that already by 1690 the specialized breeding of horses had become a Cleveland speciality. The ratio of "other cattle" (excluding oxen) to cows was much higher in Cleveland than in the Plain of York. Again the suggestion that this reflects breeding and rearing is clearly a reasonable one. Throughout the seventeenth century, pigs were unimportant commercially.

In some respects of greater significance than these, rather tidily, interregional contrasts, was the discovery that Cleveland farms were extremely heterogeneous and that, whilst acceptable "modes" might be established for the Dales, Craven, the Wolds, the Industrial Area (two variants) and the Moors (two variants), no such simplification

was possible for the Plain of York, Cleveland or Holderness. In these latter regions, three major types of farm were encountered: those in which the greater value lay in corn, those in which it lay in cattle and those in which some measure of balance existed between the two extremes. Unfortunately, the geographical value of Harwood Long's paper is seriously undermined by the complete absence of maps. Without more precise information on the location of individual farms, it is impossible to test his conclusion that "it seems probable that drainage, or the lack of it, was the main cause of marked local variations in farming type."²

According to Harwood Long's data, the "average" farm in lowland Cleveland had an inventory valuation of £67. It should be noted, however, that he specifically excluded those of less than £12 value, on the grounds that these were part-time holdings. There were between six and seven cows, one or two oxen, eight "other" cattle (mainly heifers and heifer calves), a couple of horses and a foal, together with thirty sheep on this "average" farm. In addition, hay and corn (both in stack and on the ground) valued at £2 and £16 respectively, and £4 worth of dead stock such as ploughs, carts and dairy equipment were to be found on the premises. Examination of the detailed valuations suggest that these sums represent a single stack (or three of the smaller "pikes") of made hay, probably seventeen or eighteen acres of growing corn, a cart, a plough, a pair of harrows, a sled and appropriate harness.

In order to investigate the range of farms contributing to this

average, to eliminate East Cleveland data and to examine the spatial aspects of farming at the time, the inventories have been re-examined by the present writer.⁴ Thirty-six inventories were studied, including those of less value than Long's threshold of £12.⁵ The geographical and value ranges (Fig.43) are extensive, and encourage a belief that the sample may be representative.

One would agree with Long that the smaller estates are, in some respects "special," but fourteen valuations total £10 or less and this is too large a share of the sample to be simply ignored. Many are the estates of non-farmers or part-time farmers. Two of the deceased were innkeepers, one was a chapman, another a labourer and a fifth was a tailor. A sixth inventory lists the effects of an elderly cottager in open-field Newton. Another, judging by the description of the property, was an elderly weaver's, and five were widows', estates. Eleven of these dozen inventories (one of the widows' is the exception) describe livestock only, and in numbers suggestive of the stocking of a small grassy garth (perhaps with additional limited common rights). Thus the weaver had two hens and a cock worth a shilling and "One Cow & a Pigg with 3 Firdeales valewed att 02 15 00."⁶ Although such holdings made but a small contribution to total agricultural output and occupied only a small proportion of the land, this intensive pastoral land use was a dominant feature of the landscape on the peripheries of the larger villages and, though "special", may not be neglected.

At Maltby and adjacent Hilton were small holdings of a radically different type. Thomas Brown, dying at Hilton late in March of 1688,

left the following:⁷

It. Purse and apparel	01	00	00
It. 3 Cows & Calves	07	00	00
It. An Acre & a halfe of Oats	01	00	00
It. Wheat in the Barne	00	15	00
It. A piece of Hay	00	05	00
Totall	10	00	00

In the Maltby case, the arable emphasis is stronger, 2 acres of wheat and 2 acres of oats being valued at four pounds: the same as a "spink cow and calf."⁸ Neither had ploughgear or (unless the cows were so used) draught animals - neighbourly assistance must have been sought. A very different kind of small-scale farming is indicated for Huthwaite in the Scugdale valley. Here the property comprised a mare, six sheep, two cows, a heifer, a calf, a cart and a sled.⁹ Thus, even in the narrow range imposed by a ceiling of ten pounds valuation there is appreciable variation.

At the higher end of the scale are farms with stock valuations of £200 and £260. The larger was at Rudby.¹⁰ In May 1687, 32 acres were under grain, which (assuming a three-fold course) indicates an arable acreage of some 45 acres. This land was worked by three pair of oxen. Some of the five mares on the farm may have assisted, or have been kept solely for cartage, carriage, saddle and breeding. In addition to this appreciable arable element, the Rudby farm had a large and varied livestock population: sixteen cows, a bull, seven two-year-old and ten yearling cattle, ten calves, a flock of fifty-three ewes with lambs and forty hogs, two swine, two young horses and unspecified numbers of geese, cocks and hens. This is highly

diversified farming carried out on a considerable scale; and, judging by the £65 at which the farmer's purse was valued, with equal profit.

Of special interest is the one sizeable example from an unquestionably open-field township, Newton.¹¹ Unfortunately, it is not as detailed as some others, but the outline is clear. In late March there were ten pounds worth of "Hard Corn & ware corne" (about ten acres) in the fields. Four horses were used with a cart, a plow and harrows, and livestock amounted to five cows and a stirk. Hay and straw worth 10s. remained from the previous harvest. The horses, judging by the low value, were not breeding stock, but low-grade work animals.

For purposes of analysis, the items in each inventory have been classified, not into the six categories used by Long, but into two only: the "crop-farming" and "stock-farming" elements of the enterprise. Such a classification can be fully objective except at one point - the horse population. On the larger farms, the ox was still the main plough-beast, but horses were used on the smaller farms. The basis for apportionment has been a careful study of each farm.¹² Thus the large Rudby valuation broke down as follows:

1. Arable side. - Total value of corn in the ground and in barns, ploughs gear and draught oxen £88.3
2. Pastoral side. - Total value of hay and livestock (including horses but excluding oxen £169.2

Hence the emphasis was considered to favour stock-farming in the ratio of 2 to 1. On the Newton holding, by contrast, an arable emphasis

was indicated by the allotment of a ratio of 2 to 3.

To place these ratios in perspective, estimates of the associated land use ratios have been made. For example, on the Rudby holding, where an arable area of 45 acres has been suggested, there cannot have been much less than 200 acres of grass to support the farm's livestock population.¹³ In terms of land use, therefore, an arable proportion of about 20% would be realistic for this farm.

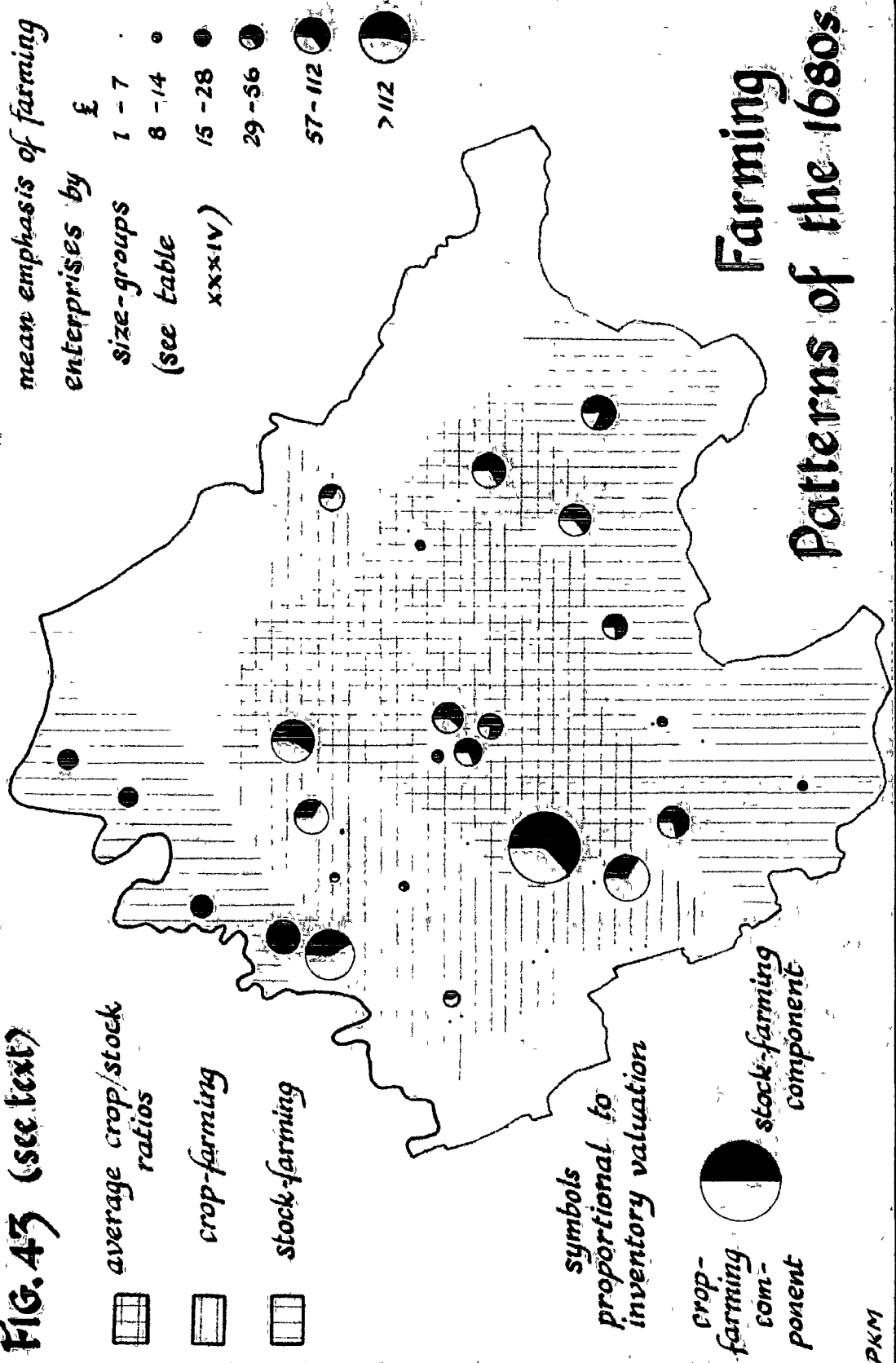
By the late 1680s, probably less than 10% of West Cleveland's townships were open-field, and therefore it may be assumed that the majority of the inventories relate to enclosed farmholds. Analogy with nineteenth century holdings would suggest a greater likelihood of smaller holdings being dominated by pastoral activities. Table XXIV appears to support this contention, although the relationship is not linear over the full range of sizes. Four inventories coming

TABLE XXIV - Crop-farming or stock-farming emphasis

in relation to scale of farming enterprise, 1680s

Valuations in £.		No. of enterprises in size group	Mean emphasis: crop-farming element as percentage of total valuation
Size range	Mean size		
1 to 7	3	11	-
8 to 14	10	5	8%
15 to 28	18	3	-
29 to 56	31	6	33%
57 to 112	87	7	32%
113 to 224	156	5	46%

FIG. 43 (see text)



from the single township of Seamer are less likely to be affected by other considerations. They indicate a more nearly linear trend, since the crop-farming percentage rises from zero in a £16 inventory, to 22% on a £32 farm, to 30% on a £37 farm and to 39% where the valuation increases to £69. One inventory in the £29 to £56 size range is atypical on two counts - (a) it is an open-field farm, and (b) it shows a 3:2 crop-farming preponderance. From Kirkleavington, where the pastures were already enclosed, but the open-fields may not have been (chapter eight), there comes a similar valuation.¹⁴ The remainder of this group are certainly from enclosed farms and their ratio of crop-farming emphasis falls to 25%. The conclusion that, size-for-size, open-field holdings were likely to have more cropping than enclosed farms is relevant to the small enterprises cited earlier from Maltby and Hilton. Neither township was certainly enclosed at this date,¹⁵ and the characteristics of the two holdings would be consistent with their comprising mainly dispersed open-field lands.¹⁶ This may have prevented the more usual pastoral utilization of these small farms.

This consideration of the effects of farm-size leads to the examination of figure 43. On the right of the figure is given a series of circles proportional to the variation in mean size of the classes of table XXIV, divided according to the mean emphasis towards crop-farming within each class (shown white). Located as accurately as possible on the sketch-map are comparable symbols representing individual holdings. Each valuation was considered with respect to

the degree of comparability between its own crop-farming emphasis and that of peers in the size group, as indicated by the series of mean values. Thus the farmer of the larger Newton holding laid much greater emphasis on arable than did his peers. Conversely, a Thornaby farm of comparable size was devoted entirely to stock-farming, whilst the mean holding within this class devoted 33% of its capital to crop-farming. In this way, variations in the crop/stock balance which are due to factors other than the size of the holding are measurable. As will be clear from the map, some spatial associations emerged. There was, for example, a strong arable bias at Newton, on the clay plateau and on the adjacent north-western slopes of the Cleveland moraine. By contrast, a very clear pastoral emphasis existed on the lands down-river from Barwick. In the townships of the scarp-foot, a rather less emphatic stock-farming interest was dominant, while farming in a central triangular area conformed to the West Cleveland norm. Appropriate shading seeks to emphasize the pattern of this variation.

It is of interest that the anomolous small arable holdings at Hilton and Maltby conformed to a regional trend - clearly, open-field survival is not the only factor operative here. The zone includes some of the best Cleveland land (Fig. 8), though towards Kirkleavington and western Hutton Rudby a rather stiff clay becomes dominant on areas with little natural slope. At Newton, edaphic factors are still less favourable to crop production, but here the individual farmer was not yet freed from the open-fields' constraints. Crop proportions of the period in lowland Cleveland were of the order indicated in table XXV.¹⁷

No sub-regional analysis is possible. The "hard" corns (of which

TABLE XXV - Relative importance of various crops
in lowland Cleveland, late seventeenth century

Crop	Percentage share of total
Wheat, rye and maslin	45
Oats	31
Barley	18
Beans and peas	6

wheat is known to have amounted to more than half) had improved their position slightly since earlier in the century and the same appears to be true of the pulses. Barley acreages show a significant decline and the trend is verified by other evidence. Stockton was importing significant quantities of the cereal. In 1682/83, 282 quarters of barley, 360 quarters of malt (and also a great deal of rye - 1271 quarters - but no wheat) were shipped in from Great Yarmouth.¹⁸

Rotational practices appear to have remained conservative, but irregularities are apparent. There is, for example, the case of a lowland farmer concentrating, as was fitting in this environment, on the hard corns. At midsummer 1688 his 10 sown acres were divided unequally - 8 acres of wheat and rye; 2 only of oats.¹⁹ Evidence from the limited number of winter and spring inventories indicates that the winter-sown cereals were broadcast fairly late, during the

first week of November at the earliest, but the spring-sown oats went in early, before 10th February in a favourable year. Barley was generally sown much later, probably in early May. Nothing is known of crop yields.

The river-side marshes and the well-watered but free-draining holms downstream from Yarm might help to explain the pastoral tendency of the north, but the details of the Thornaby and Barwick holdings²⁰ suggest another, though not necessarily alternative, explanation. The smaller farm was extremely specialist: "It 8 milke kine £26 00 00, It one Maire £03 05 00." There was no indication of arable, and, much more telling, no young stock. This was a dairyman's holding. The larger was more complex. There were sheep, horses, salmon nets and "5 young beasts", but of central significance were the twelve milch cows, representing fully half of the value. Specialist dairying in this zone is to be related to the proximity of the town and port of Stockton, easily accessible by ferry. It is uncertain how much market there would be for liquid milk, but butter was already being shipped, to Colchester in 1685, for example. Hull had expanded shipments of butter to London enormously during the century. There had been shipped a mere 11 tons (which included some cheese) in 1628, but the quantity in 1684 was 23,000 firkins: the demand from this market is clearly apparent.²¹

It is certain that butter production was not limited to this northern zone. Other Cleveland farmers were producing butter and cheese; very few inventories fail to list "Things belonging to the

milkhouse" such as "26 bowles 7 shelves 2 chirnes 2 stands 3 skeeles." One left six firkins of butter.²³ But large-scale commercial production kept near the ports. Cheese was also exported: a merchant of Yarm had fourteen cheeses maturing in his garrets.²⁴ However, rearing was also most important inland, and there was often little surplus milk after the calves' needs were met. Exceptionally at Ormesby in 1686 seven cows gave 20 gallons per week, but they failed to rear more than four calves.²⁵ When the rearing was more successful (as in 1680 and 1681) a weekly surplus no greater than one gallon per head could be expected.²⁶ Even this low figure represented an increase of 100% on returns half a century earlier, and there had also been an improvement in the proportion of calves successfully reared (1600-1625 average: 0.7 per cow; 1680s' average: 0.8 per cow).²⁷ On a small scale, the rearing farms are illustrated from Dromonby where, in 1686, there were "2 kine & Calves one hand milkt Cow one 3 yeare old whye 1 small steere 2 small heiffers one year old Stirke".²⁸ Environmental factors explain the trend to rearing which is evident in the scarp-foot townships.

Normally, only those running 15 or more cows kept a bull; but one Seamer farmer, perhaps concerned with improvement, kept one for 7 cows and 3 whyes.²⁹ Cattle were rarely described in the inventories, and if the Teeswater was already being developed, the record is mute. In 1670 a wealthy Tunstall farmer bequeathed his "three Red Hollands Cowes,"³⁰ but to be so specific was unusual. With horses there was more precision; greys and bays being equally popular. Breeding of the

the specific Cleveland Bay may have already commenced. Mares are mentioned on no fewer than thirteen farms, frequently in association with foals, "staggs" or fillies.

In the 1680s, sheep were kept on many farms throughout the area. Apart from their absence from the very smallest farms, their distribution appears to be unrelated to any other aspect of local agriculture. Flocks ranged in size from the six sheep kept at Huthwaite to the large flock already listed from Rudby. Different breeds, adapted to local environments, were clearly recognised, the lowland breed being described as "Countrey Sheepe".³¹

Swine, poultry and bees, though forming a significant basse-cour, no doubt mainly directed to the farmer's own table, were nowhere of great importance at this period. Only on the smaller holdings did their value amount to more than 5% of stock valuation and on the larger farms 2% was not exceeded. In this respect West Cleveland was typical of a much broader region.

Outside the dairy, farm equipment was limited to the plough and harrows (normally used in pairs); with wagons, carts and sleds for transportation. On all the larger farms with a strong arable interest, oxen were still the main source of traction; but, on the smaller holdings, geldings and breeding mares were almost universally preferred. Cash sales, particularly of stock, were gradually assuming greater importance. Increasing commercialism was not, however, accompanied by the holding of large sums of cash: few husbandmen died with more than a pound or two in hand, and bequests, even of

the gentry, were usually in kind. Available capital was put to work to extend the scale, rather than the efficiency of the enterprise, either by extending the holding or leasing an out-farm. It was sometimes necessary for the expansionist to travel appreciable distances. At the end of harvest, 1686, Robert Allan had corn and hay worth £19 in the barn and stackyard at Goulton and an almost identical amount at an out-farm at Sadberge (County Durham) some fifteen miles away.³² Late in the period, one begins to find evidence of investment on the holding in the form of limited improvements, both by tenants and freeholders, but real advances of techniques and equipment were to await the burgeoning of the "New Husbandry."

- 1 W. Harwood Long, "Regional farming in seventeenth century Yorkshire," Ag.Hist.Rev., VIII (1960), 103-114. Unaccountably, he fails to recognize the distinctive Vale of Pickering as a separate unit.
- 2 A most disappointing feature of this paper lies in its assumption that the natural regions are ipso facto farming regions.
- 3 Inevitably too, the sample must include an undue proportion of holdings whose stock levels will have "run down" during the fatal illness of its farmer, for not all Stuart farmers can have died in the prime of their enterprise; the mean is probably somewhat lower than would have been given by a truly random sample.
- 4 BI/ D & C Wills (Vacany), various, prob. 1683 and 1686 to 1688.
- 5 All inventories mentioning livestock were listed. In calculating value, only the property related to farming (or, in the case of non-farmers, animals needing grazing land) have been considered. Household effects and cash (the latter, with clothing, rarely exceeded £1) are discounted.

- 6 BI/ D & C Wills (Vacancy), John Mothersall, prob. January, 1687/8.
- 7 Ibid., Thomas Brown, prob. February, 1687/8.
- 8 Ibid., Mary Scarth, prob. October, 1687.
- 9 BI/ D & C Wills (Vacancy), Christopher Rimer, prob. August, 1687.
- 10 Ibid., John Sayer, prob. October, 1687.
- 11 Ibid., Thomas Rigge, prob. June, 1688.
- 12 At this stage one was careful to exclude any consideration of the holding's location, as this might have invalidated subsequent conclusions.
- 13 This conclusion is based on carrying capacities prevailing in Cleveland a century later: A. Young, A six months tour through the North of England, (London, 1770), II, 151.
- 14 Ibid., Robert Applegarth, prob. June, 1686. The inventory listed: 3 cows, a mare and foal, a pair of oxen, three acres of wheat and an acre each of oats and peas.
- 15 No evidence has yet been traced concerning Hilton's enclosure. A 1727 Maltby reference (NRRS/ IX, 87) suggests recent enclosure of the township: "messuage situate upon a parcel of ground called Maltby Low field ... three closes being the easternmost part of Maltby Lowfield, eighteen acres".
- 16 This argument is not pressed, but if it were, then it would appear that none of the enclosed holdings of the £8 to £14 class (Tab. XXIV) had any arable interest.
- 17 Data is limited, but derived from two sources - tithe causes and probate inventories - and is internally consistent.
BI/ R VIII H 1969, 2431, 2551, 2468.
BI/ D & C Wills (Vacancy), John Sayer, prob. October, 1687,
John Barber, prob. February, 1686/7,
Thos. Garnett, prob. April, 1686,
Robt. Applegarth, prob. April, 1686,
Jas. Smith, prob. August, 1688,
Mary Scarth, prob. October, 1687.
- 18 T. S. Willan, The English coasting trade, 1600-1750, (Manchester, 1938), p.82.

- 19 BI/ D & C Wills (Vacancy), James Smith, prob. August, 1688.
- 20 BI/ D & C Wills (Vacancy), John Bankes, prob. March, 1683.
Ibid., John Martin, prob. January, 1686/7.
- 21 T. S. Willan, op.cit., pp. 85 and 136.
- 22 BI/ D & C Wills (Vacancy), John Neesum, prob. February 1687/8.
- 23 BI/ Enrolled will, Wm. Armstrong, 1st.Dec., 1681.
- 24 BI/ D & C Wills (Vacancy), John Burton, prob. March, 1686/7.
- 25 BI/ R VIII H 3678.
- 26 BI/ R VIII H 4873.
- 27 BI/ R VIII H 3678, 4873, 1168, 447, 1967,
1208, 1356, 1346, 1671.
- 28 BI/ D & C Wills (Vacancy), Thomas Garnett, prob. June, 1686.
- 29 Ibid., Francis Fletcher, prob. August, 1688.
- 30 BI/ Enrolled will, Richard Turner, 13th.Nov., 1670.
- 31 BI/ D & C Wills (Vacancy), Wm. Tunstall, prob. August, 1687.
- 32 BI/ D & C Wills (Vacancy), Robt. Allan, prob. March, 1686.

CHAPTER X

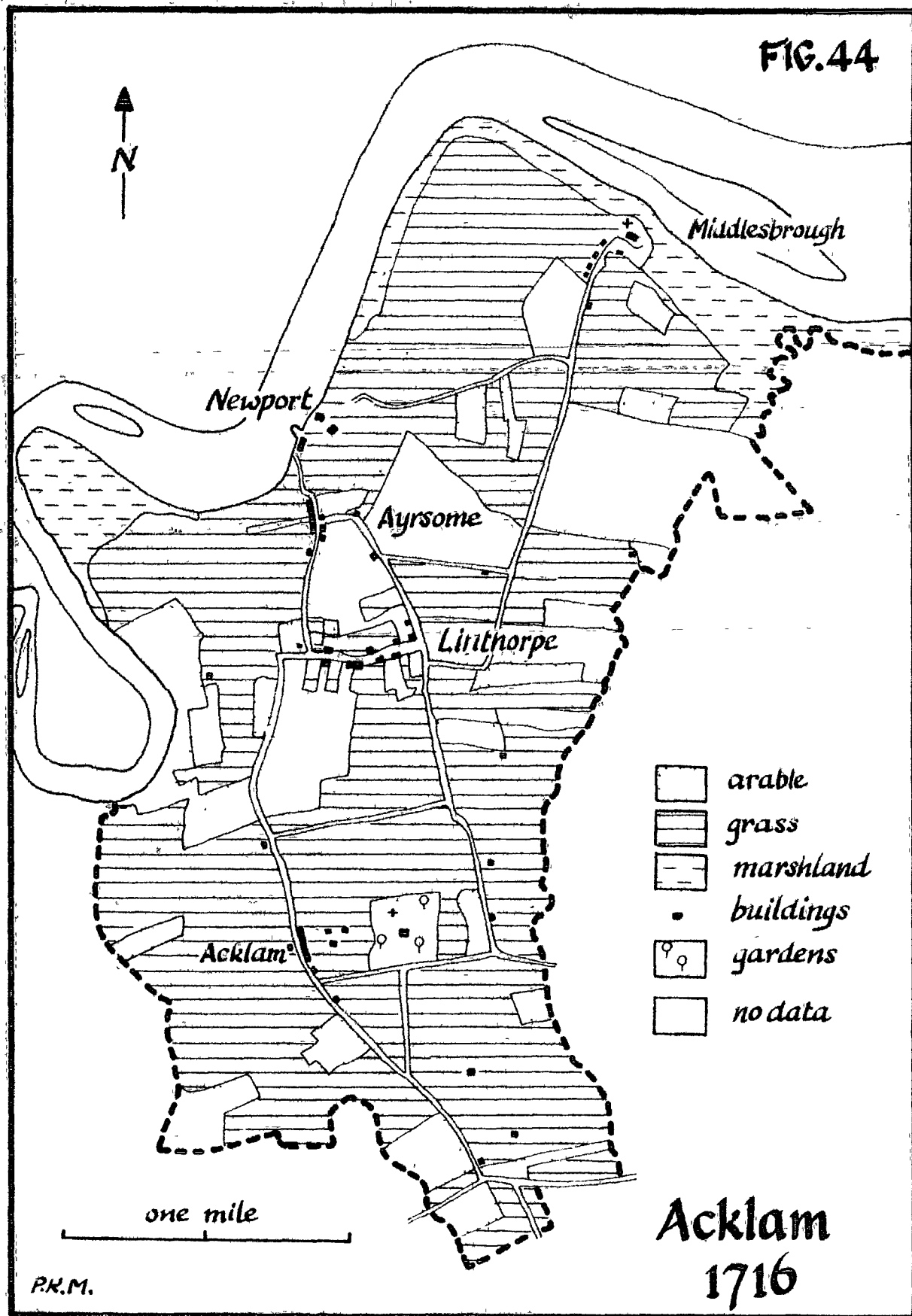
A GRASSY VALE AND THE ARABLE REVIVAL -

CHANGES IN THE RURAL ECONOMY, 1690 to 1770

Arable cultivation appears to have declined further in the final years of the seventeenth century and into the eighteenth. The whole emphasis turned to grassland management, with dairy farming and livestock rearing as its outlets. This was a prosperous period, which saw the end-product of the enclosure process in a new landscape of dispersed farmsteads and small fields bordered by hedge-row trees. From mid-century, however, the national demand for wheat increased and arable cultivation was revived. By 1770, arable acreages were perhaps 75% higher than they had been in 1700, but crops and techniques were largely unchanged.

In the early years of the eighteenth century, land use was dominated by grassland farming. Defoe, travelling Britain during its first two decades, was able to list the "North Riding, and Bank of Tees in the Bishoprick of Durham" among the foremost grazing grounds of the country.¹ At Acklam in 1716, a mere 16% (Fig.44), and at Barwick, in the following years, 14% and 17% only, were arable.² Both are tracts of several hundred acres of land. large enough to be representative of the northern zone, which had already shown a strong pastoral emphasis in the 1680s. Elsewhere, data are sparse or indirect. On the 150 acres of glebe at Crathorne, only 16 acres (10.7%) were tilled early in the century,³ and an 80-acre holding at Great Broughton had 22.4% arable in 1736.⁴ An estimate of the value

FIG.44



of the Kildale living was made by independent assessors in 1707.⁵ They estimated the value of the corn tithe - which was levied in kind - as totalling £16 per annum. It was due from the whole parish, and allowing for current prices, the relatively low yields likely here and the triennial fallows, the yield per arable acre can scarcely have been less than 18 pence. On this basis, a maximum estimate of 210 acres arable is therefore suggested 15% of the total improved land. No further details are known until 1760, when detailed surveys become available covering the greater part of four townships (Chapter XI). One possible interpretation of some of the information in these surveys would, however, suggest arable percentages of the order of 20% in Great and Little Busby and Nunthorpe about 1720. All available data, therefore, point to a high level of dependence on animal husbandry at this time.

The aims of this husbandry were the twins of dairy production (mainly for butter) and stock raising.

On the dairy side, shipments from the Tees ports continued to develop. Defoe observed that "Stockton and Yarm... are greatly encreased of late Years, especially the first, by being the chiefest Place in the North Riding of York [sic]... for the shipping off Lead, and Butter for London."⁶ On his return to London, he was to write that 50,000 firkins of butter were arriving annually in the capital from Suffolk, Cambridgeshire and Yorkshire.⁷ Maitland offers a more detailed estimate of the supply for the same period (1729/30), which trebles Defoe's total and allocates 114,937 firkins to York,

Hull, Scarborough and Stockton. Willan, however, believes Maitland's figures to be grossly exaggerated, and supports Defoe.⁸ Whatever may have been the actual quantities involved, the qualitative side of the picture is clear.

The increased demand brought about a more widespread specialist approach than had earlier prevailed. The number of lowland farms having milch cows, but relatively small numbers of young cattle, increased. No longer were the exporters limited to the ports' outskirts: a small factory for the production of butter firkins was established inland at Stokesley.⁹ Young's sample of six lowland farms (Chap.XI) shows that the dairy dominated. there were more than two milch cows to each follower. But in the scarp-foot zone and the uplands, the 1:1 ratio, which had been typical of a broader region a century earlier, still prevailed, and there were still many breeding farms in the lowland. Indeed, some highly significant developments were taking place on Cleveland stock farms. the district was well-placed in the "enlightened" North East of England, where only (according to some contemporaries) was scientific breeding carried on in the pre-Bakewell era.¹⁰

Until his death in 1704, a Stokesley miller kept - with other stock - a pair of bulls, which stood at service for the herds of the neighbourhood.¹¹ It is unfortunate that these bulls were not described, for comparable small-scale studs must have played a considerable part in establishing the prototypes of the Teeswater shorthorn. This Teeswater, bred on both sides of the river, was a general purpose

animal, later to be refined by the Collings family for increased beef; and by Bates of Kirkleavington for the pail.¹² It is believed that the black Celtic, the red Anglo-Saxon and the Dutch breeds all contributed to the strain.¹³ Mention has already been made of red Dutch cattle at Tunstall in 1670 (Chap. IX), but the majority marketed at the Stokesley fairs a century later, were black.¹⁴ Young referred to the Teeswater as "the short horned kind, called the Holderness breed improperly, - but really the Dutch sort,"¹⁵ but this was probably an over-simplification. The Teeswater of this period differed from the Holderness type kept further south; and both differed from the original Dutch imports, which, according to Marshall, were "thin-quartered, too light behind, and too coarse before; large shoulders, coarse necks, and deep dewlaps."¹⁶ The contemporary Teeswater, by contrast, was already a useful beef animal.

Some stimulus to the breeding and rearing enterprises came from the needs of south country dairymen to replace their herds after the series of cattle plagues from 1714 onwards. Eventually, the distemper spread north, but its local incidence is unrecorded. Hughes, commenting on the Tyneside outbreaks of the 1740s and 1750s, implies that they were relatively mild.¹⁷ He also suggests that the North England region acted as a large reservoir whence new stock might be drafted to the south. As a result of these developments, the cash value of stock was increasing throughout the period. By the 1770s, cattle prices were 50% above those of a century earlier, but other prices had risen less (for example, wheat had risen only 28%). The value of

dead farming stock had changed little. cattle were in the ascendant.¹⁸

Bovines were ousted in one field only - this period covers the virtual disappearance of the ox as the Cleveland plough-beast. The change was not an experience unique to the district, but came earlier here than in the areas to the south-east.¹⁹ There appear to have been many reasons for the change, which, however, many contemporaries were reluctant to approve.⁴⁴ Among the principal causes were.

1. The reduction in arable, during the later seventeenth century, meant that fewer ploughteams were needed.
2. The heavy mediaeval plough had been replaced, during the same period, by a smaller wooden plough,²¹ and that, in turn, by the Rotherham plough.²²
3. The horse was a more versatile animal, better suited for general duties, including the long-distance cartage of coal and lime from County Durham.²³
4. The new road surfaces were damaging to the incompletely-shod foot of the ox.²⁴
5. Beef demand (as a result both of increased per capita consumption and growing population) was increasing. young bullocks were required for early fattening.
6. Breeding for beef and dairying were causing morphological changes in the general cattle population which were unfavourable for the application of tractive effort.
7. The pastures could be more profitably stocked with beef, dairy, or rearing cattle the more prestigious horse was partly

arable-fed.

Whatever the reasons, when arable acreages began to increase from mid-century, it was the horse which drew the plough.

Horses, in the form of the Cleveland Bay especially, were also the subject of careful breeding policies. the Stokesley miller had a brood mare and stallion.²⁵ The good looks and style of this breed, which, together with its strength and stamina, made it so valued as a carriage horse, stemmed from its earlier history as a hunter. The demands of the armies for a stronger animal than the hunter, but much fleeteter than the Old English Battlehorse, led to the selective breeding of "chargers" in the Barnard Castle and Darlington neighbourhood.²⁶ Some of this blood was brought eastward, as Cleveland established itself as a breeding ground. The demands of foreign buyers, and of the expanding London carriage trade, were great, and many animals (some thought too many)²⁷ were sold to satisfy them.²⁸

Sheep, now identifiable as the long-wool Teeswater or "Mud" breed, continued to occupy a relatively minor role in the lowlands. An equally major one was taken by the small "Heath" or Blackface ewe in her own, less hospitable, moor environment.²⁹

Pig farming, hitherto unimportant, was gradually expanded as a by-product of the growing butter industry. bacon came third in Marshall's 1787 list of Cleveland products.³⁰

Grassland management, during this period of pastoral dominance, displayed a certain ambivalence. On tenant farms, the grass acreage was protected by ploughing penalties of £5 per acre ploughed in excess

of an agreed cropland total. Such penalties are found throughout the area early in the century, but disappeared later, in the north and centre, under the pressure of rising grain prices.³¹ Sometimes, specific fields were protected from the plough, and these might be potentially the best arable on the farm. Often the home pastures were protected, the tenant being given a free hand in the "outgrounds".³² Land about the homestead became truly "permanent" grassland. Naturally, it was grazed (albeit intermittently) at higher intensities than the rest of the grass, and received correspondingly more natural manuring. Where dung is mentioned, leases usually required that this should be spread on the grass alone.³³ If this went on the permanent meadowland, the injunction seems not altogether unreasonable, but if the pastures also received much, the starvation of the arable is less comprehensible. Much of this permanent grass had earlier been open arable, subject to many years of continuous cultivation. Once the local grasses and wild white clover were firmly established, the benefits of the change became apparent - land of this quality was, by mid-century, commanding rents of 20s. to 25s. per acre.³⁴

The remaining farmland was managed under a poorly-defined system of long, and irregular, leys. The idea of alternate husbandry had already been practised in the open-fields. The Marton enclosure discussions (Chap.VIII) demonstrated an awareness of the need for periodic change. Richardson's survey of the Marwood estates, taken in 1760, records in considerable detail the workings of this system over the preceding forty years.³⁵ Perhaps "system" is too rigid a

term for management so largely empirical. Signs of deterioration were awaited, before a pasture was ploughed or an arable field laid down. The following extracts make this fully clear.

Field name	Valuation- rent per acre	Comments
Steel Flats	13s	Oats: the E. half 1 yr plowed up tillage. The W: old tillage
Billy Wood Close	10s.	fall plowed up 35 yrs
Garth. Barn Close	15s.	Pas. laid to grass 25 yrs
Calf Close	14s	Mea. Old grass
Brass Sykes	13s6	Mea
Grass Greens	20s	Pas. Old grass but very good
Cherry Garth	9s	Pas. This wants plowing
Norton	9s6	Wheat, very old Tillage: this should be laid
Little Ings	9s.	Pas. Never was ploughed
Morton Carr	1s6	Pas exceedingly coarse ought to be ploughed
Moor	7s.	Pas Badly laid
'e'	9s.	Oats this close is run wild

A comment in the same volume, from a survey taken in 1767, confirms a major problem.

Fogg Field	12s.	Laid with grass seeds in 1766 but too few

As the comments under "Moor" and "Fogg Field" stress, great difficulty was experienced in establishing the new-laid grassland. This was one reason for the landlord's solicitude for the established grass. For laying down, the sweepings of the hay-barn were used; and these included many weeds, in addition to useful grasses. For success, the land had to be in reasonable heart so tenants were instructed to lay "with a sufficient quantity of hay and white clover seeds," at the stage in the rotation normally occupied by oats. The

land, in such a case, would have borne only a single crop of wheat after a long winter and summer fallow.³⁶ On ploughing-out, direction varied. In certain cases, a tenant might both pare and burn, but in others, pare without burning. Or he might be forbidden the use of either technique.³⁷ Uncontrolled, his preference was for paring and burning.³⁸

The circumstances which led to this pattern of grassland management failed to last long enough for any regular rhythm to become established. It seems certain that arable was not considered "old" until well over forty years had elapsed after ploughing-out. Steel Flats and Billy Wood Close had been arable in the 1590s (Chap.VII), but how many times they had been broken up and relaid during the seventeenth century is unknown. In the lowlands, therefore, the distribution of the small acreage of arable changed slowly, as old grass was ploughed out and old arable put down to grass. On the upland margins, land potentially suitable for cultivation was more limited, but the principal of "alternate husbandry" might still be applied. Kildale farmers, for example, took the plough round the farm in a manner which Stapledon might have approved - though the ensuing technique was totally inadequate. An old sward would be ploughed without paring and burning. Spring ploughing and a summer fallow would then precede a crop of rye or maslin. In the next year, a good crop of oats would be obtained and, finally, the land was simply left, without benefit of seeding, to fall back to grass.³⁹

It was in the context of this mainly pastoral farming that the

consolidation of farms continued. Progress on the final stages was slow. Much capital had been absorbed in the basic process of enclosure, both in legal costs and in the provision of the essential ring-fences between farms.⁴⁰ To split up these tracts into fields of convenient size, and to establish the necessary hedges and ditches was a continuing task. Expenditure on quickset-hedge stock and oak and ash seedlings was heavy, especially during the period before 1758.⁴¹ Early attempts were not always approved by later generations. At mid-seventeenth century, Barwick had been divided into forty-four closes, each averaging 17.4 acres. During the eighteenth, some hedges were pulled out, and the whole re-arranged as sixty-five closes, of average area 12 acres. To supplement the timber supply of the hedge-rows, small plantations were established.⁴² The few contemporary maps indicate similar trends elsewhere.

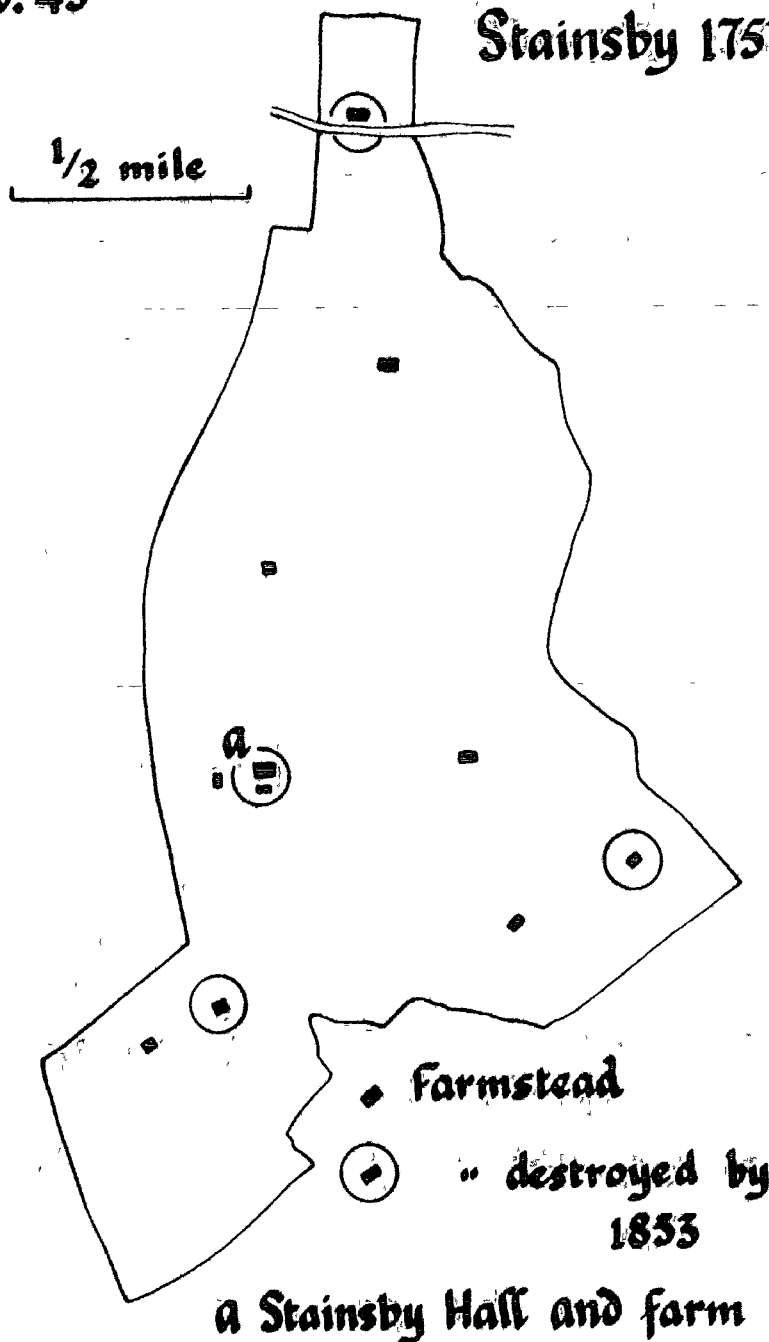
The greatest demand for capital came from the need to provide the new farms with adequate steadings. These were required away from the old sites in the villages, on new and more convenient positions among the outlying farmlands. Capital became available rather slowly, and at rates differing from place to place, but by 1766 a great deal had been achieved. Arthur Young was vastly impressed

Upon descending into Cleveland, one circumstance must strike every traveller, the admirable manner in which all the farm-houses are built. I passed scarce any but new ones of brick and tile; the barns, stables and offices of all sorts the same.⁴³

Apparently a full century had elapsed, after enclosure, before this essential re-adjustment could be financed. Judging by an 1806

FIG. 45

Stainsby 1757



P.K.M.

description of buildings on the Whorlton estate, however, dispersal there must have taken place well before 1650. Young passed by, but cannot have approved of, the buildings of Summerfield House Farm which consisted of

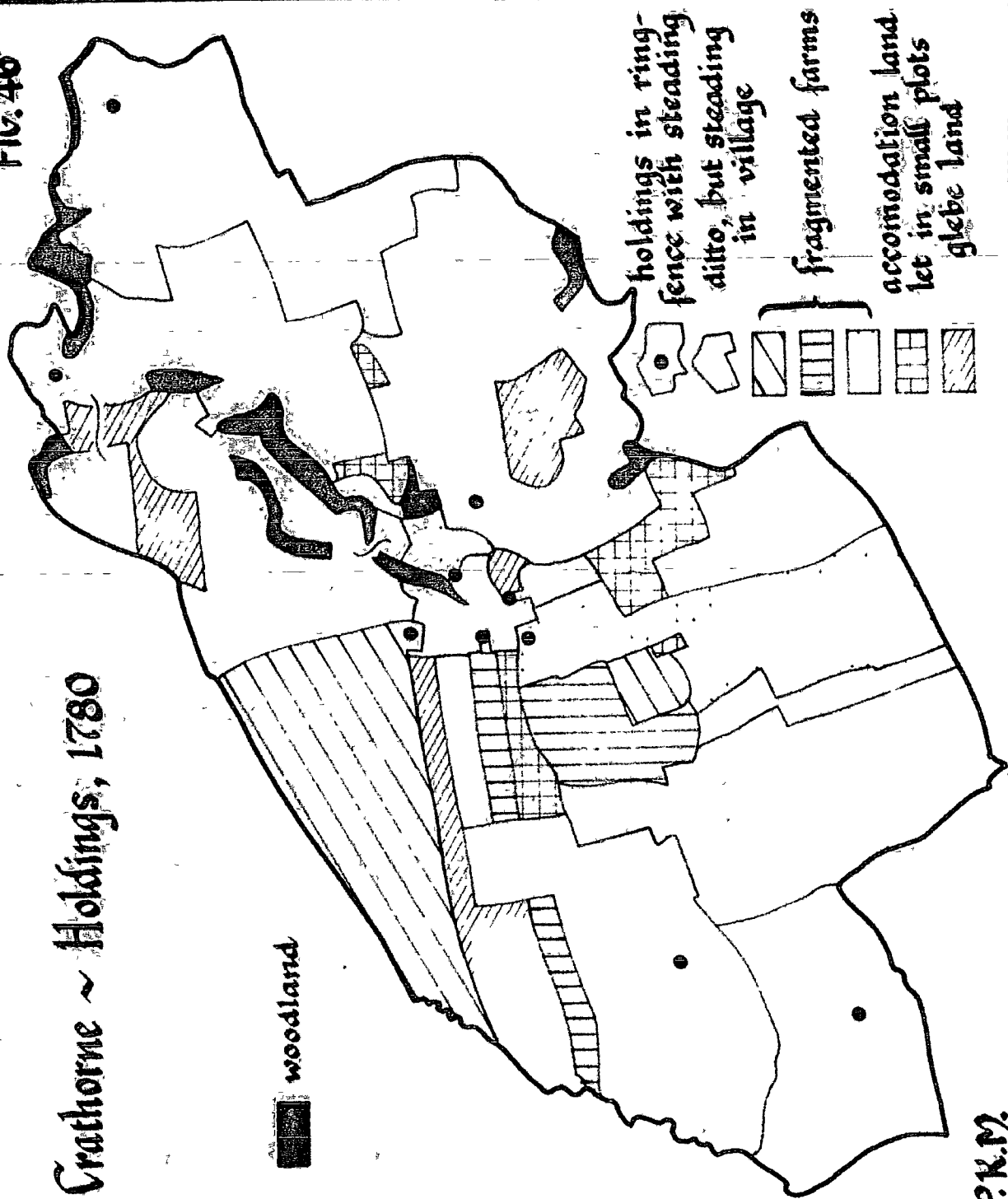
a very old farm house, barn, stables and cow house, brick stone part wood and thatched and part tiled the whole in a state of dilapidation and ruin.⁴⁴

Upon the Acklam estate, about a dozen outlying farmsteads had been established by 1716, (Fig.44) and at Stainsby, in 1757,⁴⁵ the settlement pattern consisted entirely of nine dispersed farmsteads (Fig.45). At Staanton, which was probably enclosed between 1661 and 1685,⁴⁶ outlying farmsteads were firmly established by 1769 (Frontispiece). But at Barwick - enclosed earlier - the whole township was farmed from a small hamlet of five or six houses,⁴⁷ until new farmhouses were constructed (circa 1765 and circa 1820) and the hamlet dissolved.⁴⁸ Twenty years after the enclosure of Newton, no new steadings had been built, but dispersion was characteristic of adjacent Nunthorpe.⁴⁹

Agricultural writers of the period condemned the retention of the village farmstead, regarding this as the prime cause of the fragmentation of enclosed holdings. These were still very prevalent, for example in the Vale of York, at the end of the eighteenth century.⁵⁰ It is arguable whether, in fact, cause and effect were not reversed, especially in villages with a large number of small owners. Newby was still showing both characteristics in 1837 (Fig. 98). Fragmentation there reflected the apparent imperfections of the enclosure

Crathorne ~ Holdings, 1780

FIG. 46



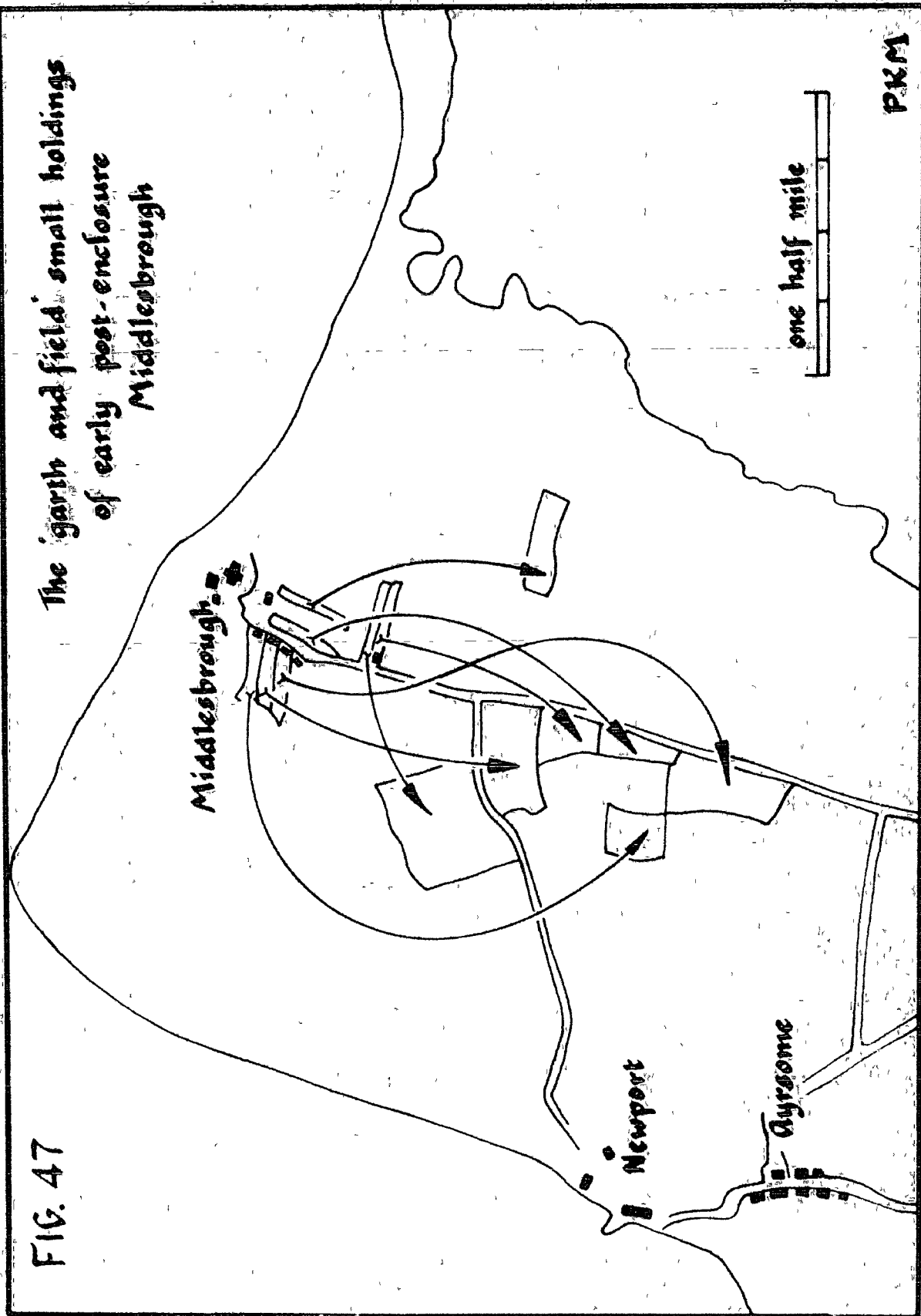
agreement, rather than a laggardly building policy.

In townships dominated by one owner, the situation was not imposed, but fell within the province of estate management. At Crathorne, in 1780, there were three owners, one of whom was overwhelmingly dominant.⁵¹ Figure 46 shows the degree of progress which had been made there. Farmsteads had been built on four outlying farms. An equal number were yet unprovided, but the degree of fragmentation was not great. This difficulty had been avoided, to some extent, by arranging the holdings in segments centring on the village - so that the old homestead would lie (albeit asymmetrically) within the ring-fence. Another feature was the maintenance of the smaller holdings by the provision, within the estate, of a quantity of accommodation land. This was let off in small plots of 2 to 8 acres to add more land to the cottager's garth and garden. Similar management was practised on the Whorlton estate. As a result, the integrity of the village communities was maintained and the nucleated settlements preserved.

There are suggestions that a somewhat similar policy was attempted, but later abandoned, at Middlesbrough. A high proportion of the field-names on the giant map of 1716⁵² include personal names. This is true of virtually all the garths near the village, as for example "Valentine Garth", "Typladys", "Burdons", "Iannys" and "Tennants". In the fields of the township, some of the same names are found to recur. "Valentine Fall" and "Iennys Close" are two. It is most unusual for the same personal name to be used of more than

FIG. 47

The 'garth and field' small holdings
of early post-enclosure
Middlesbrough



one close. Comparison with the open-field map of a century earlier,⁵³ suggests that the personal element in these names post-dates enclosure. It is therefore suggested that the garths and fields "linked" in this way, formed small holdings of the type noted at Crathorne (Fig. 47). Similar patterns are found in association with the other three nucleated settlements of the Acklam estate. At Middlesbrough, later estate policy appears to have demanded the constitution of larger units. These small holdings, with the village settlement itself, were swept away - a process already apparent in 1716. At Kildale, too, radical re-organization so modified the settlement pattern that it might be legitimate to write off the seventeenth century village as 'lost' after 1775.⁵⁴

Those villages without means of existence other than agriculture, more frequently shrank than disappeared. Thus, at Great Busby in the earlier eighteenth century, there were some fifteen messuages and cottages, each with its garth.⁵⁵ By about 1760, several of the garths were devoid of buildings, but were farmed by one or other of the eight larger holdings. Perhaps nothing is more clearly indicative of this process than the structure of T. Weatherill's Busby farm in 1837.⁵⁶ In that year he owned, and himself farmed, a fairly compact 150 acres on the northern boundaries of the township. He also owned, but let (as a garden) a half-acre garth in the village. Clearly this had been the site of the messuage to which his holding formerly appertained.

A number of Cleveland villages - and the two towns of Yarm and Stokesley - showed no such signs of shrinkage. Stokesley had its

market, fairs and agricultural merchandising, as well as a prosperous handloom weaving and a dyeing industry.⁵⁷ Yarm, the lowest bridging point on the Tees until 1771, was still a minor port able to receive vessels of up to 30 tons from the North Sea. It also carried on a considerable river trade with Stockton, for the merchants of which town it was a collecting depot for products (including lead) from as far afield as Cumberland.⁵⁸ The larger villages, Great Broughton, Hutton Rudby and Great Ayton, for example, were small textile centres, the latter also had other industries, including an alum works.⁵⁹ Such centres required transport media, both packhorse and cart. In part a result of this demand, in part a reflection of the capacity of the partially-industrialized smallholding family to maintain itself, such settlements retained relatively large numbers of smaller holdings and accommodation land. These were mainly under grass, and such local concentrations appreciably affected the overall patterns of land use, especially as the general balance moved away from grass to plough-farming in the latter part of the century.

Such major centres needed to be linked with each other and the rest of the country by improved roads, and much was done during this century.⁶⁰ New alignments were infrequent, the ancient pattern of village roads was largely preserved. Finance came from voluntary subscriptions, which supplemented the parochial assessments.⁶¹ In the early stages, many routes were provided with narrow, paved strips, which might be used by pack-horses and foot passengers when the roadways themselves were impassable in wet weather.⁶² By the 1770s, full

roadways were being surfaced with stone, provided in part from the whinstone quarries of the Cleveland Dyke.⁶³ Enough was done to warrant the abandonment of the old waggon and long team, at some date early in the century, and their replacement by the three-horse cart. But the roads might still be bad enough in wet weather for Marshall, visiting in 1757, to express surprise that this change had been possible.⁶⁴ Waggon were still in use on the moorland route to Helmsley, Pickering and Malton.⁶⁵

Early eighteenth century Cleveland, therefore, was a pre-dominantly grassland region of enclosed pastures and meadows, which were gradually being sub-divided into plots of convenient size for livestock management. Arable farming was considered as a secondary branch of the industry, in which age-old techniques were largely unchanged. The traditional rotations continued F, 1; 0 or Pu. All tenants were required to conform to this pattern. An Ingleby Greenhow tenant in 1777 might not

Crop or sow above two years together, any of the Arable Lands ...but every third year, permit the same to be fallowed and unsown according to the Custom of the Country, and the seasons thereof.⁶⁶

On the very heaviest, or on neglected, land fully half the arable might be fallowed yearly.⁶⁷

The spread of turnips as an alternative to the bare fallow was hindered by the unsuitability of heavy clay soils, as much as by local conservatism. But by the 1760s, though absent from whole townships, they were known in others. In 1760 they were grown in

Stokesley and in Goulton the latter a plot of 9 acres on a medium heavy clay loam.⁶⁸ Ayton and Kildale had limited crops in 1770,⁶⁹ but it took a further twenty years for the practice to become at all widespread. Even then, the crop was often sown broadcast and not hoed. Potatoes began to be grown on a small scale from mid-century. They had been grown commercially in Weardale from about 1720,⁷⁰ but were not grown in Stockton until 1736.⁷¹ Many landlords disapproved of their cultivation. Cabbages were an innovation in 1770 and were the perquisite of experimenting gentry.⁷²

The common farmer had earlier adopted rape. It was grown in the Moor dales at least as early as 1687,⁷³ and at Northallerton in 1672.⁷⁴ Rape was used as a first crop, after paring and burning old grass with the intention of a long-term conversion to arable. It was grown for its seed, never fed.⁷⁵ Its history at Newby is known. In 1758 the Rector of Stokesley was attempting to exact tithe of a crop of rape. Investigation showed that the crop had been introduced shortly before 1710, when a 12-acre parcel was sown. In 1710, another farmer grew the crop and repeated it in another 12-acre close the following year. Four acres were sown in 1723. In 1750 was grown the 11 acres which precipitated the investigation. there were no other instances. An incidental outcome of this enquiry was the finding that not "any Hemp or flax ever grew there, or that any had tith of Turnips or putatoes there".⁷⁶

Despite the interest in dairying and the fattening of cattle, and a tradition of interchanging grass and arable, one-year clover

leys were unknown. Arthur Young was suitably scathing:

The farmers throughout Cleveland, have to this day [1768] rejected the use of that noble vegetable notwithstanding their possessing a fine rich clay soil, which reason tells one would produce vast crops of it.⁷⁷

Transport difficulties had inhibited the widespread use of lime, which was brought coast-wise from Sunderland, or overland from quarries on the magnesian limestone of South Durham. With the rapid improvement of communications after mid-century, rates of liming upon the triennial fallow increased substantially from 2 chaldrons (each of 32 bushels) upon 5 acres, in the early years, to one or $1\frac{1}{2}$ per acre later. Little natural manure was made available for the arable, although a 1718 lease permitted 10 cartloads of manure in lieu of a chaldron of lime.⁷⁹ By 1765, the arable was receiving more attention and, at Parish Crake, Busby, the tenants were debarred from selling "straw, dung or compost, but to convert to manure and half to spread on the grass the rest where they think fit on the premises."⁸⁰ (Italics mine.) There is little doubt that the arable would receive the benefits of this increased freedom.

The lifting of some of the more restrictive covenants on ploughing out and manuring were symptomatic of the increased interest being shown in crop-farming after mid-century. The arable revival cannot be accurately dated, but it was well under way by 1760. It was based almost entirely upon wheat production and export. In addition to the coastwise trade, there was an increasing demand from the textile manufacturing region of the West Riding and many loads passed along

the turnpikes to Thirsk and Leyburn markets.⁸¹ Some even took the moor road, for sale at Kirby Moorside.⁸² The importance of these inland markets appears to have been reduced when improvements south of the moors and in the Vales of York and Pickering began to tell after 1770, but the Stockton merchants and the maritime trade effectively maintained the demand.

Although the economy and way of life established early in the eighteenth century have left an indelible mark on the West Cleveland landscape, external forces had already begun to pull the region in an entirely different direction by the time of Young's visit in 1768. At that time, the crude balance between arable and grassland had returned to something like what it may have been before enclosure, with about 35% of farmland under plough. But the differences between the two periods were greater than the resemblances. Agriculture now operated at a higher level of commercial efficiency, the farmers had more capital, the land was in good heart. Moreover, no greater contrast could be found than that existing between the land use patterns of the open-fields and those which prevailed on the enclosed farmholds of the 1770s.

¹ D. Defoe, "An humble proposal to the people of England", in W. Hazlitt, ed. The works of Daniel Defoe, (London, 1843), III, 6.

² CRO/ZK 16(e) Charles Turner to Robert Fawell, 1718.
 , the same to Christ. Metcalfe, 1718.

- 3 BI/R III M VIII 2.
- 4 J. W. Ord, The history and antiquities of Cleveland, (London, 1846), p.339.
- 5 BI/ York Diocese, "Valuation of Livings to £50 p.a.," 1707.
- 6 Defoe, A tour thro' the whole island of Great Britain, (G. D. H. Cole, ed, London: 1927) p.656.
- 7 Defoe, "The complete English tradesman," vol.II, in The novels and miscellaneous works of Daniel Defoe, (Talboys and Tegg; London and Oxford : 1841), XVIII, 174.
- 8 T. S. Willan, The English coasting trade, 1600 to 1751, (Manchester, 1938), p.84.
- 9 G. M. Tweddell, A glance at the history of Stokesley, (Stokesley, 1888), pp.6-7.
- 10 For example in Hartlib's Legacie (1651), cited by G. E. Fussell, Farming Systems ... of Yorkshire, (Castle Museum; York: 1946), p.6.
- 11 BI/ R VIII H 4567RR.
- 12 R. Trow-Smith, English husbandry, (Faber and Faber, 1951), pp.156-58.
- 13 J. A. S. Watson and J. A. More, Agriculture, (10th ed; Oliver and Boyd: 1956), p.594.
- 14 J. C. Hodgson, ed., "Northern journeys of Bishop Richard Pococke", SS, C XXIV (1914), 251.
- 15 A. Young, A six months tour through the North of England, London, 1770), II, 133.
- 16 W. Marshall, The rural economy of Yorkshire, (2nd ed; London: 1796), II, 177.
- 17 E. Hughes, North Country life in the eighteenth century, (Oxford, 1952), pp.145-50.
- 18 BI/ Probate inventories, passim.
- 19 J. Tuke, General view of the agriculture of the North Riding of Yorkshire, (Octavo ed, London: 1800), p.243.

- 20 For example, Charles Turner of Kirkleatham as reported by Young, op.cit., p.146.
- 21 R. Lennard, "English agriculture under Charles II", Ec.Hist. Rev., III (1932), p.305 noted its appearance in Howdenshire.
- 22 Tuke, op.cit., (Quarto ed; London: 1794), p.73.
- 23 Marshall, op.cit., (2nd ed.), II, 263.
- 24 Marshall, op.cit., (1st ed; London: 1788), I, 263.
- 25 BI/ R VIII 4567RR.
- 26 Defoe, A tour ..., p.631. Marshall noted a similar evolution later in the century in the Vale of Pickering (op.cit., - 2nd ed - II, 157).
- 27 G. E. Fussell, op.cit., p.19.
- 28 Marshall, op.cit., (1st.ed.), II, 137.
- 29 Young, op.cit., p.152.
Marshall, op.cit., (2nd ed), II, 214, text and footnote.
Defoe described the Teeswater as "the largest Breed of sheep in the whole island" (A plan of the English commerce - 1728; reprint Blackwell: 1929 - p.20).
- 30 Marshall, op.cit., (2nd ed), II, 263.
- 31 E.g. CRO/ZK 16(c), Cholmley Turner to Wm. Jackson, 1740.
- 32 CRO/ZK 16(c), Charles Turner to Robert Fawell, 1718.
- 33 For comment on this practice, see Tuke, op.cit., (Octavo ed.), p.69, footnote.
- 34 WLC/ Kitching Papers, Leases, passim.
- 35 CRO/ Marwood Papers, "Richardson's Survey - 1760", passim.
- 36 CRO/ZDU, Lease of Parish Crake Farm, Busby, 1765.
- 37 CRO/ZDU, Lease for 21 years, Rev. Thomas Stanley to Thos. Watson, 1758.
- 38 Young, op.cit., p.151
- 39 Ibid, p.161. In effect, this practice amounted to an

exploitation of the grassland in an attempt to get some corn. In the lowlands, the intention was to benefit both grass and ploughland.

- 40 E. C. K. Gonner, Common land and inclosure, (Macmillan, 1912), p 89 gives eighteenth century examples of the high costs involved.
- 41 CRO/ ZCQ, Bound Volumes, "Sir Wm. Turner's Rent Book, 1741", gives a record of such expenditure on the Kirkleatham Hospital estates at Barwick and elsewhere.
- 42 CRO/ ZCQ, Maps, "Berwicke upon Teese" n.d.
- 43 Young, op.cit., pp 102-103.
- 44 WLC/ Emerson Papers, "Survey and valuation of the Whorlton Estate, 1806".
- 45 AWW/ Harewood Estate, map of Stainsby, 1757.
- 46 See text, chap. VIII and appendix C.
- 47 CRO/ ZCQ, Maps, "Berwicke upon Teese", n.d.
- 48 CRO/ ZCQ, Bound Volumes, Account Book, 1778-1796.
_____, Rentals, 1807 onwards, 4 vols.
- 49 See figure 54, chap. XI based on sources cited there.
- 50 M. G. Steele, writing in Tuke, op.cit., (Octavo ed.), p 33, footnote.
- 51 LTD-CH/ "A terrier of the Lordship of Crathorne", 1780.
- 52 MPL/ "A survey of the Lordship of Acklam"
- 53 PRO/ MPE 524.
- 54 Kildale is to be discussed (in some detail) in chap. XII.
- 55 CRO/ ZK 18 (3), A survey of Great Busby, n.d.
- 56 TRC/ Great Busby tithe apportionment and map.
- 57 Tweddell, loc.cit.
- 58 Hodgson, op.cit., p 250.

- 59 J. F. Blakeborough, Great Ayton, Stokesley and District, (Middlesbrough, 1901), pp. 18-19.
- 60 Young, op.cit., p.148.
- 61 Tuke, op.cit., (Octavo ed.), p.299.
- 62 Hodgson, op.cit., p.251.
- 63 Young, op.cit., p.113.
- 64 Marshall, op.cit., (1st.ed.), II, 273.
- 65 Tuke, op.cit. (Quarto ed.), p.35.
- 66 WLC/ Goulton Papers, Sir Wm. Foulis to Ann Goulton, 1777.
- 67 CRO/ZDU, Marwood to Wetherell, lease for 7 years, 1765.
- 68 CRO/ Marwood Papers, "Richardson's Survey, 1760", pp 19 and 37.
- 69 Young, op.cit., pp 103 and 159.
- 70 Hughes, op.cit., p.142
- 71 T. Richmond, The local records of Stockton and the neighbourhood (Stockton, 1816), p.41.
- 72 Young, op.cit., p.103.
- 73 J. Chapman, "Changing agriculture and the moorland edge in the North York Moors, 1750 to 1960"(unpublished M.A. thesis, University of London, 1961), p.56.
- 74 BI/ R VIII H 1672.
- 75 Young, op.cit., p. 159.
- 76 BI/ R Bp 5 81/87.
- 77 Young, op.cit., p.130.
- 78 CRO/ Kirkleatham and Marwood Papers, various leases.
- 79 CRO/ZK 16 (5), Charles Turner to Robert Fawell. It was probably the landlord's intention that this manure should be purchased, since the produce of the holding had to go on the grass.

- 80 CRO/ZDU, Lease of Parish Crake Farm, Busby, 1765.
- 81 G. Rennie et als, General view of the agriculture of the West Riding of Yorkshire, (Quarto ed; London: 1795), p.25, commented: "The corn markets /of the West Riding/ are full as high as in any part of the island; there not being anything like a sufficient quantity raised ... for the consumption of its inhabitants."
- 82 Tuke, op.cit., (Quarto ed), p.35.

CHAPTER XI

NEIGHBOURHOOD PRACTICE AND THE IMPROVER

- FARMING PATTERNS, circa 1770

Arthur Young noted a fundamental dichotomy in West Cleveland farming at the time of his visit. The majority of farmers were entirely traditional in their approach, but a few "improvers" were experimenting locally with the crops and techniques of the "New Husbandry." A number of estate surveys permit demonstration of the land use patterns associated with the two attitudes. Furthermore, they give an indication of continued contrasts between the various parts of the region, despite their inadequacy as a basis for overall mapping. The chapter is divided into two parts. The first examines the more typical traditional farming, whilst the second is devoted to the "improved" agriculture practised by the few.

The Common Management of the Neighbourhood¹

To illustrate his discussion of local practice, Young gave statistical summaries of a number of farms, which he had selected as being typical.² Their special value lies in the livestock figures which he included, but the sample can also serve as a standard against which the representativeness of other surviving material may be measured.³ His selection was consciously top-heavy, including a rental range of £50 to £130 while his text gave £20 to £60 as the range of rents generally found. Accordingly, the smaller holdings (threshold 20 acres) have been eliminated from the surviving survey material. Data of the test are given in table XXVI. The survey material shows higher mean acreages, but lower mean rents than Young's sample, which has slightly

less land under the plough. However, these differences are statistically insignificant,⁴ and each group therefore confirms the general validity of the other.

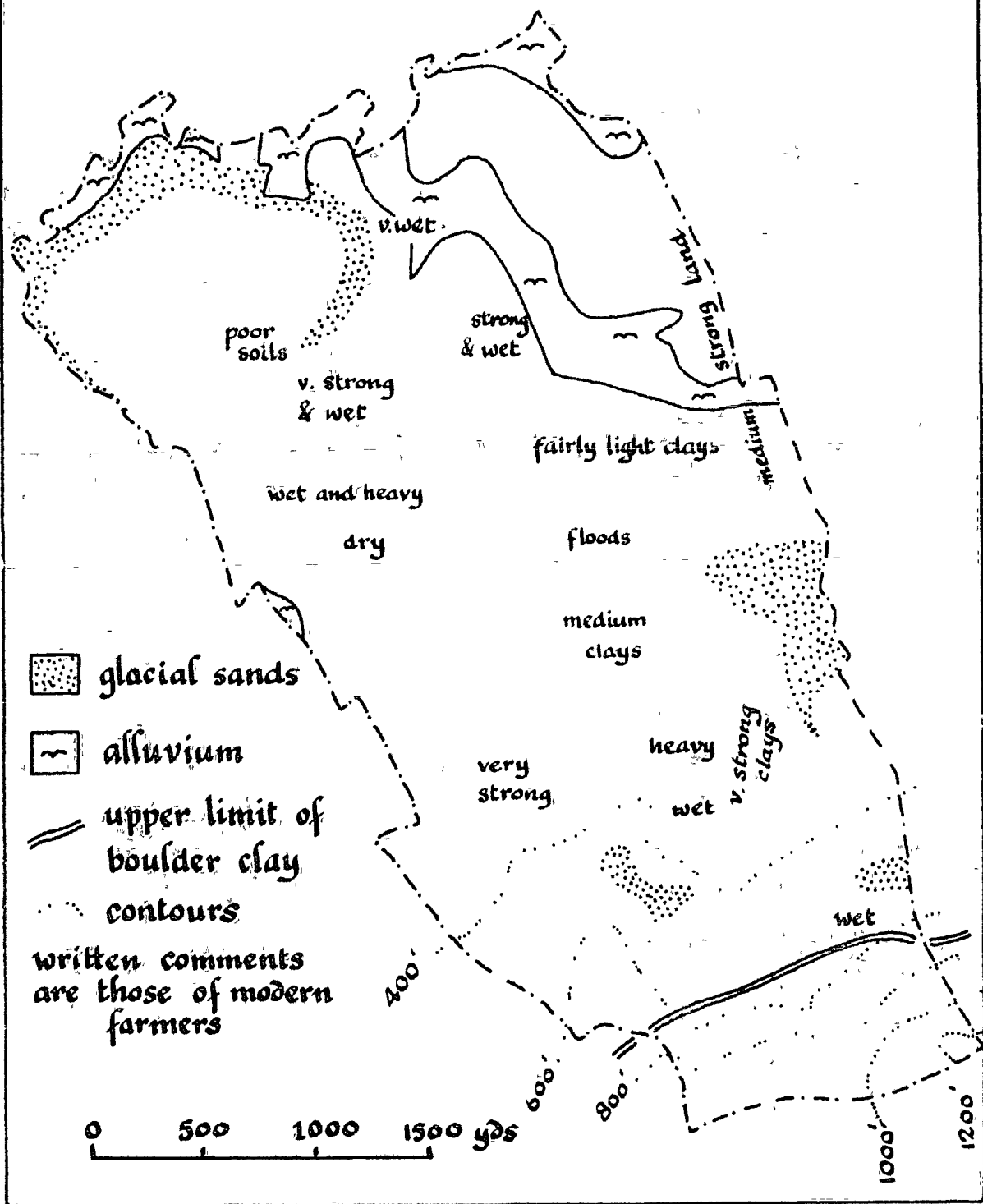
TABLE XXVI - A comparison of surviving survey material with Young's sample of lowland farms, circa 1760

Reference numbers	Young's sample		Rent	
	Acreage	Percentage arable	Total £.	Per acre s.
I	100	40.0	50	10.0
II	180	33.3	..	..
III	230	39.2	130	11.3
IV	100	30.0	70	14.0
V	95	31.6	62	13.0
VI	100	40.0	70	14.0
Mean	134	35.7	76	12.5
Best estimate of the standard deviation	63.1	4.8	34.8	1.5
Standard error of mean	25.8	2.0	15.5	0.7
Summary data of 33 farms detailed in surveys				
	Acreage	Percentage arable	Rent	
			Total £.	Per acre s.
$\bar{x}$	146	37.2	85	11.2
σ	66.8	9.5	40.4	2.3
S.E. $\bar{x}$	11.6	1.8	7.5	0.4

Although fragmentary, the survey material covers a considerable total acreage; but more significant, is the fact that it is representative of a range of environments extending from the summit of the Cleveland Hills escarpment well out into the clay vale below. The principal sites not represented are those of the upland valleys and the belts of sandy loam and lacustrine marshland on the Tees plain, but other evidence can be adduced for these areas. These skeletal

FIG. 48

Busby - some elements of the environment



data strongly suggest that the basic distribution pattern of land types had changed little since the 1680s, despite overall fluctuation of the arable ratio in the interim.

TABLE XXVII - Farms at Great

and Little Busby, circa 1760

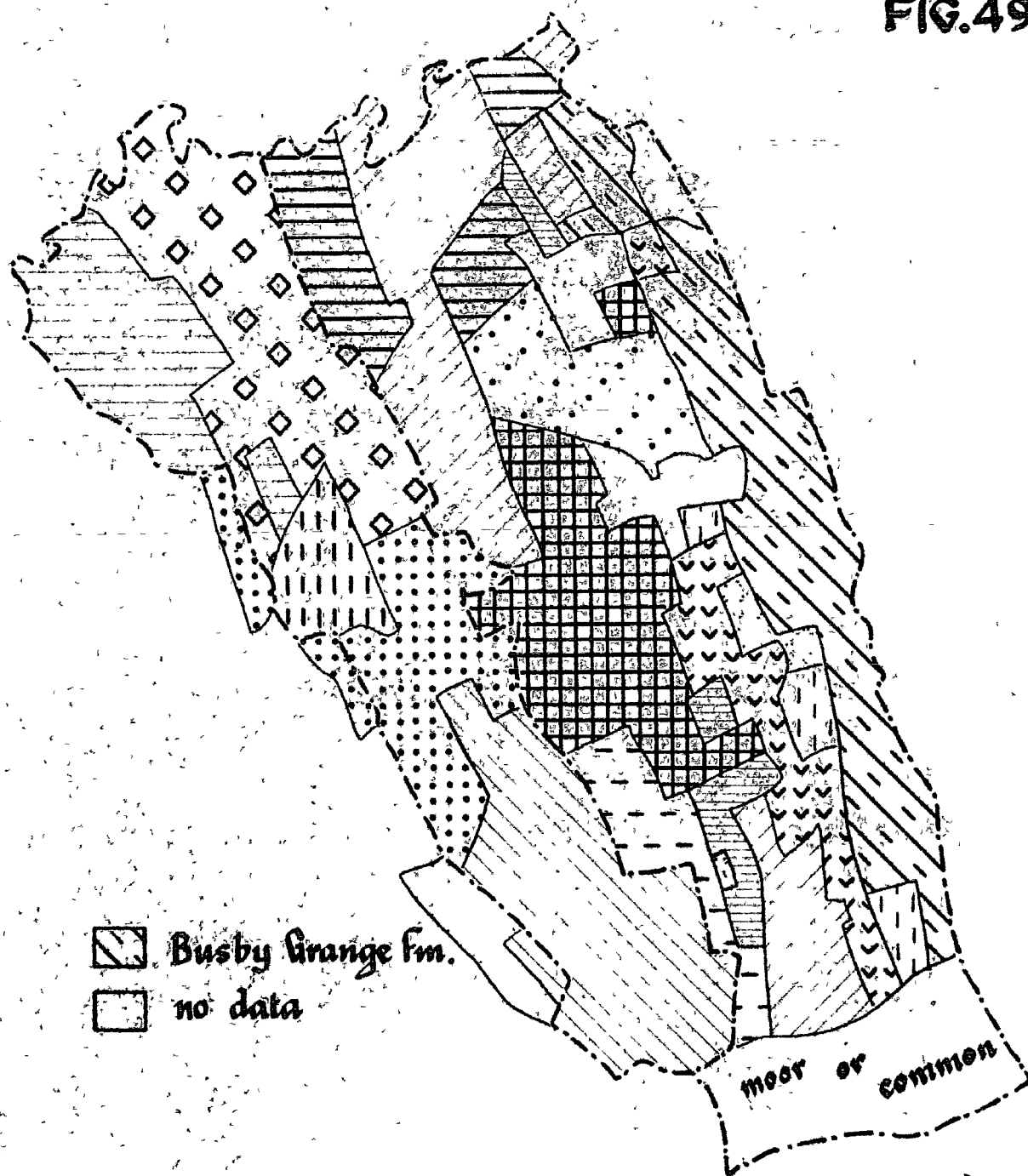
Farm	Tenant	Acreage	Land Use %			Valuation for rent	
			Arable	Meadow	Pasture	Total £	Per acre s.
-	Ableson	23	10.0	40.5	49.5	13	11.3
-	Kilburn	37	35.6	17.3	47.1	32	17.3
-	H.Rodgers	52	30.9	21.6	47.5	26	10.0
Bagdale							
House	J. Rodgers	66	27.3	18.9	53.8	31	9.4
Cote House	W.Flintoff	95	33.4	19.3	47.3	45	9.5
Busby House	W.Easby	113	40.8	23.7	35.4	56	9.9
Crabtree							
Hill	H.Pickering	128	31.2	25.8	42.8	56	8.8
Great Busby							
Farm	T.Weatherill	128	35.5	27.1	37.4	63	9.8
Busby Hall	Mrs. Turner	139	21.7	33.3	45.0	94	13.5
Viewley Hill	T. Tod	184	38.4	21.9	39.7	102	11.1
Carlton Farm	P. Bateman	185	27.5	30.0	42.5	114	12.3
Parish Crake	W.Kitching	214	41.3	20.9	37.8	100	9.3
Manor House	M.W.	248	38.0	21.0	41.0	129	10.4
Busby Grange	A. Story	253	26.2	16.0	57.8	146	11.5
Means		133	31.3	23.1	44.6	72	11.0
Best estimate of the							
standard deviation		75.7	8.4	8.9	6.3	42.08	2.26
Standard error of mean		20.24	2.24	3.38	1.68	11.25	0.60

The townships of great and Little Busby extend northward a distance of some $2\frac{1}{2}$ miles from the scarp summit at 1250 ft. O.D. to the River Leven at some 200 ft. O.D. (Fig.48). Most of this descent takes place on steep, wet and unstable Lias and boulder clay slopes within the first half mile. Slopes are generally moderate below 400 ft. O.D. Except on a few isolated patches of sandy loams or alluvial silts, and

OCCUPATIONS

circa 1760

FIG.49

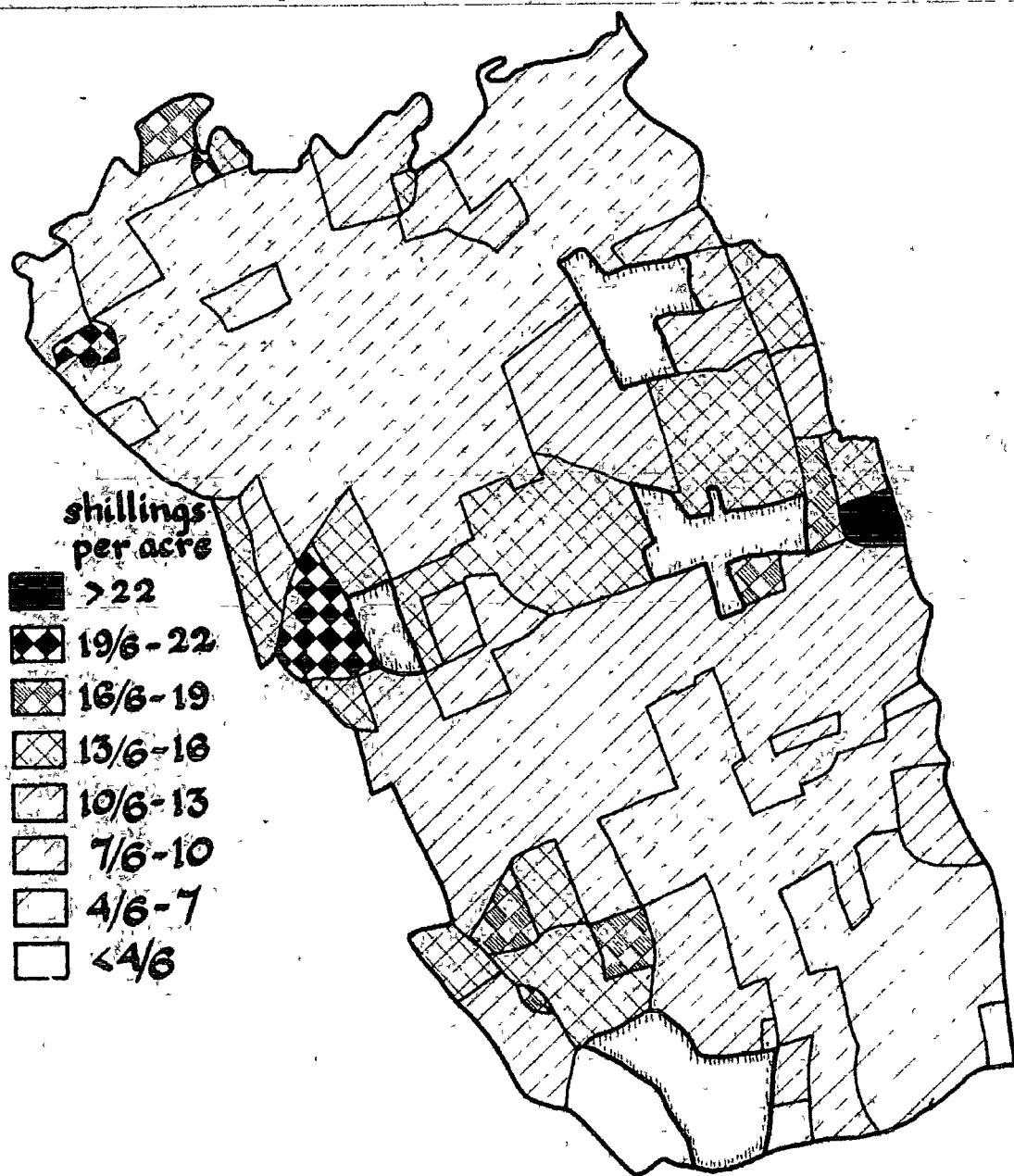


Sources: Estate Surveys

P.K.M.

VALUATION FOR RENT circa 1760 GREAT AND LITTLE BUSBY

FIG. 50



Sources : Estate Surveys

Statistical unit : field

P.K.M.

on the slight slopes of occasional boulder clay knolls, drainage is a problem on heavy to medium clay soils.

In 1760, the land was occupied as is shown in figure 49. Most of the larger farms were slightly fragmented, but the outlying portions were usually small. There was a clear tendency for farms to run in strips downslope parallel to the township margins. Busby Grange Farm is the most extreme example, and although boundaries of this type ensure a range of land potential, it has never been a convenient farm to work.

The contemporary valuation of the land (Fig.50) varied over wide limits. Clearly identifiable is a transverse zone of high values including Great Busby village with a smaller cluster around Busby Hall. In the north-west, less heavy and well-watered patches were highly valued, but in general the heavy, ill-drained and often hungry, lands of the north were less well thought of than the area between the village and the foot of the scarp. Although the field-by-field valuations varied over the range 4s. to 25s. per acre, overall farm rents ranged less widely around the mean of 11s. per acre (Tab.XXVII).

As to land use, table XXVII shows that the proportions of the three principal uses were, on the average farm, one third arable, one quarter meadow and the balance pasture. Little of the pasture was rough grazing. Variations are again considerable, the smallest holding showing a mere one-tenth arable, while on two farms this rose to over 40%. A tentative correlation between size and arable emphasis has to be abandoned as probably not significant. Nor is it easy to

BUSBY: LAND USE circa 1760.

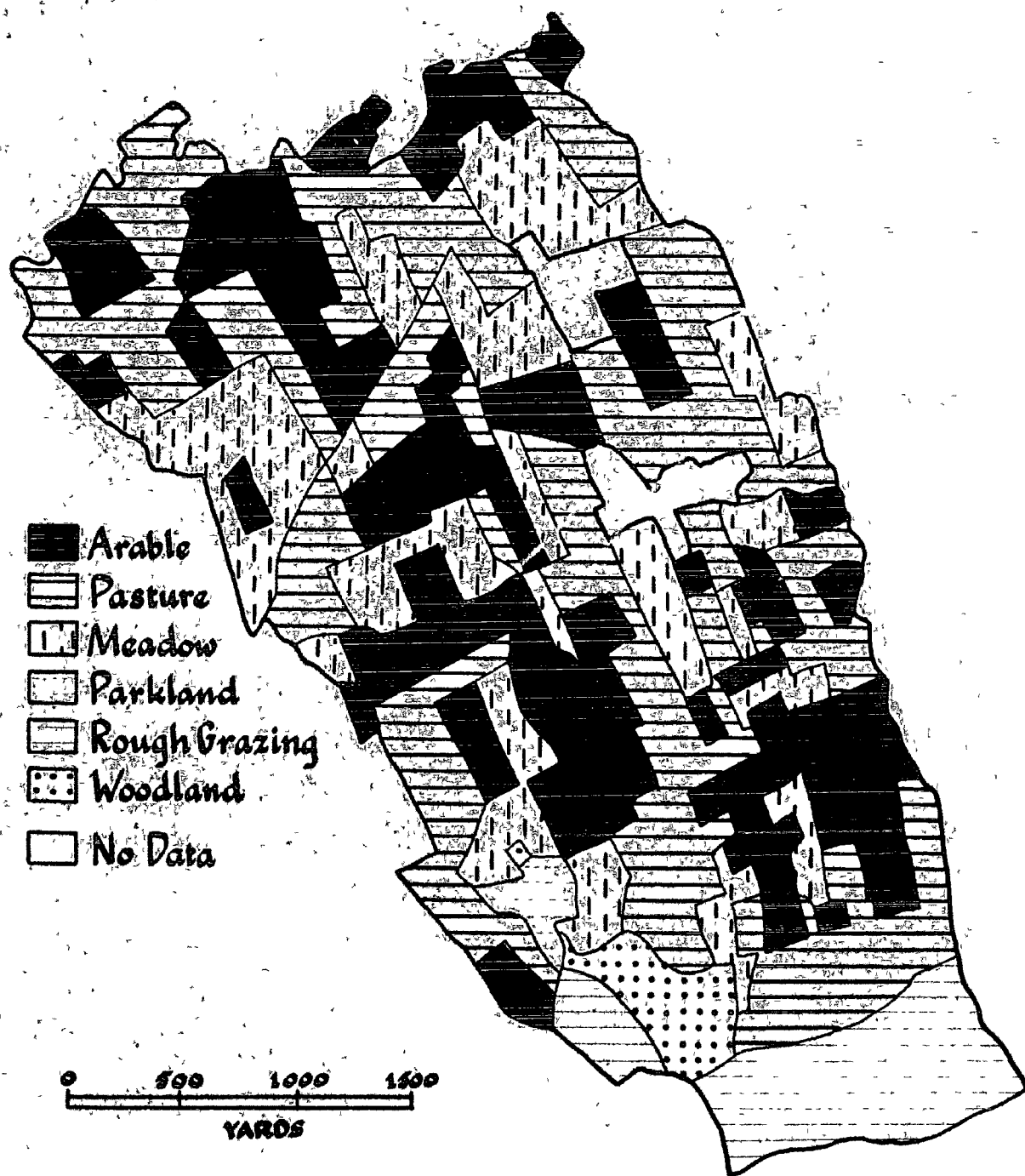
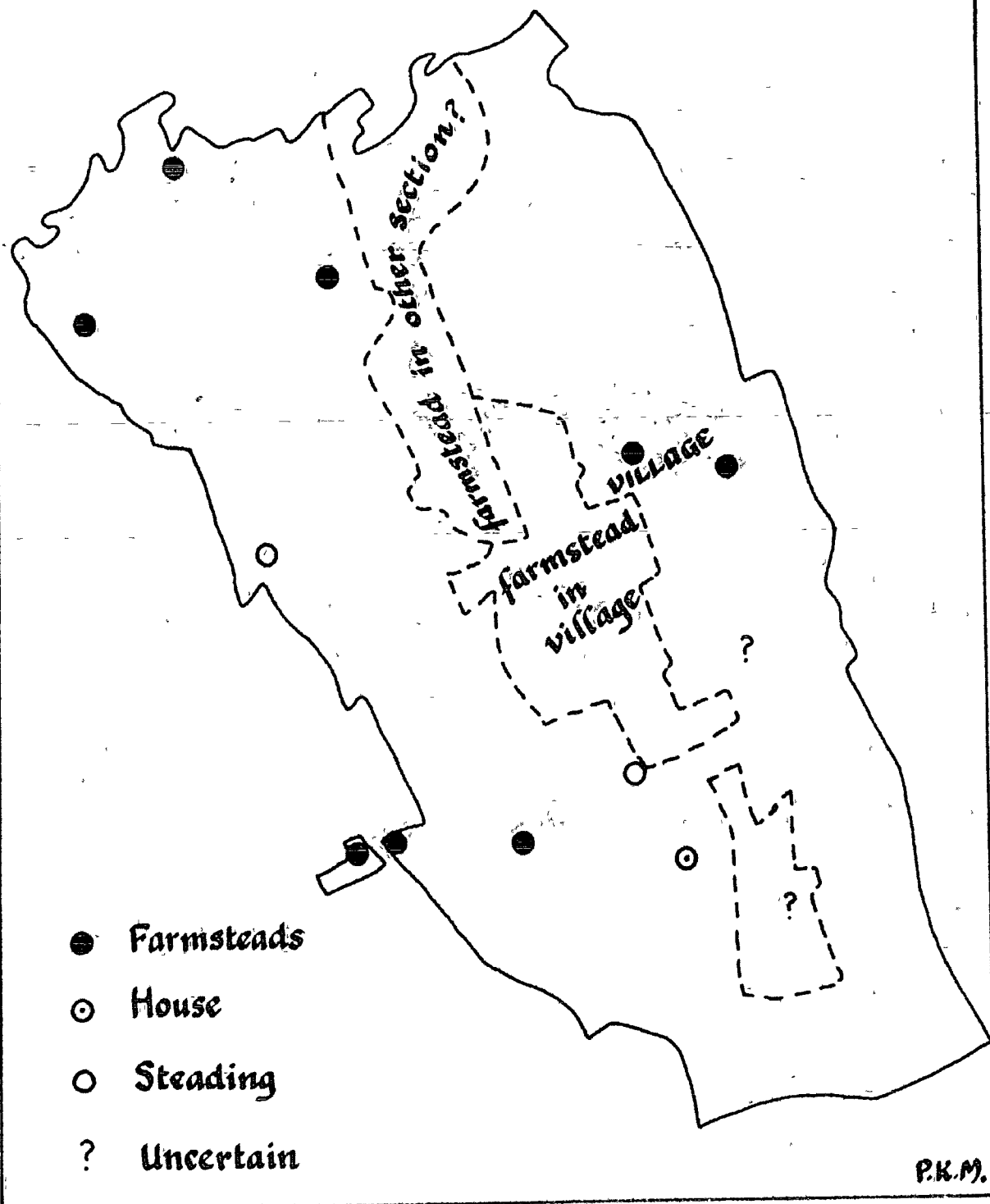


FIG. 52

BUSBY HOMESTEADS ~ 1760 cf. Fig. 49



perceive any meaningful patterns in the mapped distribution of arable (Fig.51), apart from the obvious avoidance of the higher, steeper slopes. The 500 feet contour and slopes in excess of 8.5 degrees were the effective limits. On each farm, the meadow area tended to vary inversely with the arable acreage, as those farmers with few saleable grains gave greater attention to the wintering of their stock. There is some suggestion of a concentration of meadow on the poorer lands north of the village. On individual farms, hay land tended to be rather remote from the homestead, while some pasture always adjoined the buildings (Fig. 52). The proportion of pasture varied from farm to farm between the relatively narrow limits of 35% to 50%. Within Busby Hall Farm there was a little rough grazing and also some much superior parkland. The occupation of the 120 acres of Great Busby "Moor or Common" is unknown. Upon the knoll behind the Hall, woodland (which had formerly been grazed) was at this time being brought under more serious forest management.

At Newton and Nunthorpe, environmental conditions are dominated by drainage problems (Fig.53). Cutting across the natural line of drainage to the south is a ridge of morainic material and shales heaped upon a core of whinstone. Surface waters from a large catchment to the north find their way through two gaps in the ridge, but the available fall is very limited and flooding is recurrent along the banks of the two stells which join to the south as the River Tame. Large spreads of alluvium floor the areas liable to flood. In direct contrast are the droughty sandy soils developed on patches of glacial

Newton / Nunthorpe ~ edaphic factors

half mile

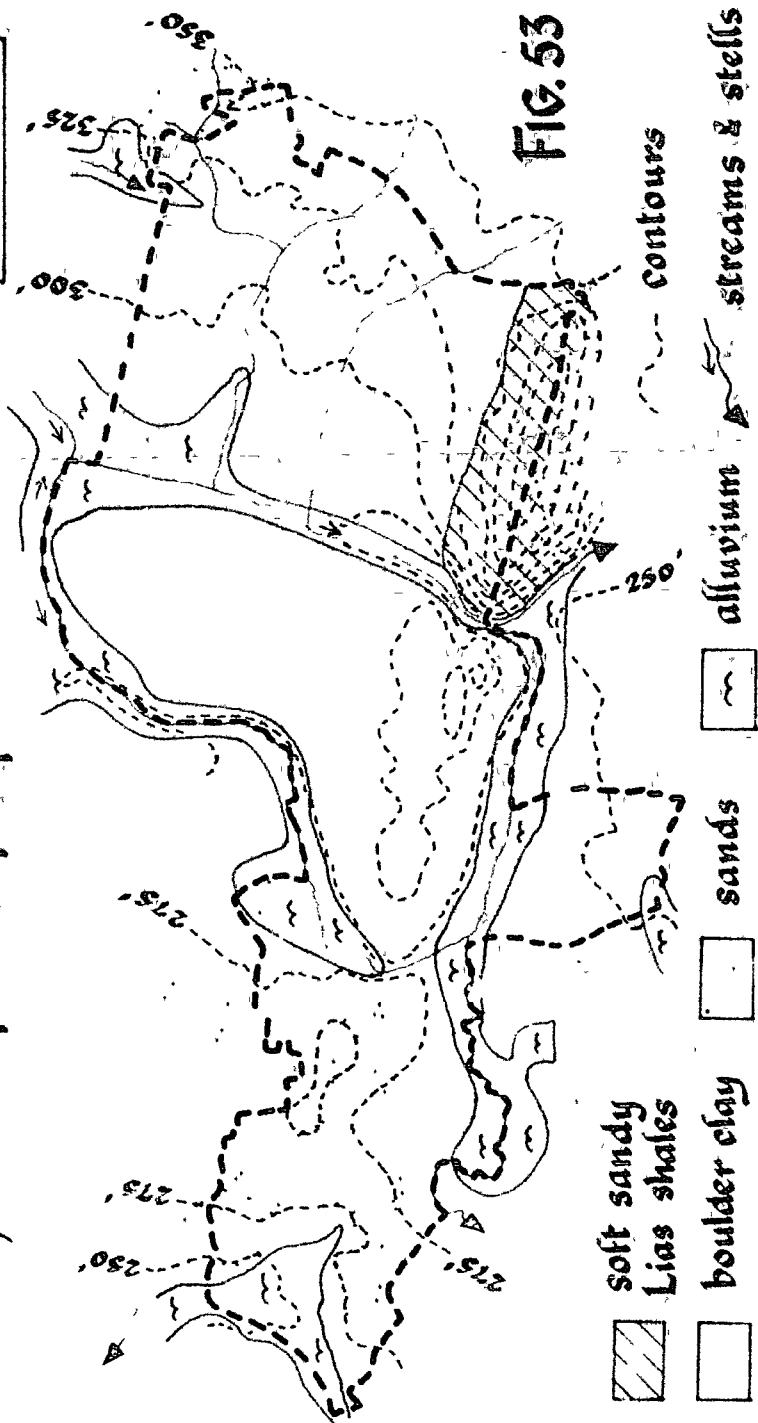
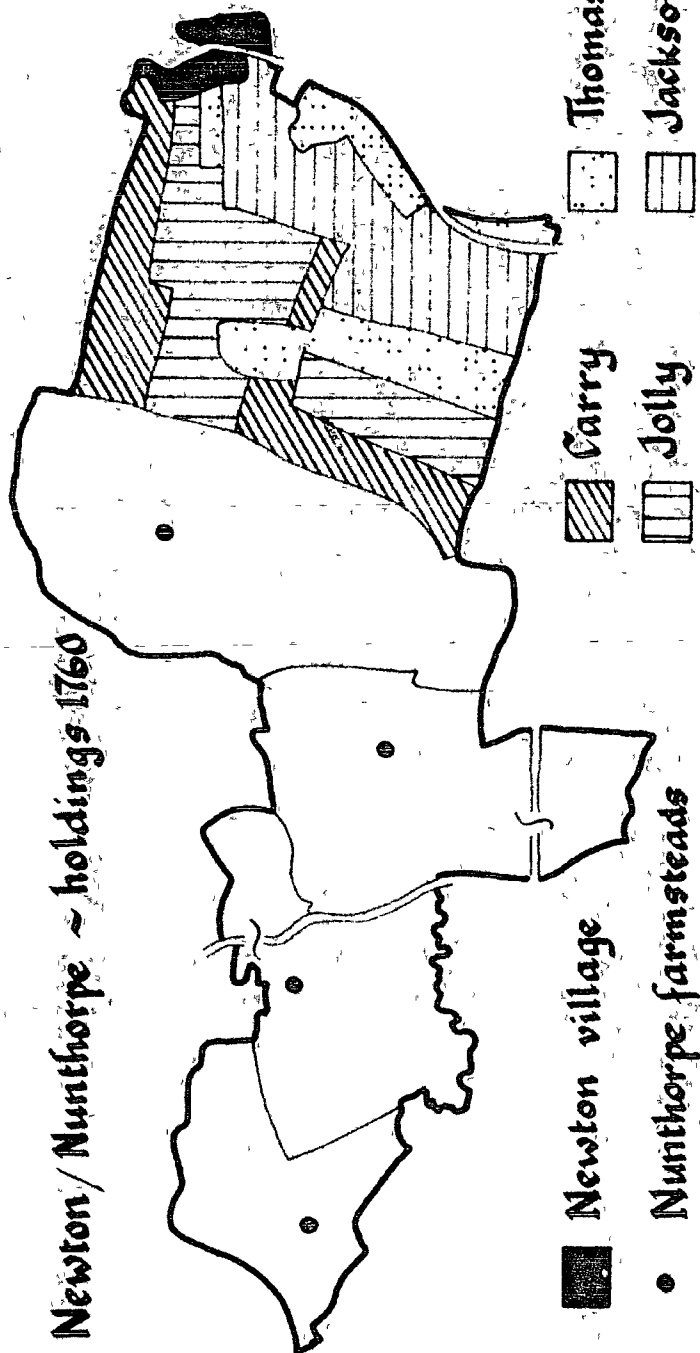


FIG. 53

FIG. 54

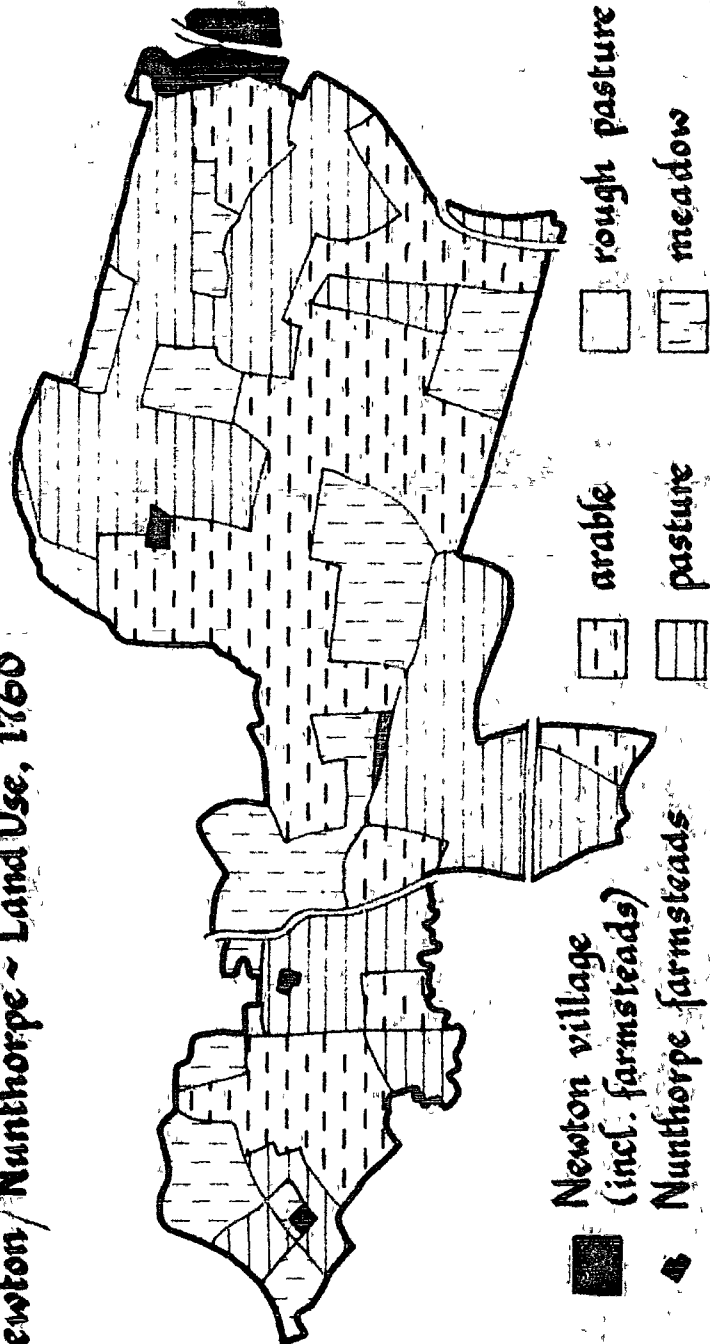
Newton / Nunthorpe ~ holdings 1760



P.K.M.

Newton / Nunthorpe ~ Land Use, 1760

FIG. 55



sands, especially in the west at the significantly named Ryehill Farm. Lighter soils are also developed on the Lias shales in the east and surface drainage is no problem on these steeper slopes, but is a considerable embarrassment on the medium to heavy clay loams underlying the remainder of the area.

The Nunthorpe farms were larger than those in Newton and were unfragmented (Fig.54). It is also noticeable that, with one exception, greater emphasis was placed on arable farming on the newly-enclosed Newton farms (Tab.XXVIII). As is indicated by the details for the

TABLE XXVIII - Farms at Nunthorpe
and Newton, circa 1760

Farm	Tenant	Acreage	Land Use %			Rent Valuation	
			Arable	Meadow	Pasture	£	Per acre s.
East Field	M.Sayers	244	33.8	18.2	48*	122	10.0
Quarry Hill	M.Masterman	178	37.2	12.2	50.6+	90	10.1
-	Wm. Lott	138	33.0	21.4	45.6	69	10.0
Ryehill	Wm.Parkins	104	27.4	20.2	52.4*	60	11.5
(	J. Jolly	103	32.3	33.0	34.7	..	..
(	R. Jackson	104	45.2	10.7	44.1	..	..
Newton	W. Thomas	75	45.4	15.1	39.5	..	..
(	R. Carry	88	48.8	16.3	34.9	..	..
$\bar{x}$		129	37.9	18.4	46.2	85	10.4
σ		56.4	7.7	7.0	12.2	27.6	0.7
S.E. $\bar{x}$		20.1	2.5	4.35	4.35	13.8	0.35

* includes 7.1% rough grazing

+ includes 3.2% rough grazing

* includes 8.6% rough grazing

three 100-acre holdings, the land use ratios were entirely independent of farm size. Turning to the land use map (Fig.55), two features are evident. The fields furthest from the farmstead were usually either

Crathorne ~ aspects of the environment

half mile

FIG. 56

-  boulder clay plateau
-  glacial sands
-  steep valley-side slopes ~ mainly sandy
-  alluvium

PKM

arable or meadow, and the arable tracts tended to occupy relatively dry sites. This is especially well marked in the west (farms of Lott and Parkins) where the arable proportion was low. In every case, rough grazings were associated with poor drainage.

Four main types of site are found at Crathorne. Overwhelmingly dominant is the gently undulating boulder clay plateau on which surface drainage, though sluggish, does not pose the same problems as at Newton/Nunthorpe (Fig. 56). Cutting through this plateau, and incised some 75 feet below it, is the River Leven, bordered by rich gravelly terrace loams. The slopes expose beds of fluvio-glacial sands and sandy gravels. In the south-west, along the banks of the slowly flowing Picton Stell and surrounding West Moor Farm is an area of heavy alluvium with a high water table. As already mentioned (chapter ten), Crathorne retained a significant number of smaller holdings (Tab. XXIX and Fig. 46), but there was an equal number of large holdings.

TABLE XXIX - Distribution of holdings by
size in Crathorne Parish, 1780

Size range (acres)	Frequency	
	Absolute	Percent
2 to 9.9	14	48
10 to 19.9	1	3
20 to 30.9	2	7
40 to 79.9	-	-
80 to 159.9	5	17
160 and over	7	24

The average farm at Crathorne had over 40% of its land under the

FIG. 57

Crathorne

Valuation for Rent, 1780

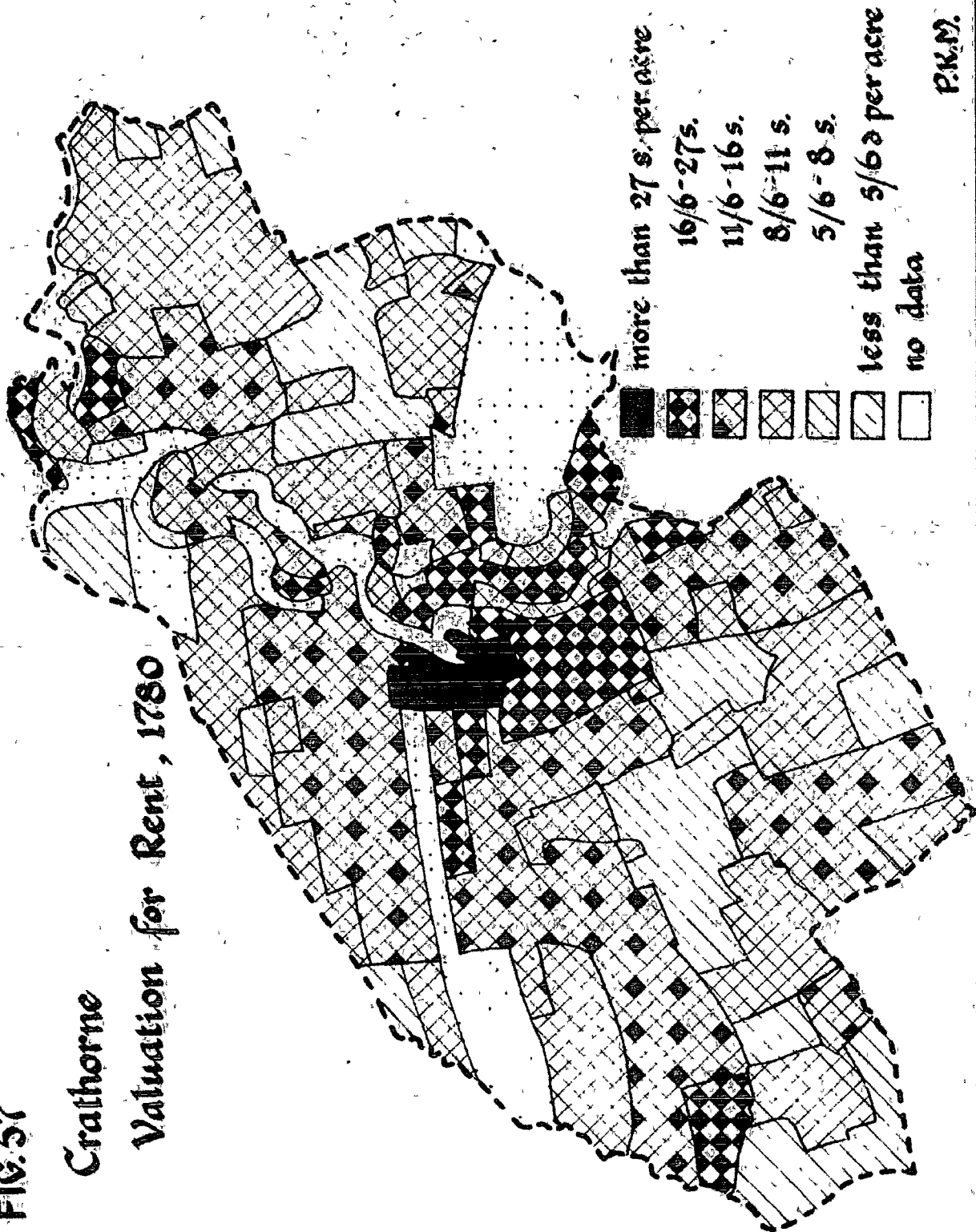
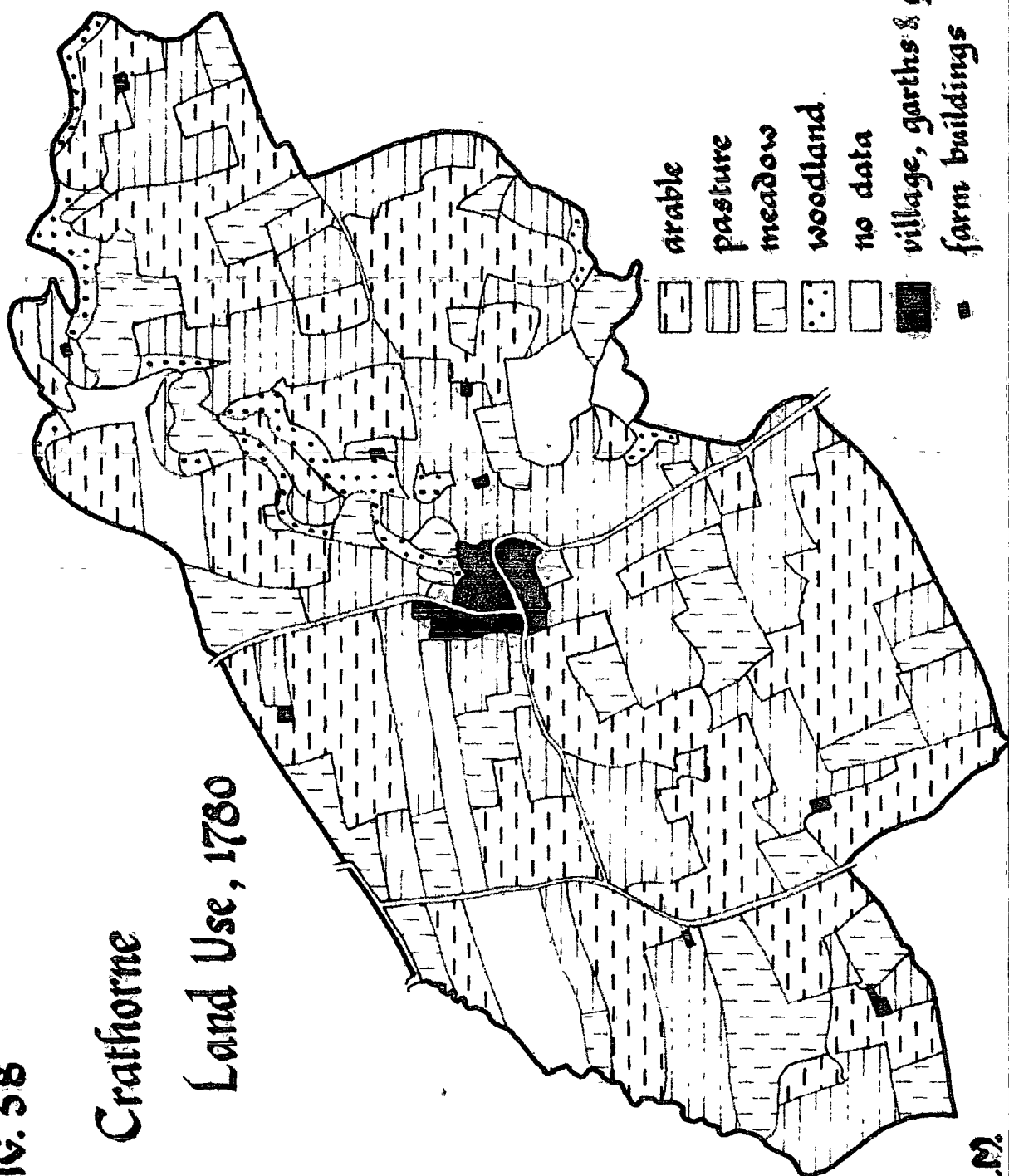


FIG. 58

Crathorne

Land Use, 1780



P.K.M.

plough and some of the larger farms had over one half so used (Tab.XXX). Less than one quarter was meadow and the pastures amounted to one third. The latter class of land use showed, as at Busby, less farm-to-farm variation than the others. Rents were higher than in the other localities and varied rather more between farms. The most highly valued land lay on the alluvial terraces and on the clays about the village: the least valued were the sandy river bluffs and certain peripheral areas especially in the ill-drained south-west (Fig. 57). Most of the highly valued terraces were under grass, but a few were ploughed (Fig. 58). In general, the arable was spread evenly over the clay areas, although the immediate neighbourhood of the village was avoided. The river bluffs were devoted to estate woodland, with some areas of poor pasturage.

TABLE XXX - Crathorne farms, 1780

Tenant	Acreage	Land Use %			Rent Valuation	
		Arable	Meadow	Pasture	Total £	Per acre s.
R. Hamble	147	43.0	24.5	32.5	60	8.2
R. Foster	197	46.7	23.0	30.3	130	13.2
J. Robinson	208	50.0	16.1	33.9	110	10.6
R. Joicey	91	47.5	30.4	22.1	58	12.7
H. Meynell	151	31.3	32.3	36.4	93	12.3
J. Thompson	205	46.1	21.3	32.6	118	11.5
R. Saunderson	223	50.8	12.7	36.5	98	8.8
J. Cooter	207	50.3	18.5	31.2	116	11.2
T. Stringer	144	32.3	13.3	24.4	81	11.3
J. Flounders	258	41.1	13.5	45.4	186	14.4
J. Pasman	95	47.0	6.0	47.0	74	15.6
Wm. Robinson	33	54.5	22.7	22.8	14	8.5
R. Welford	20	-	57.2	42.8	18	18.0
$\bar{x}$	152	41.6	22.4	33.7	89	12.0
σ	81.3	14.1	12.8	7.9	46.5	2.9
SE $\bar{x}$	22.58	3.91	3.55	2.19	12.91	0.80

Taken together, these three localities provide a useful cross-section. The progressive increase in the proportion of arable and the reciprocal decrease of grassland accords well with the gradation from the scarp-foot zone into the lowlands proper (Tab. XXXI). However, the contrast proves to be statistically significant only between the Busby group and Crathorne in the case of arable and pasture. Also significant are the contrasts in the amount of meadow between Newton/Nunthorpe and Busby. The difference in the proportions of pasture between Newton/Nunthorpe and Crathorne is probably, but not certainly, significant.

TABLE XXXI - Summaries for three sample localities,

circa 1760 to 1780

Sample	Acreage	Land Use %			Rent Valuation	
		Arable	Meadow	Pasture	Total £	Per acre s.
Busby group	133	31.3	23.1	44.6	72	11.0
Newton/Nunthorpe	129	37.9	18.4	46.2	85	10.4
Crathorne	152	41.6	22.4	33.7	89	12.0

It is, however, of great interest to note that the broad regional trends suggested in figure 43 for the late seventeenth century gave the same basic pattern. The continued emphasis on arable at Newton is most intriguing. The contrasts apparent in table XXVIII suggest that Newton is in some way a special case. It is difficult to see the causes in environmental or tenural factors. Might not the continuation of a tradition of arable farming in the so-recently enclosed open-fields form some explanation? Or is it that the economic balance had

shifted in favour of corn growing as early as 1741, and that other townships, longer enclosed and with considerable resources in old, but still unexhausted, grass, were slow to react? Data is unfortunately not available for Faceby, where only might the hypothesis be tested. For so early a swing, there is little evidence. At Barwick the ploughing penalties disappeared in leases of 1740,⁵ but the full significance of this is uncertain, especially when it is observed that leases issued at Busby in 1758⁶ and at Ingleby Greenhow in 1777⁷ retained the penalty. At Marton, when arable was increasing in 1784, it was omitted.⁸

There is also limited evidence for continuity of land use emphasis in the north-eastern pastoral zone. A single 112-acre farm at Thornaby in 1783 had 22 acres, or 19.7% of its area, under the plough.⁹ In view of the wide deviations found in the data already discussed, a single case certainly cannot prove a regional contrast, but it is a fact that not a single farm of this size listed in tables XXVII to XXX, had as little arable as this.¹⁰ The chances of so low a value occurring among the data from the three sample localities are as low as 1 in 14. Stronger support for the idea of a continuity of pastoral emphasis in this sector comes from a literary source of great reliability - John Graves, who wrote of Ormesby in 1808:

There are no considerable grazing or dairy farms within the parish; the produce of grain, since its great advance in price, being more an object of the farmer's attention, than the breeds of horses, cattle and sheep for which, about thirty or forty years ago this parish and neighbourhood were particularly noted.¹¹ and again... The lands near the River Tees, at Thornaby and Berwick, are ... chiefly in grass."¹²

According to Marshall,¹³ Kildale was at this time "a neglected

valley." Scugdale was in very much the same state.¹⁴ Young visited the former and gave particulars of two farms (Tab. XXXII). Unfortunately

TABLE XXXII - Two Kildale farms, 1768.

Young's reference numbers	VII	VIII
Arable acreage	12	10
Grass acreage	100	30
Moorland acreage	50	46
Total acreage	162	86
Total rent (£)	60	34
Rent per acre (s.)	7.4	7.9
Arable-percentage improved land	10.7	25.0
Grass-percentage improved land	89.3	75.0
Ratio of moorland to improved land	44.6	115.0

neither can be identified on the ground. Both appear to have been demesne tenements, since the ordinary commons were still un-enclosed at this date. Specific acreages of moorland could only be allotted on the demesne Coate Moor (chapter seven). For calculating the proportions of arable and pasture, moorland (being "un-improved" land) is excluded. Even so, the arable ratio falls below 17%, which is appreciably less than the 1623 value but in agreement with the estimate for 1707 (chapter ten). To this upland environment, the arable revival had scarcely penetrated, although the Rector was beginning, by his own example, to stir up an interest in root and clover production as arable aids to livestock rearing. However, for the time being, in the valleys, as in the northern zone, grass was dominant.

So far as patterns can be established therefore, it would seem that they mirror those of the 1680s. In the areas formerly devoted to grass, the arable ratio was as low (if not lower) than it had been.

By contrast, arable cultivation, having revived from an early eighteenth century trough, was at a higher level than in the 1680s in precisely these areas where it had earlier been most important.

The crops which were being grown on this extended arable acreage were the traditional ones, except that rye and maslin had virtually disappeared in the lowlands, and the reduction of barley cultivation had continued. Limited data suggest 43.4% of wheat, 42.7% of oats, 8.0% of pulses and 5.9% of barley as average values. F; W; O was still the standard rotation - almost exactly one third of the arable was annually fallowed. Young's written comments on Kildale¹⁶ indicate a continuing interest there in maslin, and even pure stands of rye were grown. Turnips had made more progress there than was general in the lowlands. This was probably a reflection, both of the lighter lands of the Kildale moraine and of the intakes of the Lias bench, and of the demands for winter fodder in an area where spring growth of grass is slow.

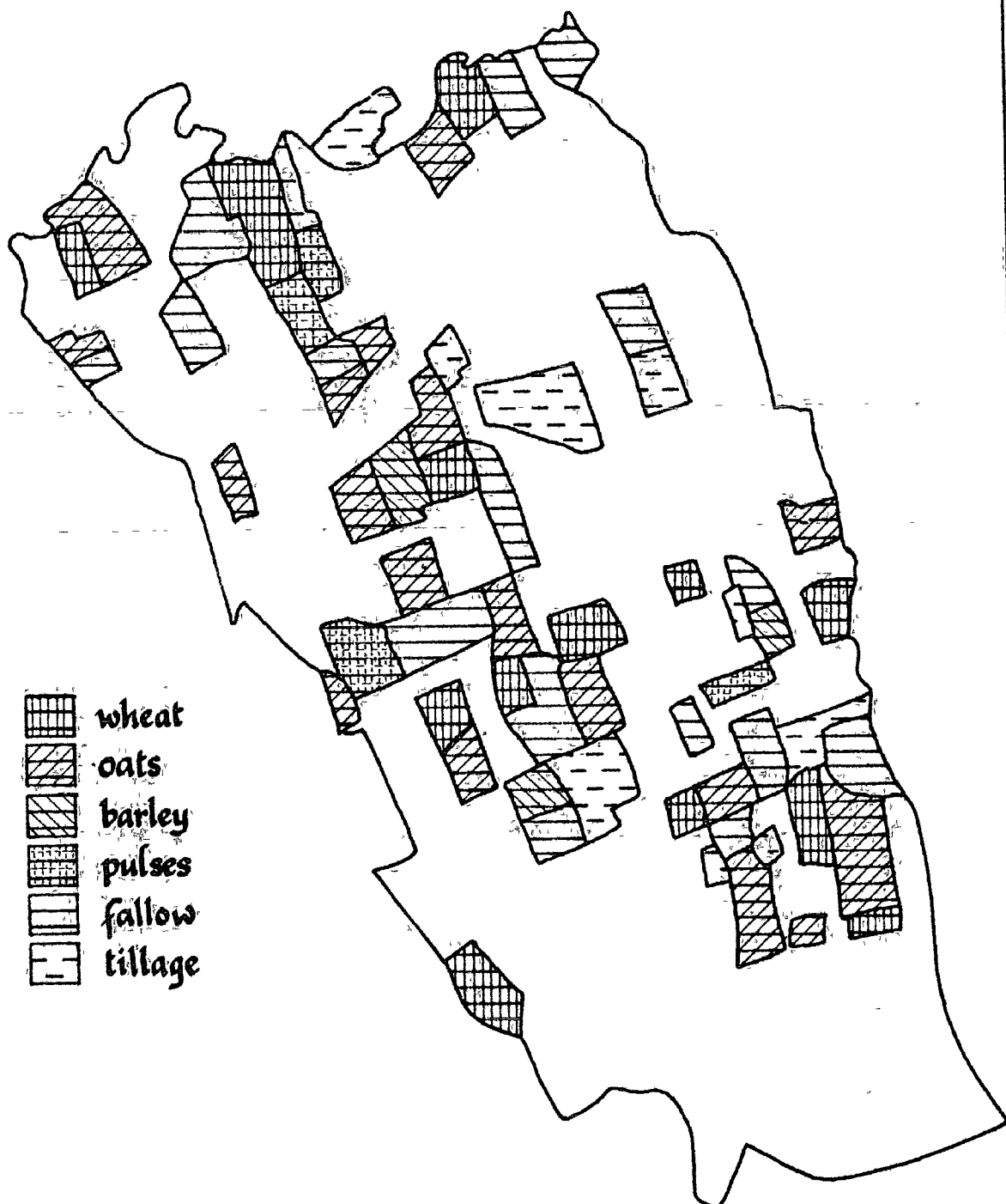
TABLE XXXIII - Crop yields in 1768 (after Young)¹⁷

Yield in bushels	Lowlands	Kildale	
		Old enclosures	Intakes
Wheat	25	20	..
Rye	..	30	27
Maslin	..	30	27
Barley	40	..	..
Oats	40	40	..
Rapeseed	40	40	32
Turnips	£2 - £4	£2 - £3	..

The contrasts in crop yields (Tab. XXXIII) between the different environments were rather less than might be expected. Where grown,

FIG. 59

Busby ~ crop patterns in 1760



P.K.M

turnips were fed off with sheep and only a cash value is available.

The detailed distribution of individual crops showed a closer relationship to the environmental factors than did the crude categories of land use, but information is less full.

TABLE XXXIV - Crop proportions in

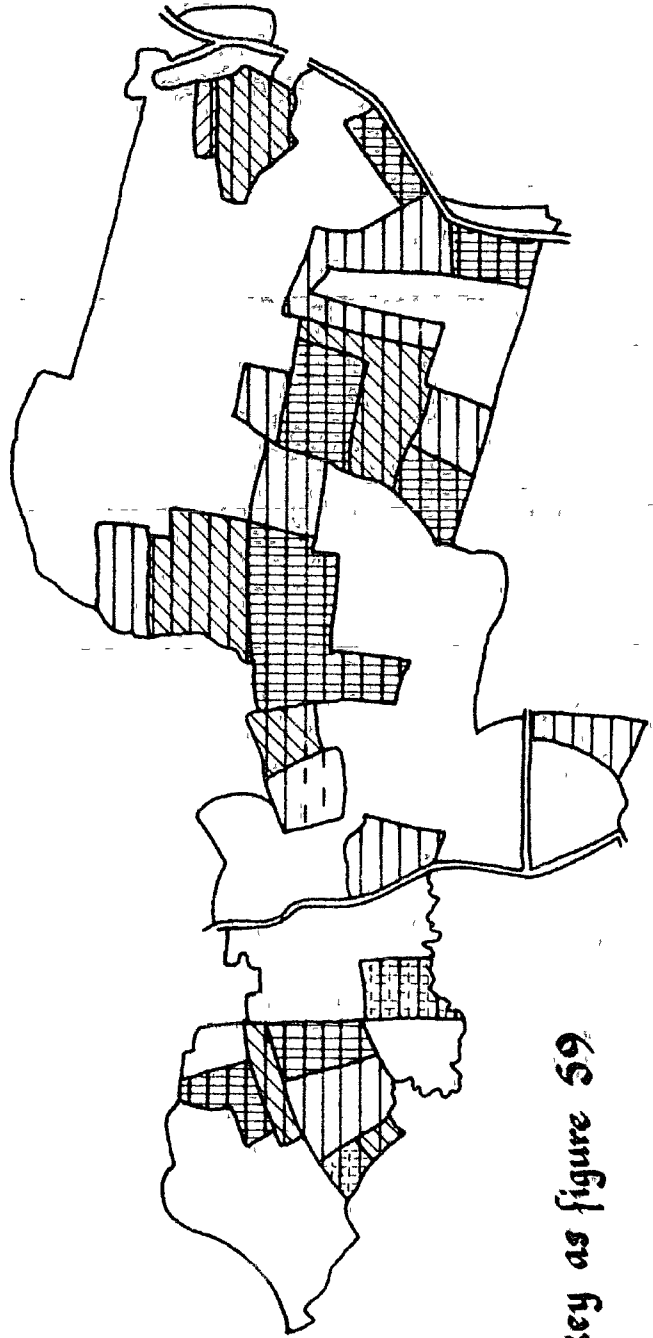
Great and Little Busby farms, circa 1760

Occupier	% total crops excluding grass				Ratio of fallow to crops
	Wheat	Barley	Oats	Beans & Peas	
Mrs. Turner	31	28	31	-	29
Bateman	32	-	37	31	30
Kitching	34	16	35	15	35
Pickering	22	-	78	-	57
Tod	46	-	54	-	99
	33	11	47	9	50

At Great and Little Busby (Tab.XXXIV and Fig.59), oats was the principal crop on most farms, with wheat a strong second. Barley and pulses were of roughly equal importance, well down the list. The average situation was that half the cropland carried oats, one third wheat, with one tenth each of the other two crops. Again, wide variations are observed, but those listed here do not encompass the total. Thus, although Tod's 46% of wheat appears high, it is known that Flintoff at Cote House had at least 65%. Some of these variations clearly reflect the exigencies of husbandry. In 1760, Pickering's wheat crop was small, but he was preparing for the following year a much larger field. The overall fallow ratio (productive crops = 100) agrees remarkably well with the concept of a simple three-year rotation.

FIG. 60

Newton / Nunthorpe ~ crop patterns ~ 1760



key as figure 59

P.K.M.

However, the figures for the first three farms, which have a relatively high proportion of sloping or lighter land, suggest rather some type of four-year course. Tod, with half his land fallow, may have farmed other land in the vicinity, (he certainly did in 1765), but Story farmed only Busby Grange, and he had more than half his land lying fallow. Turning to the distribution map, figure 59, it is noticeable how evenly wheat and oats are distributed over the area, as each took its place in the rotation. Yields of wheat in the upper fields cannot have been high. Barley and pulses were clearly alternatives, and it is noteworthy that barley occupied lighter soils or plots with better natural drainage than the clay-loving pulses (c.f. Figs. 59 and 48).

TABLE XXV - Crop proportions in Newton
and Nunthorpe farms, circa 1760

Tenant	% total crops excluding grass				Ratio of fallow to crop
	Wheat	Barley	Oats	Beans/Peas (pulses)	
Newton	(Jolly	53	-	47	61
	(Carry	81	-	19	55
	(Jackson	32	-	68	61
	(Thomas	44	18	38	39
	Lott	43	-	25	32
	Parkins	44	-	18	18
	Sayers	45	-	55	42
Σ	49	2	38	7	48

Farms at Newton and Nunthorpe (Tab. XXXV and Fig. 60) show rather less diversity in general and a closer allegiance to the basic rotation, with half the land fallow. Half the cropped area was in wheat; there was little barley, rather more pulses and 38% oats. The increased wheat acreage as compared with Busby is statistically signi-

ficant and is to be expected in an area where arable farming was becoming dominant at this date. It is noteworthy that the forage pulses were growing in the western farms, where the meadow acreage was high and the arable proportion low. clear evidence of an integrated mixed farming. The one field of barley was on old grassland, which had probably been recently ploughed out.

A general conclusion to be drawn from these two case-studies is that the limited range of crops, and the landlords' insistence upon a rigid adherence to the three-fold rotation, gave relatively little opportunity to the cultivator to adjust his cropping programme to the individual idiosyncracies of his arable fields.

Although it was to the crop-growing side of Cleveland farming that Young gave most of his attention, arable land use did not yet dominate the landscape as it was to do at century's end. Rough calculations based on figures quoted by Young¹⁸ suggest that the returns from arable farming were slightly more favourable (at 24s. per acre) than from livestock farming.¹⁹ But this applied only in a good year and to the lowlands. On the upland margins, the best arable could show a profit of only 18s. per acre and the more moderate 16s. per acre, while adjacent grass might be farmed to yield a profit of 20s. per acre. Within the limitations of these data, it would be difficult to suggest more than a rough equality of the two branches in the normal year and on the average lowland soil. Upland cereal farming was relatively disadvantageous by a small margin. Computations such as these cannot compare with modern cost-analysis methods. Nor,

within a mixed-farming system, does there exist so direct an opposition of the two parts of an enterprise. Furthermore, the average cultivator would have had little awareness of his true level of profit. On the other hand, however, these data show how readily the advantage might be tipped either way, especially by price fluctuations in the rather unstable cereal market. When, later in the century, the general trend of the farm economy moved uncompromisingly in favour of cereal production, Cleveland farmers were quickly aware of the change. Upon this awareness was based their readiness to set ploughteams to the long-cherished grasslands as wheat prices mounted.

However, in 1770, pastoral activities were still the main interest. Feeding of stock was still rather primitive, although certain fairly advanced concepts were understood. For example, although both dairy cattle and fattening stock were fed almost entirely on grass and hay it was appreciated that the former, while in milk, required a "production" bonus of grass in addition to the "maintenance" feed required equally by a beef animal of the same weight. Calves were always dropped in the early spring. Straw, rather than hay, was fed to the dry cow in winter. On the few farms where turnips were grown these were fed off by sheep. Moor sheep were brought in from the heather during the very worst winter weather and given some hay. Rape was grown only for seed. The pulses, where grown, were preserved for the working horses, but oats (an estimated 5 quarters per annum) were their main source of energy, supplementing the available hay and pasture. Pigs, fattened on cows' milk at the rate of five to a pair

of good cows, each yielding five gallons a day, are mentioned by Young, but there were none on his sample farms. Calves for rearing had to make do on skim-milk, but those intended for veal, though not allowed to suck, received full milk from the pail.

TABLE XXXVI - Stock on Young's sample of lowland farms²⁰

Farm number	I	II	III	IV	V	VI	$\bar{x}$
Horses	3	7	8	3	2	3	4.3
Mares	2	-	-	-	-	-	0.3
Foals	2	-	-	-	-	-	0.3
Cows	9	13	20	9	10	10	11.8
Young cattle	-	4	14	4	-	4	4.3
Sheep	10	10	40	12	30	10	18.7
Acreage	100	180	230	100	95	100	134

TABLE XXXVII - Stock at Kildale²¹ and

Ingleby Greenhow,²² circa 1770

	Kildale		Ingleby Greenhow	$\bar{x}$
	VII	VIII		
Horses	3	3	3	3
Mares	-	-	1	0.3
Foals	-	-	-	-
Cows	10	6	6	7.3
Young Cattle	6	10	7	7.7
Sheep	20	300	7	109
Acreage*	112	40	102	84.7

* of improved land only

Stock figures for a top-heavy sample of lowland farms (Tab. XXXVI) and for farms on the upland margins (Tab. XXXVII) reveal that the average larger Cleveland farm had four horses, ten cows with five followers and 45 sheep. Every third farm had a mare and every fifth a foal. Most of the horses were for tractive power - horse-breeding

was rather restricted.

Individual farms showed definite specialisms. Two were apparently dairy farms, without cattle breeding, though one bred horses. On the upland farms, and on the largest lowland farm, cattle breeding was important. Kildale farm VIII was a typical moor farm, with a flock of 300 "Blackface" sheep grazing on the commons.²³ Sheep were not of great importance on other "upland" farms, but represented a large share of livestock on lowland farm V, where the dairy was the main interest. Despite this variety, however, grouping into "lowland" and "non-lowland" categories reveals significant regional trends. Sheep and rearing were favoured in the less hospitable upland environment. More horse-power was required in the arable lowlands.

TABLE XXXVIII - Changes in livestock
farming, 1688 to 1768

	Livestock on the average farm		
	1688	<u>circa</u> 1768	
		Lowlands	Uplands
Adult Horses	2.4	4.7	3.0
Young Horses	1.1	0.3	0.3
Cows	6.5	11.8	7.3
Young cattle	7.9	4.3	7.7
Sheep	29.2	18.7	109.0
Oxen	1.5	-	-

Although not fully comparable, Harwood Long's average values (Tab. XXXVIII)²⁴ serve to bring into relief the changes in stock population which had taken place in the 80 years preceding 1770. These changes included the passing of the plough-ox, a contraction in horse-

breeding and, in the lowlands, a great extension of specialized dairy-ing and reduction of cattle rearing. Sheep had become fewer in numbers.

For comparative purposes, it is useful to standardize livestock figures in terms of a single "livestock unit."²⁵ Densities may then be computed (Tab.XXXIX), using various bases.

TABLE XXXIX - Livestock densities in
lowland Cleveland, 1768

Farms		I	II	III	IV	V	VI	$\bar{x}$
Acres per livestock unit	Total farm area	5.0	6.4	4.8	5.5	5.0	5.3	5.3
	Total grassland	3.0	4.3	2.9	3.9	3.4	3.2	3.5
	Grass & oats	3.2	4.6	3.2	4.1	3.5	3.5	3.7

Overall density is expressed in terms of the number of acres of total farmed area with which each livestock unit is associated. Such a measure, while of great utility, fails to take account of that section of a mixed-farming enterprise which is devoted to cash-crop farming. Similarly, use of the grassland acreage as a base fails to recognize the contribution of the arable to stock-feed. Accordingly, a final line is added to table XXXIX for which the base is the total grassland area plus an acreage allowance for stock-feed.²⁶ This, it is believed, gives a realistic appraisal of stock density. In lowland Cleveland the appropriate value was 3.7 acres per livestock unit, or 0.27 units per acre. The overall density was 0.19 units per acre. This compares with an overall density of 0.36 units per acre thought desirable for the "High Farming" of clays in the next century.²⁷

The Improved Cleveland Farming

Although the generality of Cleveland farmers were conservative, more especially in their arable practice, new methods were being tried by a few. Apart from the early experiments with mechanisation of such minor gentry as Mr. Wilson of Great Ayton,²⁸ this improvement was restricted to the belated introduction of three crops: turnips, cabbages, and clover. All three were to increase the productivity of arable farming, while permitting an increase in the livestock population.

TABLE XL - Changes in crop patterns

on Busby Hall Farm, 1760 to 1776

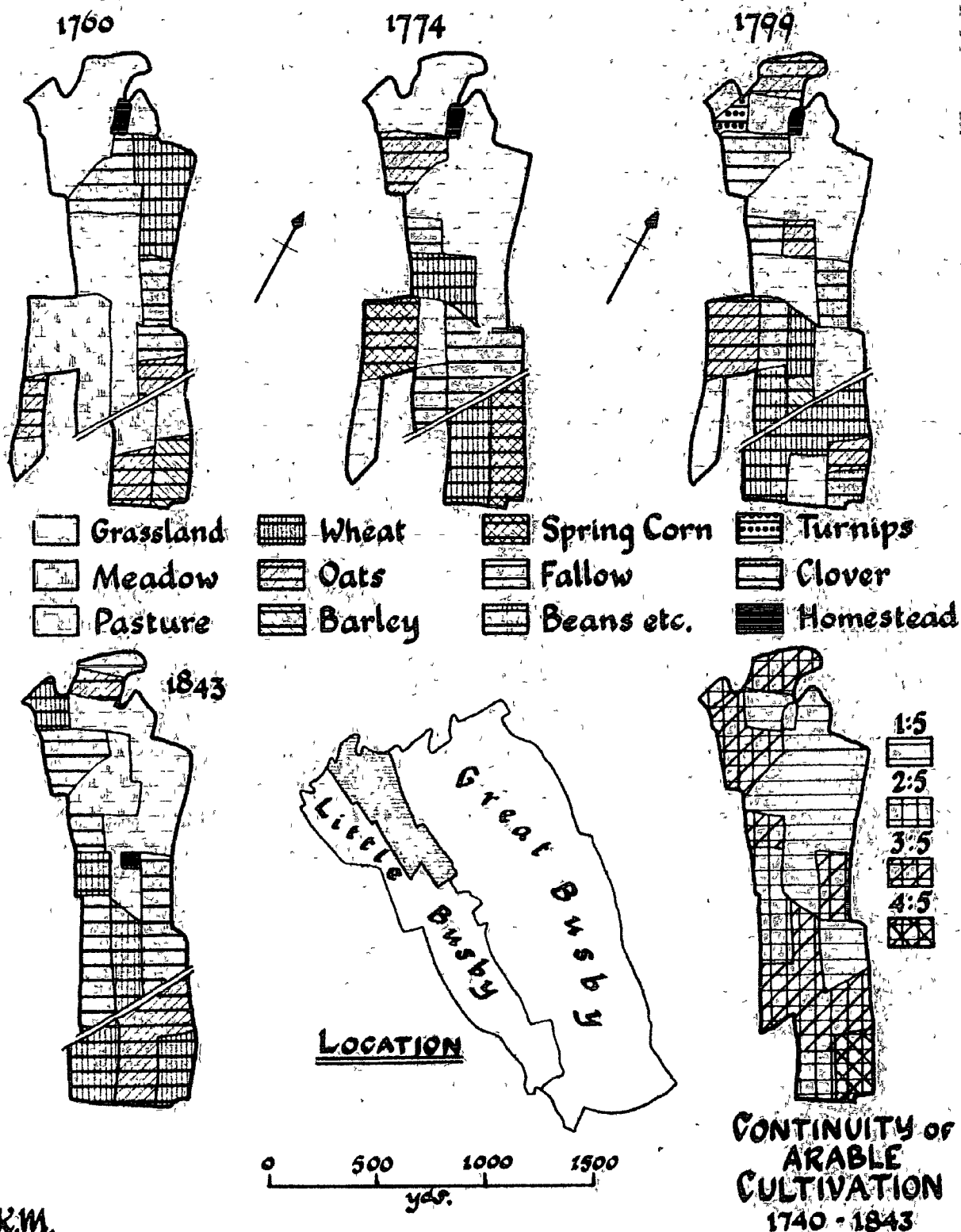
Busby Hall Farm	1760		1775		1776		Average of 1775/6
	Acres	%	Acres	%	Acres	%	%
Arable	30.3	21.7	36.0	22.9	42.5	27.1	25.0
Meadow	46.5	33.3	55.2	35.2	53.5	34.0	34.6
Pasture	62.6	45.0	65.9	41.9	61.1	38.9	40.4
Total	139.4	100.0	157.1	100.0	157.1	100.0	100.0
Wheat	7.2	30.7	4.8	13.3	-	-	6.1
Barley	8.9	37.9	-	-	2.8	6.6	3.6
Oats	7.4	31.4	15.7	43.6	9.0	21.2	31.4
Maslin	-	-	-	-	7.6	17.9	9.7
Beans and/or Peas	-	-	-	-	6.8	16.0	8.7
Clover	-	-	10.4	28.9	8.5	19.9	24.1
Turnips	-	-	4.5	12.5	2.4	5.6	8.8
Cabbage	-	-	-	-	3.0	7.1	3.8
Potatoes	-	-	0.6	1.7	2.4	5.7	3.8
Total crops	23.5	100.0	36.0	100.0	42.5	100.0	100.0
Fallow	6.8	28.9	-	-	-	-	-

On Busby Hall Farm, the improved systems were introduced in the period between 1760 and 1775 (Tab.XL) and had spread to a number of other farms in the neighbourhood by 1787²⁹ (Tab.XLI). It is characteristic of the period that Busby Hall Farm, retained by the progressive

PARISH CRAYKE FARM : LITTLE BUSBY

Crop patterns 1760-1843

FIG. 61



P.K.M.

TABLE XLI - Changes in crop patterns

on Crabtree Hill Farm, Busby, 1760 to 1799

Crabtree Hill Farm	1760		1774		1787		1799	
	Acres	%	Acres	%	Acres	%	Acres	%
Arable	39.8	31.2	61.0	47.6	62.5	48.8	56.1	47.6
Meadow	33.3	26.0	67.0	52.4	30.6	23.9	61.9	52.4
Pasture	54.9	42.8			34.9	27.3		
Total	128.0	100.0	128.0	100.0	128.0	100.0	118.0	100.0
Wheat	5.4	21.4	..	..	17.1	29.7	17.1	40.6
Barley	-	-	..	..	-	-	3.9	9.3
Oats	20.1	78.6	..	..	28.9	50.2	17.2	40.8
Turnips	-	-	..	..	11.2	19.5	3.9	9.3
Potatoes	-	-	..	..	0.3	0.6	-	-
Total crops	25.5	100.0	..	..	57.5	100.0	42.1	100.0
Fallow	14.2	55.8	..	..	5.0	8.7	14.0	33.2

landowner in his personal management, showed a more extreme departure from the regional norm than did the tenant farms of Crabtree Hill and Parish Crayke (Fig. 61). Not only was his the knowledge and the initiative, but he had capital and (in the short term) profitability was no great concern. This pattern of pioneering of new techniques by individuals who were not, strictly speaking, professional farmers was to repeat itself in later years.

In Cleveland generally, wheat was the main cash crop, but the improver avoided it. Together with maslin, wheat's share of the arable fell to 15.8% in 1775/6 on Hall Farm and its traditional associate, the bare fallow, had disappeared. Oats held its own. Next to oats, clover, which occupied one quarter of the arable, became the most important single crop. Turnips, pulses, cabbage, potatoes (in order of importance) preceded barley which was sown on less than 4% of the

arable. The radical nature of these changes is clear. However, the tenant farmer proceeded with greater caution. By 1774, the arable land on Crabtree Hill was increased to 47.6% from the 31.2% of 1760, but it is not known which crops were grown. In 1787, the tenant had reduced his fallow ratio from 55.8 to a mere 5.0, substituting turnips (19.5% of the cropland) and potatoes (0.6%). His dependence on oats consequently declined and he was able slightly to increase his wheat percentage as the acreage rose from $5\frac{1}{2}$ to 17 acres. At Parish Crayke, clover was introduced into the rotation by 1774, and turnips by 1799.

The proportion of permanent meadowland was little affected. With the increased fodder available from the new crops (and the maintenance of the hay crop) new possibilities in the winter management of livestock were opened up. Unless there was a very appreciable increase in the numbers of stock bought in the autumn for sale in the spring, an improved management of the reduced pasture area is also implied. Increased stock meant more manure under the plough. No longer were oats and the pulses the main links between the two branches of the farming business. The basis was now available for a truly arable livestock husbandry. On the heavy Cleveland clays, however, the system could not successfully be carried to its logical conclusion. Even in 1799, a farm such as Crabtree Hill had more than half its land under permanent grass. Furthermore, the root crop could never achieve locally the importance it had on the light lands of north Norfolk. But clover and the seed grasses, with assistance from cabbage, might have formed the spearhead of a new, more productive,

economy.

These innovations spread, but the impetus was not maintained and the system became diluted. By 1799, the tenant of Crabtree had reduced his turnip acreage to 9% of cropland, bare fallows were three times the size of those maintained twelve years earlier and wheat had jumped to 40.6%. Had wheat prices remained stable for a decade or two longer, it is possible that the long-term advantages of the new methods would have become widely accepted. However, wheat prices leapt. Massive and immediate cash returns were in prospect, and wheat acreages increased rapidly. To the average Cleveland farmer, farming for wheat meant the old traditional rotation of two white crops and a bare fallow. Thus, when the first great economic stimulus to arable farming swept the district, it was not the "New Husbandry" but conservatism which triumphed.

- 1 The first subheading is a direct quotation from A. Young, A six months tour through the North of England, (London, 1770), II, p.149.
- 2 Ibid., p.146.
- 3 Survey material from the following sources:
CRO/ Marwood Papers, "Richardson's Survey, 1760".
CRO/ZK 18 (3), survey of Great Busby, n.d.
LTD-CH / "A terrier of the Lordship of Crathorne ... valued and surveyed in 1780".
CRO/ Staveley Papers, an estate map of part of Newton, 1760.
- 4 The test used was that of the "standard error of the mean difference" and the Student's t distribution.
- 5 CRO/ZK 16, Bundle C (5), Leases.

- 6 CRO/ZDU, Rev. Thos. Stanley to Thos. Watson.
Stanley to John Rodgers.
- 7 WLC/ Goulton Papers, Sir Wm. Foulis to Ann Goulton.
- 8 WLC/ Emerson Papers, Jas. Emerson to Ralph Elgie.
- 9 YAS/ DD 26.
- 10 The closest comparison would be with Busby Hall Farm (Tab. XXVII), which being an emparked home farm, was rather special.
- 11 J. Graves, The history of Cleveland, (Carlisle, 1808), p.500.
- 12 Ibid., p.485.
- 13 W. Marshall, The rural economy of Yorkshire, (1st ed, London: 1788), II, 283.
- 14 WLC/ Emerson Papers, "Survey and valuation of the Whorlton Estate", 1806.
- 15 Young, op.cit., II, 150 (footnote) and 159.
- 16 Ibid., II, 151-155.
- 17 Ibid., II, pp 144 and 151-155.
- 18 Ibid., II, pp. 93-155, passim.
- 19 In the lowlands, dairying was the most characteristic live-stock enterprise, but Young's figures are unfortunately imprecise. He gives £5 as the annual "product" of the dairy cow, but additional income would come from the reared calf and pigs fattened on skim-milk, so that the total income would be higher than this. Costs are difficult to assess, but they were considerable. Young himself considered that there was no profit in dairying where rents exceeded 28s.4d. per acre unless the cows' "product" averaged more than 106s.3d. (Young, op.cit., IV, 316). A very rough estimate for the profit in Cleveland, where rents were lower, would therefore be of the order of 15s. per acre. The profits for lowland sheep are given as 9s. to 13s. per head (or 12s. to 17s. per acre) and for fattening beeistock, the profit might have reached 25s. per acre. Over the whole range of livestock farming, a profit of the order of 20s. per acre seems likely. As to the lowland arable, Young gives comprehensive details of costs of fieldwork, seeding rates, tithes and yields. On

this basis, with 1768 Yorkshire buyers' prices for cereals (J. E. T. Rogers, A history of agriculture and prices in England, - Oxford, 1902 -, vol VII, pt.1.), and using the standard rotational frame, gross cash yield per acre may be estimated at 69s. and costs at 45s. This allows for a profit of 24s. per acre, but this should be regarded as a "good average" result rather than a true average, which was probably no more than 20s. The co-existence of dairying, stock-rearing and moorland sheep farming, with the wide variation of natural conditions, render the computation for the upland area even less precise. The most reasonable estimates for livestock enterprises vary between 12s. and 20s. per acre, while cash profits upon the better arable land would seem to have run at about 16s. per acre and on poorer at 13s.

- 20 Young, op.cit., II, 153-155.
- 21 Ibid. II, 161-162.
- 22 WLC/ Goulton Papers, Valuation of stock of John Goulton, 1777. Another contemporary Cleveland inventory from the scarp-foot zone (B1/ R VIII I 1893) lists: 7 horses, 7 cows, 2 stirks and 3 calves.
- 23 According to Young, this farm had 30 acres of enclosed grassland and 46 acres of moorland. This acreage would have been totally inadequate for the support of the stock listed, even if the "inland" had been of superb quality. It was evidently not, as the total farm rent was only £34. It is clear, therefore, that there were additional common grazings to which the tenant had access. A major difficulty of discussing such a holding in vacuo is the wide spectrum of land qualities which its boundaries might enclose - good arable and pastures worth 20s. per acre, intakes worth 5s. and 3s., and heather moor grazings able to sustain no more than one ewe on 10 acres. This can mean that a single farming enterprise may have encompassed extensive sheep farming, intensive cattle breeding and arable cultivation, within a horizontal range of no more than 400 yards. Such characteristics make generalization hazardous.
- 24 W. Harwood Long, "Regional farming in seventeenth century Yorkshire", Ag. Hist. Rev., VIII (1960), 106, table II.
- 25 A discussion of the concept, and a table of the conversion factors adopted here are given in appendix D.
- 26 In view of the feeding patterns described by Young, the oats

consumed by the working horse is clearly the main contribution of the arable. At estimated consumption levels (based mainly on nineteenth century discussion, such as that of W. Holt Beevor, "Time of entry on farms", JRAS, XVIII (1857), 323) prevailing yields and rotational practice, $1\frac{1}{2}$ acres of arable per horse would seem an adequate allowance.

- 27 C. Wratislaw, "The amount of capital required for the profitable occupation of a mixed arable and pasture farm in a midland county," JRAS, XXII (1861), 167-89.
- 28 Young, op.cit., II, 103.
- 29 CRO/ Marwood Papers, later additions to "Richardson's Survey". There may also have been other centres from which the new methods spread.

CHAPTER XII

"SPEED THE PLOUGH" - CHANGES IN ECONOMY

AND LANDSCAPE, 1770 to 1820

As is well known, the Napoleonic War period was one of very high wheat prices, the result of an increasing British industrial population, changing dietetic patterns and the effect of war in the European plains and on the narrow seas. Added to these stresses was the reduction of the home supply, in certain years, by adverse weather. High prices stimulated Cleveland production, which was mainly shipped coastwise from the Tees. Landlords responded by increasing rents; labour shortages pushed up wages. With this cost spiral, an increase of wheat (and hence of arable) acreage was inevitable. The progress already achieved by enclosers put severe limits on the area reclaimable from the waste - most expansion had to come from the enclosed land. Some poor enclosed land was improved but arable expansion was mainly at the expense of good grassland. Production close to the margin implies low yields, and cultivation of very heavy clays brought to the fore a major natural problem - excess surface water in wet years. By the end of the period, under-draining was initiated. An increasing awareness of resource values (and the interruption of the Baltic supply) led to considerable timber planting, especially on steep slopes. Technical progress was limited, but improved rotations incorporating clover and sown grasses were being adopted by some. Despite the over-riding interest in wheat production, stock improvement continued.

From 1700 to 1788, the British annual average price of wheat had exceeded 50s. in only 10 years, and never more than three years running: twice only (in 1709 and 1710) did the price top 70s. per imperial quarter. By contrast, from 1789 to 1820 there were only three years (1791 to 1793) when the price fell below 50s. Except in the year of Waterloo, prices in excess of 70s. were maintained

from 1805 to 1819; and in 1800, 1801, 1810, 1812 and 1813 the average price exceeded 100s.¹ Although possibly inaccurate in detail, this series serves as a sufficient index of the direction and order of magnitude of market changes on the national scale. As to the local situation, no long series is available. Tuke gave spot values for end-of-year in 1793 and 1798 in the Stokesley and Guisborough markets,² but much more valuable is the short series of producer's received prices, given by Rudd³ (Tab. XLII). Cleveland was a supplying area,

TABLE XLII - National and local wheat prices
for certain years

Prices in shillings per quarter - Winchester measure			
Cleveland market quotation - year end		National average	
1793	42/-	1793	47/9d
1798	48/-	1798	50/3
Farmers' selling average		1815	63/7
1815/16	62/-	1816	76/2
1816/17	67/-	1817	93/11
1817/18	78/-	1818	83/7
1818/19	74/-	1819	72/3
1819/20	64/-	1820	65/9

whilst the national average included prices from many consumption centres. freightage and factors' profits also account for some of the difference.⁴ More significant is the clear indication that the farmer's price was relatively stable - the richer killings of the

dear corn years obviously went to the middleman and not the producer. Nevertheless, the increase in local prices from 42s. to more than 78s. was sufficient to stimulate local production.

Profiteering and stock-piling may have contributed to the rise of prices, but the main causes were economic and demographic. War-time disruptions of overseas trade were creating a quasi-Malthusian situation. The vagaries of climate heightened some crises, but by no means all seasons were bad. 1794, for example, was a bad year. the spring was cold and the summer "hot and droughty" in north-east England. Wheat prices at Stockton market rose to two guineas per boll⁵ before the 1795 harvest, but by 29th September, when the harvest was "nearly finished, without any interruptions from bad weather, all kinds of grain very abundant, a circumstance of great thankfulness after the late scarcity," the price had fallen to 11s.⁶ 1799 was also very poor, and in 1800, although, "the produce/was" nearly double that of the last, it was... very much inferior to a favourable year. The Corn was a little damaged by wet weather after it was cut, but is tolerably sound when dressed." The price at Stokesley market had averaged 14s. per bushel during 1799 and pre-harvest 1800.⁷

The following year saw a great improvement. "The crops this year have been very great ... They equal if not exceed the joint produce of the two preceeding years."⁸ (*Italics mine.*) There could be no better stimulant to local interest in wheat production than a bumper harvest such as that of 1801, coinciding with a time of generally high prices. Wheat, now greatly in demand, had for many

years been the main Cleveland cash-crop, George Markham, writing in 1800,⁹ described a well-established trading pattern:

A good deal of foreign Rye but very little foreign wheat is ever brought into Cleveland or, I believe up the River Tees. But a great deal of Cleveland Wheat is carried out of the Teesmouth to London and other Markets.

The main point of shipment of West Cleveland produce had earlier been Yarm, with wharves also at Low Worsall, Newport and Cargo Fleet. In the eighteenth century, and especially after the construction of Stockton Bridge in 1771, the up-river ports declined, partly as a result of the bridge's role as a barrier to navigation, partly because of the ready access which it gave Stockton merchants to the productive Cleveland plain. Of Yarm it was said in 1808:

The exportation of corn seems however, to have greatly decreased; as many granaries here, which have been erected at a great expence for that particular branch of trade, are now, and have for some time, been almost useless and unoccupied.¹⁰

The fecklessness of the family of shippers was held responsible for the decline of Low Worsall.¹¹ As Fussell has pointed out,¹² Stockton's primacy was short-lived, though the reason for its relative decline was not, as he suggests, solely the result of local soil exhaustion, but rather a consequence of the evolution of the Tees as a navigable river. The navigable channel below Stockton was tortuous, and even the cutting of the Newport meander in 1810 and that of Portrack in 1831, were insufficient to enable the town to withstand the competition of new ports nearer the open sea.¹³ After 1830, the chief competitor was Port Darlington (later absorbed into Middlesbrough). Early in the century it was Port Cleveland (alias Cargo Fleet, alias

Caldecote).

Tuke described the Port Cleveland trade as "considerable" and mentions wheat, oats, beans, butter, bacon and cheese as shipments to Newcastle and London.¹⁴ Also, wheat was shipped "to every part of the eastern coast of Great Britain."¹⁵ In 1798, "wheat shipped, might be 5,000 quarters, and of oats 30,000 quarters," but these were

not nearly equal to the quantity shipped in some preceeding years, owing to the great demand inland, westward, and the great quantity which was made into flour, and shipped to different parts.¹⁶

This reduction was purely temporary, and in 1808 it was said that at Port Cleveland

extensive and commodious granaries have been erected, ... from whence at least two thirds of the whole produce of Cleveland are shipped.¹⁷

On the basis of a late eighteenth century decline in Stockton shipments, Fussell implies a falling-off of exports from the Tees hinterland, but Brewster's figures for the customs Port of Stockton¹⁸ (including all points of shipment between Ryhope in the north and Huntcliff in the south¹⁹) indicate a doubling of coastwise shipments in the decade 1785 to 1794. It is notable that, in the poor season of 1794, shipments of oats exceeded those of wheat, and that butter and livestock products were still important (Tab. XLIII). A proportion only of this trade originated in West Cleveland. However, there can be no doubt that large-scale port shipments of wheat and oats (with some overland traffic) were being stimulated by the rising prices of the period.

Costs also were rising. Tuke estimated the North Riding tenant

TABLE XLIII - Principal agricultural exports
from the Customs Port of Stockton in 1794

Commodity	Coastwise to London	Total coastwise
Wheat	1585 quarters	12927 quarters
Wheaten Flour	..	4954 quarters
Barley	..	291 quarters
Oats	16212 quarters	16212 quarters
Butter	18145 firkins	..
Pork	1161 casks	..
Ham	176 hogsheads	..
	297 hampers and mats	..
	490 loose hams	..
Beef and tongues	129 hogsheads	..
	3 mats	..

farmer's costs at two thirds of farm income in the 1760s, rising to four-fifths by century's end.²⁰ Some of this increase was attributed to the increased costliness of the new husbandry practices, and (as relatively little local advance had been made in this direction), Cleveland costs may not have risen by so much. According to Curwen, who farmed on the lowland clays of Cumberland, labour costs had increased by rather more than half over the two decades prior to 1821.²¹ Again, the small size of the Cleveland farm and its traditional dependence on family labour would reduce the local impact of such trends. There was no comparable protection from the effects of

increased taxes, rates, tithes and raw material prices. Rents also were raised as part of the landlords' response to the new situation. An average increase of 17.1% was imposed on some of the better sections of the Whorlton estate in 1806 (Tab. XLIV). Over the whole estate,

TABLE XLIV - Rent increases on
the better sections of the Whorlton Estate, 1806

Farm or tenant	Old rent		New rent		Change
	Total £	Per acre s.	Total £	Per acre s.	%
Black Horse	42.5	30.9	42.0	30.5	-1.3
Wm. Garbutt	61.5	42.4	50.0	34.5	-18.6
Shepherd Hill	30.0	15.2	40.0	20.2	+32.9
Scarth Wood	50.0	15.9	56.0	17.8	+11.9
Hollin Hill	40.0	12.8	56.0	17.9	+39.8
Sleathorne Bank	84.0	16.9	127.0	25.6	+51.5
John Todd	164.0	27.7	186.0	28.0	+ 1.1
Summerfield House	200.0	22.1	240.0	26.5	+19.9
$\bar{x}$	..	22.9	..	25.1	+17.1
σ	..	10.4	..	6.2	..
S.E.	..	3.7	..	2.2	..

the increase determined in that year was 13%. Rents here had already been advanced some 60% in the relatively recent past.²² At Newton, in 1802, rents probably averaged 30s per acre in 1802 (Tab. LIII). The Busby Hall Estate rental of 1813²³ (Tab. XLV) comprised many of the same farms upon which the 1760 Cleveland estimate of 11s.2d. was based

(Tab. XXVI). Apart from the rather exceptional Ayton Town Farm, rents ranged from 23.4s. to 38.8s. per acre averaging 33s.6d., which represents a threefold increase over half a century.

TABLE XLV - Busby Hall Estate - Rental, 1813

Township	Farm or Tenant	Acreage	Rent	
			Total £	Per acre s.
Ayton	Bank Farm	61	101	33.3
	Town Farm	36	103	57.2
Nunthorpe	W. Quarry Hill	138	207	30.0
	E. Quarry Hill	178	285	32.0
	East Field House	248	362	29.1
	Rye Hill	103	136	26.4
Busby	Parish Crake	219	399	36.4
	Crabtree Hill	127	238	37.4
	Little Busby Fm.	197	360	36.5
	Carlton Town Fm.	67	112	33.4
	Bagdale House	88	103	23.4
	Viewly Hill	172	246	28.6
	Gt. Busby Fm.	106	206	38.8
Potto	Gowton House	73	99	27.1
$\bar{x}$		129.5	..	33.5
σ		62.3	..	8.1
S.E.		17.5	..	2.3

With little absentee landlordism and the mutual trust which

had been built up over the prolonged operation of year-to-year tenancies, rents were rarely oppressive in the earlier stages of the boom. Moreover, abatements were freely given to ease short-term difficulties. In southern Britain, there was temporary hardship in 1804 and again in 1814, but apparently not in the north.²⁴ Similarly, the evidence of John Iveson, who was a land agent for properties in Wiltshire and Middlesex as well as Yorkshire and Durham, suggests that northern distress in the post-war depression of 1816 and even in 1821, was less than elsewhere.²⁵ For the fifty year period as a whole, therefore, it is possible to think in terms of an increasing profitability of arable farming, rising to a peak (or series of peaks) in the war years, with a subsequent flattening off which began to assume slump proportions by 1820.

However, the new high rents and maintained profits could be paid only with increased wheat sales and, in the absence of improved yields, this meant expanded arable acreages. Only a little improvement of enclosed land was possible, mainly in the wetter patches. For example, Morton Carr, an area of poor grass, was pared and burnt in 1815 and was subsequently cropped thrice for oats.²⁶ Seamer Carr may also have been tackled at this time. Nor had very much common-land survived on which reclamation projects could be tried - the main burden of expansion fell onto the long-cherished grasslands, as arable ratios were pushed up to 65% and more. Although restrictive covenants of £10 per acre were being written into leases of 1795,²⁷ many such clauses must have been cancelled or overlooked in the follow-

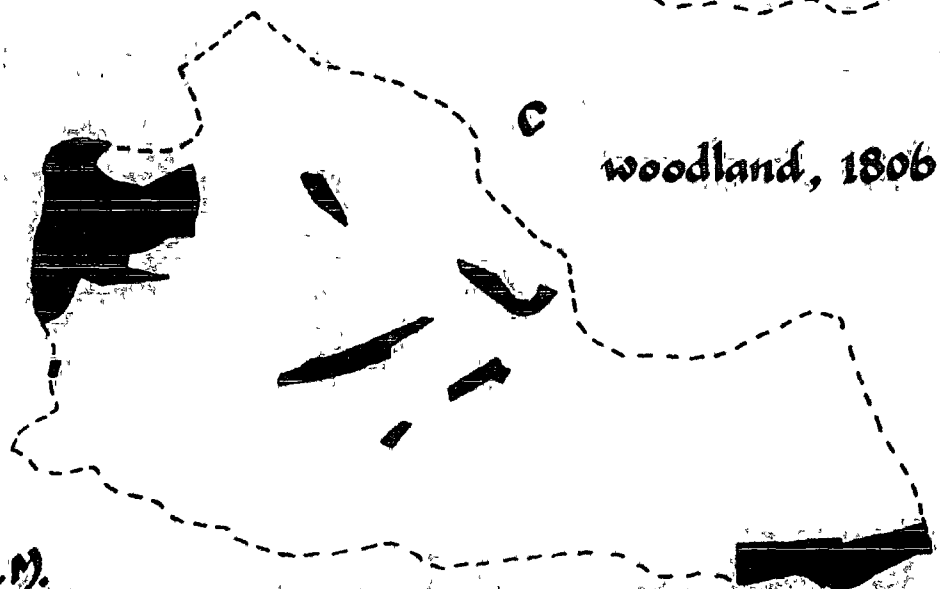
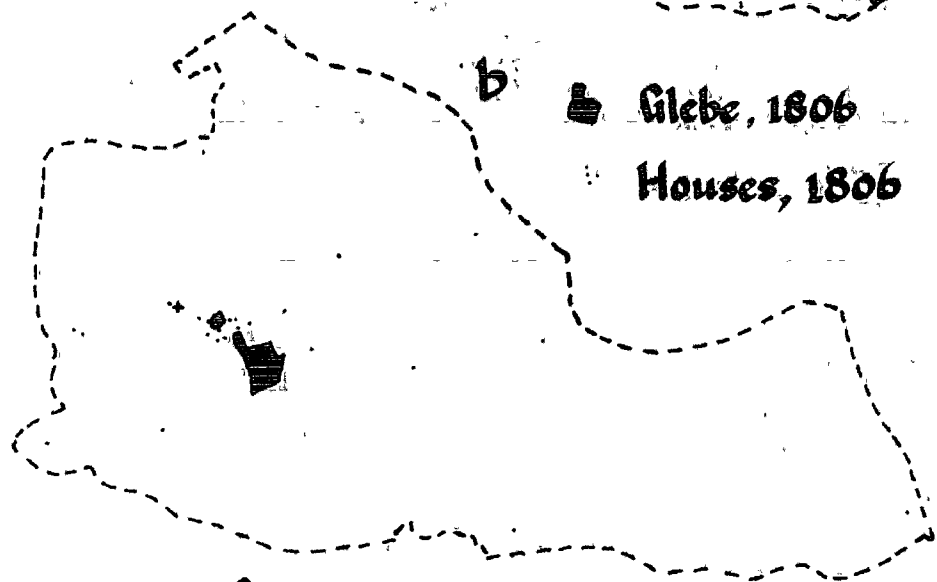
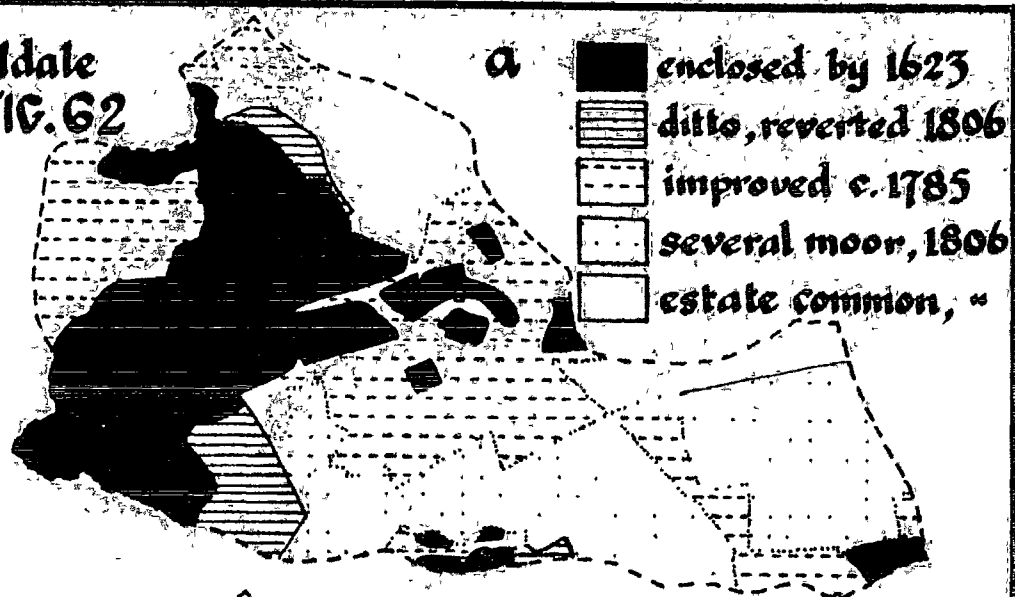
ing years.

The three enclosures of commonland undertaken in this period were all concerned primarily with the development of unimproved upland waste, although the occasion might also be taken for the resolution of any anomalies left over from earlier agreements. The Kildale enclosure of 1775²⁸ was by far the grandest in scale and intention. The enclosures at Normanby (1809) and at Great Broughton (1811) were of no more than very local interest.²⁹ It seems likely that the stimulus in the later years came from the high level of prices currently prevailing, but at Kildale "the spirit for improvement" was the main motivation, and immediate financial gain a secondary consideration.

Sir Charles Turner, whose family had owned Kildale for over a century, had recently enclosed and re-organised the extensive properties surrounding his seat at Kirkleatham.³⁰ He had been visited by Arthur Young in 1768, who had been much impressed with the progress achieved and no doubt urged his host to carry improvement into the more difficult environment of the moorland plateau. For an understanding of the Kildale enclosure an appreciation of the personal element is essential. It is therefore not inappropriate to quote from an early seventeenth century letter written by an earlier Turner, for Sir Charles's philosophy mirrored that of his ancestor, who wrote:

"Southwards and alonge Cleveland lyeth Blackamore ... wch by the ploughther lands and remaynes of houses in many places seemes to have bin well inhabited, but now in six or seven myles together you shall scarcely fynd a house excepte in a dale, the reste is heathe and a rouste for heath-cocks, yet a Tennant of yours lately seyed that that grounde beinge tyllled for 3 or 4 yeares wyll yeld good oates or other corne wch benifyte for want of

Kildale
FIG. 62



P.K.M.

industrious people is utterly loste, for in truth the skirts and waystes of the moore are in a manner desolate.³¹

Until 1775, Kildale appears to have remained much as it had been in 1623, except that the timber in the park had been cut. Limited encroachment of the demesne commonland had been permitted to the tenants about the middle of the previous century, but they had been required to pay rent for these intakes.³² The other commons remained largely untouched, except for the grazing by stock from Kildale and Commondale (their owners also paying rent for the privilege) and the cutting of turves.³³ Any enclosure which had taken place appears to have been insignificantly small, for the acreage of 2944 - 2 - 2 which the 1623 survey³⁴ had listed as "Kildale towngate with all their Commons and Moores belonging to the Town besides the Cott Moor," was thought accurate enough for the Act. By the terms of the Award, 13 acres and 18 acres of this were awarded to two small freeholders, the remainder came to Turner. Within the old enclosures, the glebe was consolidated into two plots of $3\frac{1}{2}$ and 32 acres. The Rector's right to take the forecrop of hay from certain lands was extinguished, and almost all the tithe rights were converted into an annual stipend. This left Turner in undisputed control of virtually the whole of the parish's five thousand acres, of which little short of 3,300 acres were open land. The extent and disposition of this land is indicated in figure 62a, where land believed to be in an improved state in 1775 is shown black.

The second phase of the work was well under way by 1783, and

may be considered as having three major aims; (1) the re-organisation of the valley lands, (2) the expansion of the existing intakes upon Warren Moor and Percy Rigg, and, (3) the reclamation of the plateau of Kempswithin (Fig. 32).

Re-organisation in the valley included the building of new farmsteads at Dundale Beck and Park House and the subdivision of the disforested lower Park. More radical were the changes taking place at the eastern end of the village. Here, the old drove-ways were eliminated or reduced to road width. At least ten houses or cottages were pulled down and replaced by two farmsteads at East Green Beck. Some of the earlier hedge lines were abandoned, and a new pattern imposed. The seventeenth century patterns had been radically changed by 1806.³⁵ (Fig. 62b).

The second aim also proved practicable, and was fully achieved by about 1790. Marshall observed progress in the spring of 1783 when

Sir Charles had let off one farm of one hundred and fifty pounds a year (containing about one hundred and fifty acres!) and had then built, or was building, three or four more substantial farm-houses.³⁶

These improvements, concentrated mainly on the slightly sloping, light, but acid, soils of the lower Estuarine Series, were terminated on Percy Rigg at 850 ft. O.D. where they have proved of permanent value. On Warren Moor, improvement was pushed higher, but the intakes made above 800 feet proved useful for a period of only some fifty years - long enough, perhaps, for their cost to be repaid.

From the attempts to cultivate Kempswithin, however, there was

no return, but a substantial loss. Here, on the exposed upland, almost 1000 feet above sea level on a shallow podzolic and peaty soil, Turner attempted to effect the same improvements as he had been able to make on the sandy loams of the coastal plain. Even in an age of enthusiastic optimism, contemporaries described his efforts as "eccentric."³⁷ Despite the high costs of bringing in lime and the bleakness of the situation, the summit was enclosed with freestone walls, ploughed and sown to corn. A neighbour observed the result: "To my certain knowledge, he never raised as much corn as he sowed; and the land, in a few years, will be as bad as ever."³⁸ With this failure, the land "was prudently laid down to grass; a species of crop much better suited than corn to such a soil, in such a situation."³⁹ Turner continued to apply lime in great quantities and as a result, obtained reasonable crops of hay. Soon after, he died. Financial considerations resumed importance in the management of the estate, and cash could not be spared for the continuation of Sir Charles's schemes. By 1793,

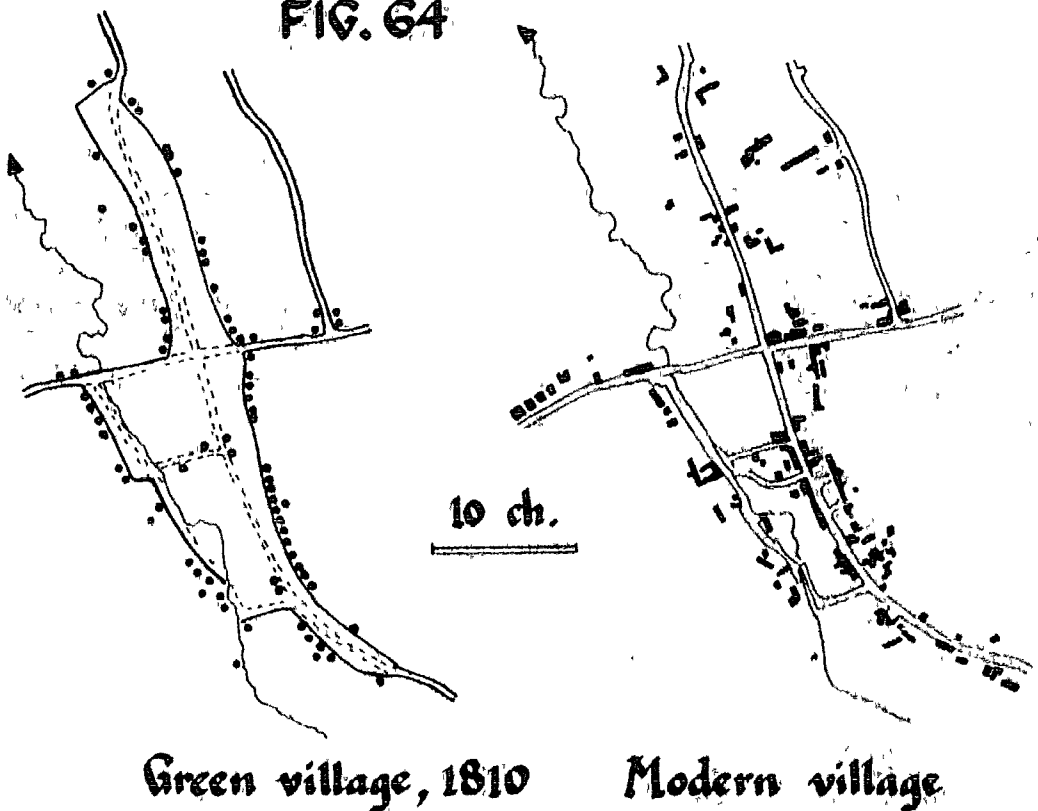
On one side of the wall, nothing ... but ling; on the other side; a neglected pasture of ten or twelve years ley, producing plenty of coarse grass and very large rushes, here and there slightly interspersed with ling.⁴⁰

In 1806, the fields were still better than the open moor, but by 1847,⁴¹ all but 22 acres were described as "heath" or "heathy pasture" (Fig.119a), and some of the walls were down. Today, it would be very difficult to establish any differences in the quality of the grazing, inside and outside the old "improvements."

Whorlton ~ woods and plantations, c. 1810
FIG. 63



GREAT BROUGHTON ~ morphological evolution
FIG. 64



At Normanby, similar, but rather lower, land was the subject of an Enclosure Award in 1810. There were 107 acres of Normanby Moor on the summit and northern face of the Eston outlier, its freehold value was under 70s. per acre.⁴² The lower portions of this intake appear to have been ploughed for oats and the upper grazed with sheep. The lower portions were planted with trees circa 1822 and so remained in 1839, when the summit was still heather moor.⁴³

Three hundred and twenty eight acres were enclosed at Great Broughton (Fig. 21), following the Act of 1811. They included $32\frac{1}{2}$ acres of the meadow "Ings," the village green, a droveway to the common of Broughton Bank, and the common itself.⁴⁴ Unlike Kildale or Normanby, Great Broughton had numerous small freeholders, and the division produced innumerable small allotments, many of which had to be sold to cover the costs of inclosure. In the Ings, for example, there were fifteen owners, and one plot awarded there was scarcely more than half an acre. Even smaller allotments were created on the lower portions of the Bank, but plots of 3 roods were the smallest to remain after the great deal of buying and exchanging which followed the award.⁴⁵ Some 150 acres were added to the effective enclosed farmland of the township. One great change wrought by this enclosure was the considerable modification of the village's morphology. Formerly it had been a well-formed green village, narrowing to north and south to suggest a rather crude 'spindle' plan (Fig. 64). Enclosure of the green permitted house-building along the roadside, so that the over-riding modern impression is of a complex street village,

though enough remains of the old alignments to hint of its former character.

Apart from these rather limited, and for the most part, marginally profitable activities on the upland fringe (and a few acres reclaimed from the bed of the Tees at Mandale as a result of the straightening of the river) no further extensions to farming land were made in West Cleveland after 1770: except locally, the limits had been reached much earlier. What progress was being made in the more intensive use of the limited available area?

The processes of road improvement, re-arrangement of holdings and establishment of new farmsteads continued, much as it had earlier in the eighteenth century.

Towards the end of the period, a new awareness of the possibilities of under-drainage was developing. The need was very great: excessive cultivation under the old three-course rotation and high liming rates had made the already heavy Cleveland soils almost unmanageably hard in dry weather and equally difficult in wet. Techniques were primitive at first, as at Barwick in 1816 where trenches were cut and filled with whinstone to form a subterranean channel.⁴⁶ The surveyor of Hutton and Foxton, in the same year, noted the weakness of the clays there, and appreciated that the productivity of the land could not be maintained without draining: "If corn prices fall this rent will be too high without draining etc." He recommended attention to surface draining by "careful stelling, ditching and gripping,"⁴⁷ as a temporary measure, but his main suggestion was that the landlord should

tile-drain one field as an example, and thereafter provide a few thousand tiles each year for the tenant to complete the job. Action on this second recommendation was not, in fact, taken until 1824.⁴⁸

Increasing labour costs might have been expected to encourage the introduction of some mechanisation towards the end of the period, but this was far from widespread. Threshing mills and winnowing machines were spreading through Yorkshire from 1790,⁴⁹ and many of Cleveland's octagonal machine sheds are thought to date from this period. Graves observed the Scotch drill in use for turnips at Kirkleavington in 1808, but much of the limited acreage under this crop was still broadcast.⁵⁰

The improvement of livestock was continued. The Collings brothers of Ketton and Barmpton, near Darlington, began breeding about 1780.⁵¹ As soon as the value of the Hubback strain became apparent, Cleveland farmers were quick to make use of it. No doubt proximity aided rapid adoption, but the fact that many of their cows contained blood of similar strains greatly speeded the modification of the local herds. The main local centres of shorthorn improvement in 1808 were noted in Stainton, towards Guisborough, and at Marton and Acklam where gentlemen farmers took the lead.⁵² The Hubback or Ketton strain showed "a great propensity to fatten and coming much earlier to maturity than the old breeds are consequently more profitable to the farmer."⁵³ The principal markets were the mining villages of Durham and Northumberland, where beef consumption was high and a coarse-grained meat acceptable. One result of these improvements was the

loss of milking quality. Bartholomew Rudd of Marton Lodge, who purchased most of Charles Collings's stock, wrote to a prospective buyer in the U.S.A.:

If cows of the deep milking kind are wanted, where milk alone is the object, as is the case near great towns, they must be sought amongst the old breed.⁵⁴

However, butter and milk production were no longer a principal interest in the Cleveland plain.

Improvement of the Cleveland stock of sheep owed little either to local ingenuity or the proximity of noted breeders. Local farmers had begun to modify the heavy Teeswater by crossing with moorland ewes by 1793,⁵⁵ but the real development of a lowland sheep had to await the arrival of Dishley blood, either direct, or by way of the Border Leicester breeders. In general, these steps were being taken in the same areas as cattle improvement, and owed everything to individual enterprise: many farmers did nothing, "being closely attached to their old breed."⁵⁶

These were the main changes that were taking place within the farm economy, but another category of land use, that of woodland, was beginning to assume some importance. Mention has already been made of small plantations at Barwick, Busby and elsewhere established earlier in the eighteenth century, but the pace quickened considerably towards its end and into the next. To Turner's three aims for the improvement of Kildale, a fourth may be added: afforestation. In the main, this project was managed successfully, and almost 500 acres

of woodland, comprising Scotch fir, larch, spruce, some oaks and a few beech, were well established in 1806, though in many places the woods were thin - failures not having been replaced by new seedlings.⁵⁷ The sites (Fig. 62c) were all marginal for agriculture and generally on the steeper slopes, but including some flatter land upon Coate Moor. Failure had been met with, however, upon Kempswithin, where "oaklings were dibbled in among the standing heath," and fared even less well than the corn nearby.⁵⁸

Agriculturally marginal sites were also selected for planting at Whorlton. The surveyor of 1806 wrote:

Scugdale and Snotterdale ... are extremely well adapted for the growth of oak, and the whole side of the hill has a tendency to run to Woodland of luxurious growth.⁵⁹

Later in his report, the true nature of the remaining oakwood emerges: "This Estate is very congenial to the growth of oak and very old and decayed trees have been taken down" in preparation for re-afforestation. At this time, the estate had not even enough good timber to supply fencing to protect the proposed plantations. The sites to be planted (and this was speedily done - Fig. 63 -) fall into two groups:

- (1) bank sides, including the summit and eastern slopes of Whorl Hill, which were to be planted with larch, oak, beech, ash and firs; and
- (2) smaller sites in steep streamside gills, many of which already carried a scrubby growth of oak, which were to be cleaned and filled up with young oak and ash. Plans were "making not only for planting the sides of the Hill, but also the Moor on the Top," but subsequent action was rather more realistic, and, in fact, hundreds of acres of

suitable bankside were never planted, let alone the inhospitable summit of Black Moor. The total area newly planted or brought under improved forest management at this time slightly exceed 200 acres.

That these programmes were taking place upon the upland margins will have been noticed. In the lowlands, fewer and smaller were the sites which could be spared for the long-term investment of afforestation, when the short-term profits to be reaped from corn cultivation were so great. Before the period of peak prices, however, a number of landlords had begun to decorate their estates with attractive (and useful) small plantations. As at Ormesby (Fig. 74), these might occur in long shelter-belt strips on good land or on sloping and all-drained sites bordering streams. It is known that Rudd had planted about a hundred acres in this way, on his Marton estate, by 1808,⁶⁰ and the Jacksons were also active at Normanby.⁶¹

The years from 1770 to 1820, therefore, constitute a period of increasing pace of change and growing awareness, but it appears that innovation was limited to a few, mainly gentleman, farmers. The majority of tenants and small freeholders were capable only of a traditional type of response to the economic changes - "speed the plough."

¹ R. E. Prothero, English Farming - Past and Present, (Longmans, 1912), pp 440-41. Prices before 1770 are the Eton averages, later values are official national averages. These official figures were called in question at the hearings before the Select Committee of 1820, where abundant

testimony of the unreliability of the reporters and of the factors' avoidance of the open market were produced. (BM-SPR / "Report from the Select Committee ... Agricultural Distress", Reports of Committees, - 1820 - II, p.101 et.seq.).

- 2 J. Tuke, A general view of the agriculture of the North Riding of Yorkshire, (Octavo ed; London: 1800), pp.290 and 292.
- 3 Evidence of Bartholemew Rudd, BM-SPR / op.cit., p.159.
- 4 Rudd (loc.cit.) held that the producer's price was regularly 7s. below the published local price and 10s. below the national average price.
- 5 Probably the "new boll" of two large bushels of 140 lbs.
- 6 J. Brewster, The parochial history and antiquities of Stockton upon Tees, (Stockton, 1796), pp. 108-109.
- 7 PRO / HO 42-54, George Markham, Rector of Stokesley.
- 8 PRO / HO 67-26, T. P. Williamson, Curate of Guisborough. These poor years had upset the traditional market practice of selling by displayed sample, and private dealing between farmer and miller had been introduced "to the great prejudice of the inhabitants".
- 9 PRO / HO 42-54, George Markham.
- 10 J. Graves, The history of Cleveland, (Carlisle, 1808), pp. 62-63.
- 11 Ibid, p.97.
- 12 G. E. Fussell, "Traffic in farm produce in eighteenth century England except livestock and livestock products." Ag.Hist, XII (1938), p.359.
- 13 R. Hewitt, "The development of the Tees-side industrial area", (unpublished M.Sc. thesis, University of London, 1940) gives a good account of the development of the river.
- 14 Tuke, op.cit, p.310.
- 15 Tuke, op.cit., (Quarto ed; London: 1794), p.85. The octavo edition of 1800, p.116, reads "western /sic/ Coast of Great Britain."

- 16 "N.R" as a footnote in Tuke, op.cit. (Quarto ed.), p.310.
- 17 Graves, op.cit., p.450.
- 18 Brewster, op.cit., pp.72-75.
- 19 Ibid., p.66.
- 20 Tuke, (Octavo ed.), p.76.
- 21 BM-SPR/ "Report from the Select Committee ... Distressed State of Agriculture", Reports of Committees, (1821) No. 668, Vol. V, p.65.
- 22 WLC/ Emerson Papers, "Survey and valuation of the Whorlton Estate, 1806", f.129.
- 23 CRO/ Marwood Papers, Field book of 1813.
- 24 BM-SPR/ Reports of Committees, V, 6.
- 25 Ibid, p.335.
- 26 MPL/ ms. Journal of W. W. Jackson, Vol.B, entries for 27th February and 2nd June, 1817: "My Carr at Morton is now bearing its 3^d Crop of oats, in the ploughing for which there was much labour & difficulty, & some danger to the Horses by their sinking in the peat."
- 27 CRO/ZCQ, Charles Turner to John Mowbray et als, 9th October, 1795.
- 28 GET-KH/ "An Act to render valid certain articles of agreement for inclosing and dividing the commons and waste grounds in the Manor and Parish of Kildale."
- 29 NRRD/ Normanby and Great Broughton Awards.
- 30 A. Young, A six months tour through the North of England, (London, 1770), pp.112-49.
- 31 BM/ Cott.Mss., Julius F VI f, f.453.
- 32 CRO/ZK - Kildale, R. Betwood to James Harding, 1670.
- 33 TBL/ Hustler Papers, brief concerning Kildale, circa 1772.
- 34 CRO/ ZK - Kildale, "A survey ... 1623."

- 35 GET-KH/ "Particular of the Manor or Lordship of Kildale," 1806.
- 36 W. Marshall, The rural economy of Yorkshire, (1st.ed; London: 1788), II, 284.
- 37 Ibid., II, 283.
- 38 E. Cleaver in Tuke, op.cit., (Octavo ed.), p.203, footnote.
- 39 Marshall, op.cit., II, 284.
- 40 Tuke, op.cit., p.108.
- 41 GET-KH/ Field book, 1847.
- 42 NRRD hold the award. A summary of its major contents, and some comment is given by J. W. Ord, History and antiquities of Cleveland, (London, 1846), p.565.
- 43 MPL/ ms. Journal of W. W. Jackson, passim.
TRC/ Normanby tithe apportionment and map, 1839.
- 44 NRRD/ Great Broughton Enclosure Award.
- 45 TRC/ Kirby in Cleveland tithe apportionment and map.
- 46 CRO/ZCQ, Account book, entries for 24th December, 1816, 21st June, 1817 and 20th June, 1824.
- 47 CRO/ZCQ, "A particular and valuation ... 1816".
- 48 CRO/ZCQ, Account book, entry for 23rd December, 1824.
- 49 Tuke, op.cit., pp.81-83.
- 50 Graves, op.cit., p.100.
- 51 R. Trow-Smith, A history of British livestock husbandry, 1700-1900, (Routledge and Kegan Paul, 1959), pp.236-39.
- 52 Graves, op.cit., pp. 435, 465, 473 and 485.
- 53 Ibid., p.465.
- 54 G. M. Tweddell, The people's history of Cleveland, (Stokesley, 1872), p.95.
- 55 Tuke, op.cit., p.261.

- 56 Tuke, op.cit., (Quarto ed; 1794), p.65.
- 57 GET-KH/ "Particular ... of Kildale, 1806".
- 58 Marshall, op.cit., p.290.
- 59 WIC/ Emerson Papers, "Survey and valuation ... 1806."
- 60 Graves, op.cit., p.465.
- 61 MPL/ ms. Journal of Ralph Jackson, passim.
_____ ms. Journal of W. W. Jackson, passim.

CHAPTER XIII

WHEAT - GROWING CLAYLANDS - LAND USE AND CROP PATTERNS IN THE NAPOLEONIC ERA

The profitability of arable farming, and particularly wheat growing, reached a high peak during the period of the Napoleonic Wars. There was a very high national demand for grain, and the maritime situation of Cleveland enabled local farmers to respond to this demand. As a result, the area under the plough was greatly increased, to the extent that the district became as well known as an arable district as it had been esteemed as a grazing district little more than a generation earlier. Marshall, having completed his study of the Vale of Pickering, described Cleveland as "more a corn country," and wished that he had left himself more space for "a minutial detail of its arable process," which, he continued, "might be interesting," especially as the uniformity of situation and soil, in an area long enclosed, would be expected to have produced a uniform system of management.¹ In certain respects, for example the dominance of the wheat harvest and the continued allegiance to an ancient rotation, uniformity did prevail, but there were significant local variations - some recent, others of long standing.

John Tuke, an experienced local surveyor, was selected by the Board of Agriculture to write the semi-official North Riding survey.² He had a good eye for country, which enabled him to refine, in the light of his field experience, the regional divisions earlier proposed by Marshall.³ His estimates⁴ demonstrate clearly that the arable acreages of Cleveland (Fig.65) were nowhere exceeded within the Riding, being equalled only on the lighter soils of the outwash plains and Howardian Hills and, on clay soils, only where there were extensive

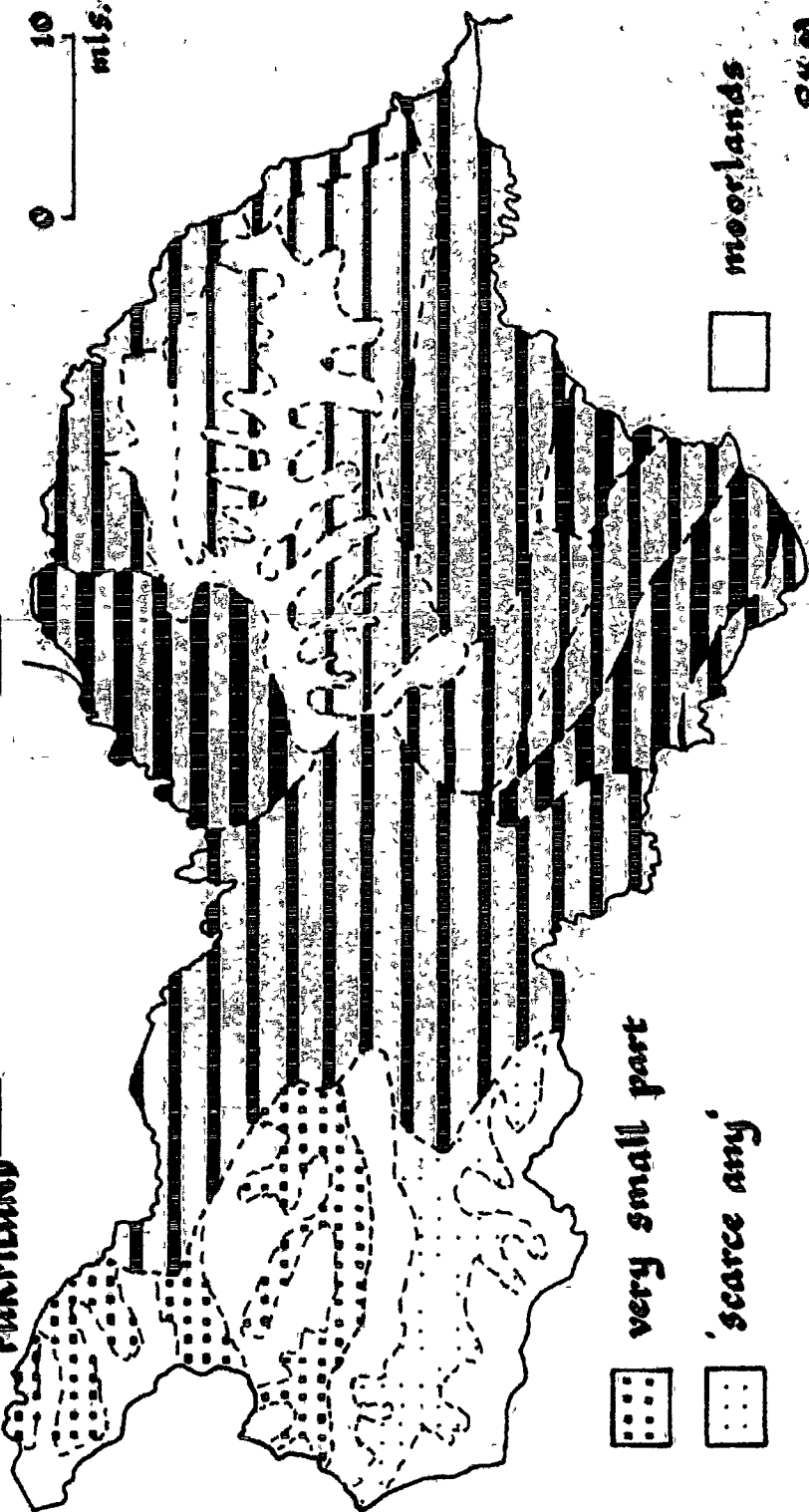
NORTH RIDING ~ Tuke's estimates of proportion of tillage in 1793

FIG. 65

OF
all
FARMLAND

one half one fourth
one third one fifth

0 10
miles



very small part

'scarce any'

moorlands

P.W.S.

FIG. 66

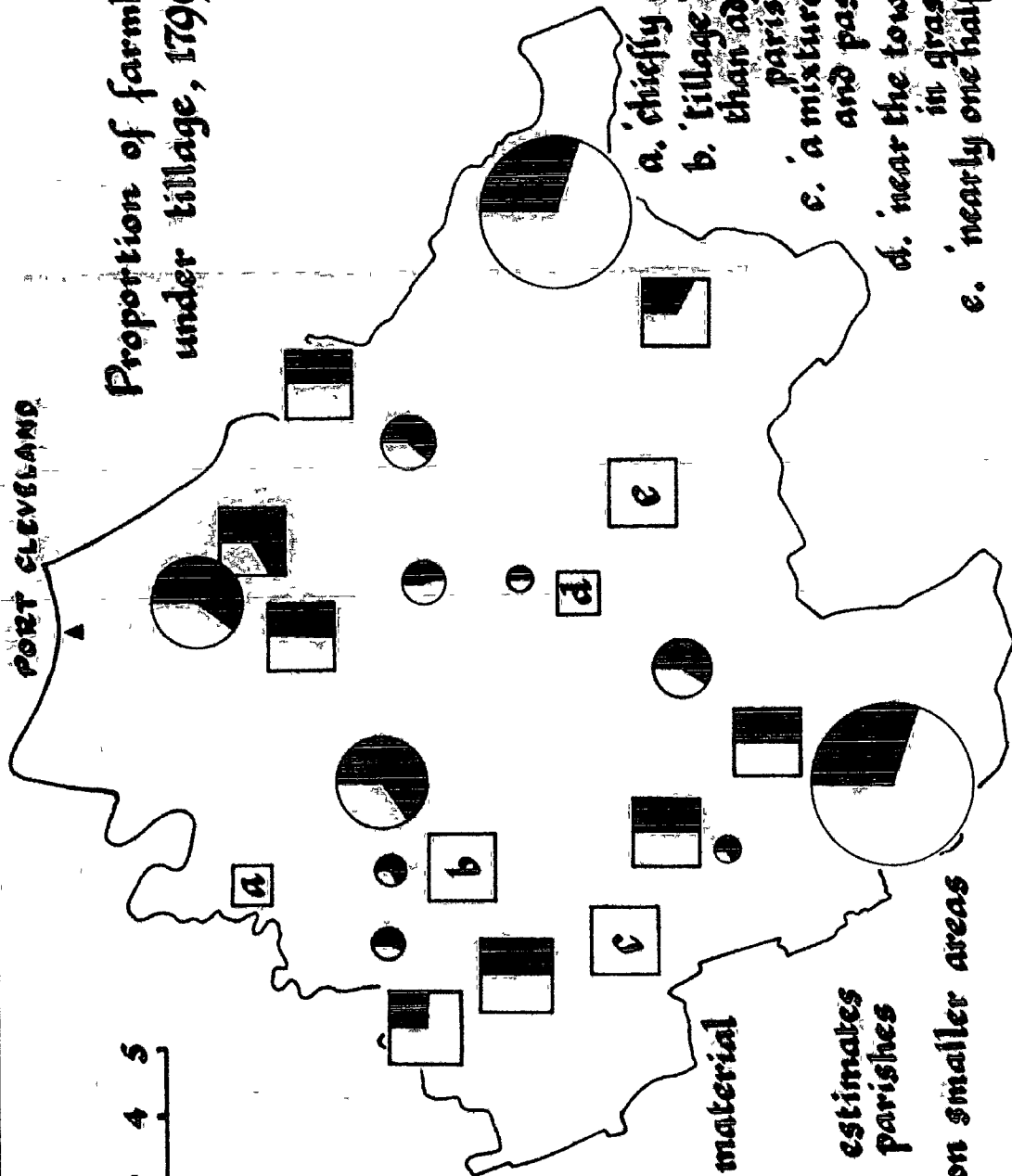
Proportion of farmland
under tillage, 1799-1808

PORT CLEVELAND

1 2 3 4 5
miles

- a. chiefly grass
- b. tillage greater than adjoining parishes
- c. a mixture of arable and pasture
- d. near the town... chiefly in grass
- e. 'nearly one half' tillage

○ Survey material
□ Graves's estimates for parishes
□ Graves on smaller areas



open-fields.⁵ This regional pattern was matched in mirror image by the regional wheat price structure. Thus, the highest prices (6s.6d. per bushel) were found in the western Dales at Askrigg and Reeth. At Richmond, Bedale and Ripon, the price was about 6s. In the Vales of York and Pickering values of 5s.8d. per bushel were found. Only in the Cleveland market towns of Stokesley and Guisborough was the price as low as 5s.3d.⁶ Cleveland was the one area of enclosed lowland clays where arable farming dominated the land use pattern.

John Graves, writing in 1808, also believed that about half of Cleveland was under the plough, but he pointed to areas which deviated from this norm. Thus he described Ingleby Greenhow parish as being "nearly an equal quantity of arable, meadow and pasture land,"⁷ whilst Ormesby was two thirds in tillage; and at Kirkleavington, where half the land was ploughed, "The rents ... [came]... chiefly from the sale of corn; the dairy being less attended to than the plough."⁸ Mapping of his estimates,⁹ together with accurately determined data from surveys,¹⁰ reveals a pattern not totally dissimilar from those of earlier years (Fig.66).

The upland valleys were still largely grass, and this was also true of the scarp-foot zone, although the transition to the lowlands might be very rapid. For example, the Whorlton Estate as a whole, showed an arable ratio of 29.5% of improved land (Tab.XLVI), but its lower sections approached equality of emphasis. In the north, from Yarm eastward along the river, arable was also still unimportant, but the zone now stopped short of Ormesby. A clear emphasis on

TABLE XLVI - Cleveland Land use, 1799-1808

Locality	Date	Acres	Land use %		
			Arable	Meadow	Pasture
Busby	1799	409	58.1	41.9	
Newton	1802	359	61.0	14.8	24.2
Whorlton	1806	2776	29.5	22.4	48.1
Kildale	1806	2471	29.9	9.8	60.3
Ormesby	1808	893	59.8	40.2	
Tunstall	1808	209	44.8	55.2	
Peeton Carr	1808	87	48.3	51.7	
Thornton and Stainton	1808	1037	65.5	34.5	
Maltby	1808	139	66.6	33.4	
Hutton Rudby	1808	74	65.3	34.7	
Ingleby Barwick	1808	126	56.3	43.7	
Total or $\bar{x}$		8580	41.7	58.3	

ploughland is indicated in the neighbourhood of Thornton, Maltby and Hilton, and this zone may have extended both westward into Kirkleavington, and southward into Hutton Rudby and the northern parts of Busby. An area centring on Stokesley showed a slight tendency towards the pastoral side of farming. Newton continued in its rather isolated arable tradition.

Within this framework of local variation can best be examined the evidence for changes in the amount of tillage, drawing on data from both earlier and later than that on which figure 66 is based.

Early in the period, the former grazing lands around Ormesby began to yield to the plough, but in 1792 there can hardly have been more than 46.6% tillage on William Brown's estate which comprised half the township.¹¹ Since the other half of the township, essentially similar in soil and situation, had an arable percentage of 59.8 by 1808, a significant increase over the previous decade and a half seems certain. Graves implied that the trend commenced shortly after 1770.¹²

At Busby, innovation had led to an early increase of arable (chapter eleven) in an area also mainly pastoral in 1770. The three farms for which data survive, increased their arable from 29.7% in 1760 to 58.1% in 1799. Even Newton showed a proportionate increase - from 41.5% in 1760 to 61.0% in 1802.

Later in the period, in 1818, Ingleby Barwick tithe accounts suggest an arable area there of 850 acres (58%).¹³ In the unlikely event of this estimate being excessive, there is yet a strong indication of increased ploughland. It is true that the southern portion of the tithe-farm (Ingleby township) bordered an area already markedly arable by 1808 (Fig. 66) and actually included one farm detailed in that year as having 56.3% arable. At the same time, however, the northern portion (Barwick township) had been "mainly grass." Similarly, data from Foxton and Hutton Rudby (localities with 50% to 65% arable in 1808) indicate a further swing to crop-farming in the decade before 1816 (Tab. XLVII).

TABLE XLVII - Land use at Foxton and

Hutton Rudby, 1816¹⁴

		Foxton	Hutton Rudby
Acreage		194	784
Percentages	Arable	74.1	70.5
of improved	Meadow	11.1	8.7
land	Pasture	14.8	20.8

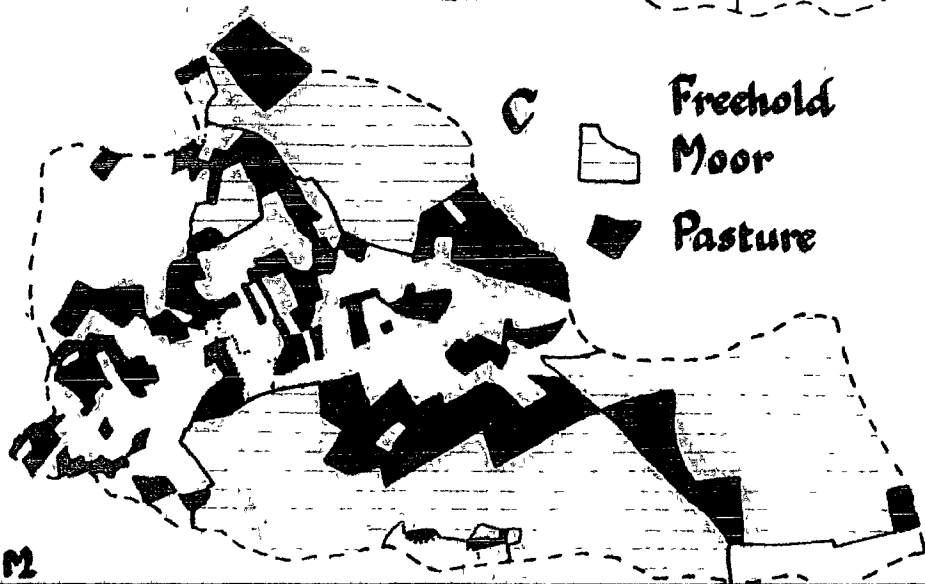
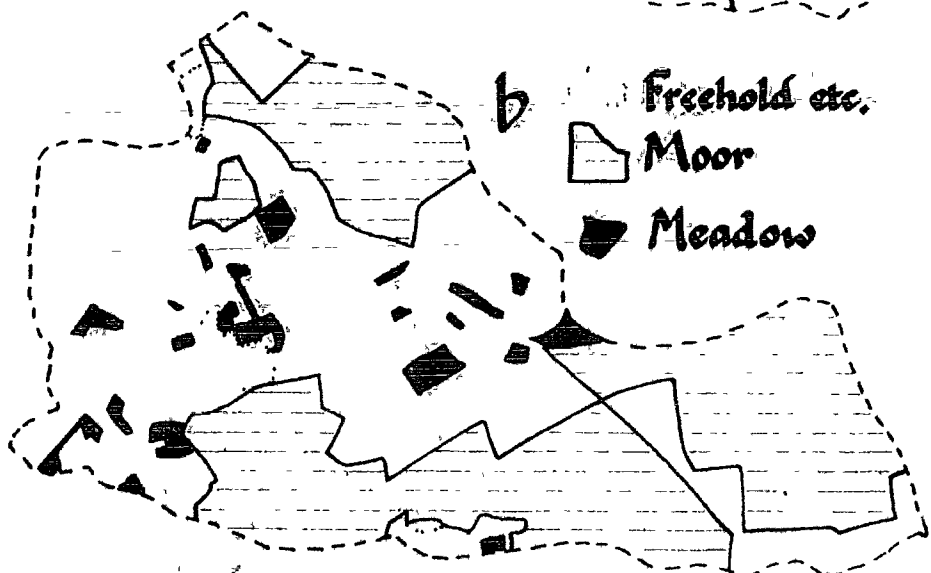
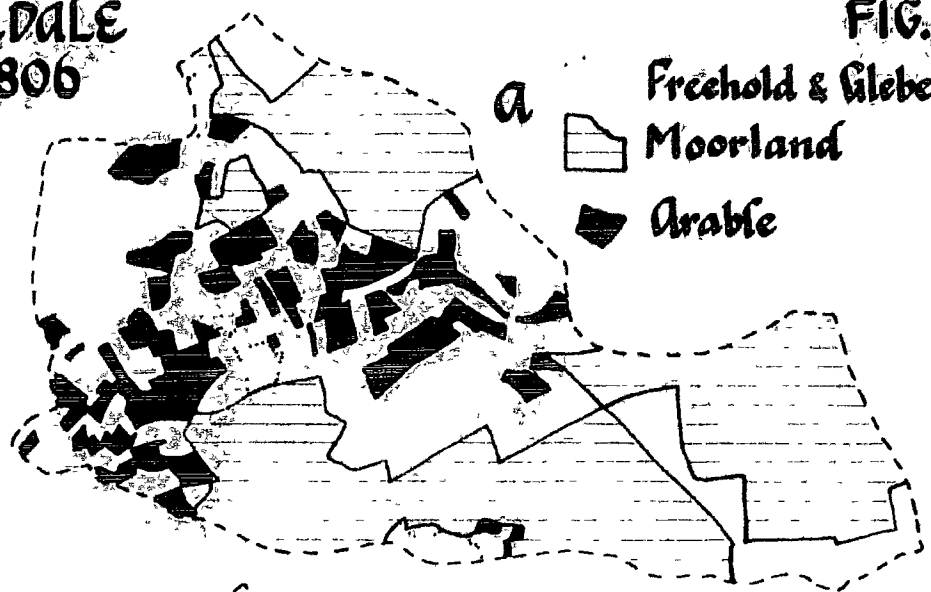
During the period of the wars with France, therefore, the West Cleveland district was not only one of the north's outstanding arable areas, but was turning increasingly from grass-based production - proven over the past century - to the tempting fruits of the plough.

For the grassland which remained, the surveys of this period laid less emphasis on the distinction between meadow and pasture than had earlier been the case. This might suggest that the distinction between the two was becoming blurred, and that the alternate use of grass for these purposes was coming in - though Tuke found little evidence of such flexibility, and deplored its absence.¹⁵

The ratio of meadow to pasture (Tab. XLVIII) varied between 1:1.3 at Foxton, where there was a large clover acreage, and 1:6.1 at Kildale. The latter value appears to be abnormally low, and reflects the inclusion of much rather poor pasture in the category of "improved" land, following Sir Charles Turner's rather optimistic activities there (chapter twelve). A ratio of the order of 1:1.75

KILDALE
1806

FIG. 67



P.K.M

TABLE XLVIII - Meadow and pasture, 1802-1816

Locality	Date	% improved land			
		Meadow	Pasture	Clover	Turnips
Newton	1802	14.8	24.2	0.8	3.3
Whorlton	1806	22.4	48.1	..	..
Whorlton*	1806	20.6	39.0	-	0.2
Kildale	1806	9.8	60.3	..	..
Foxton	1816	11.1	14.8	6.9	1.5
Hutton Rudby	1816	8.7	20.8	5.5	-

* Data from a group of 8 Whorlton farms, for which the 1806 Survey lists crops rather than crude land use.

appears to have been normal, there being no significant change from the situation in 1770. The introduction of clover, and/or turnips, which might have been expected to permit a reduction in the relative importance of haymaking, had this effect only at Hutton Rudby. At Foxton, it would appear that large numbers of stock were being bought in for winter feeding.

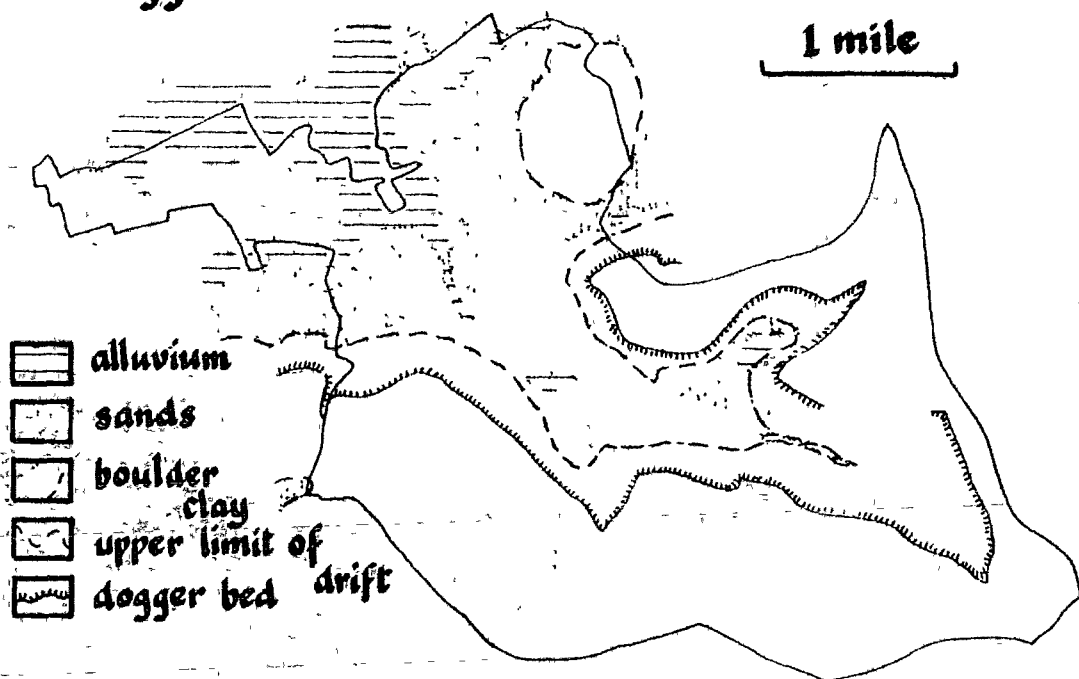
Earlier, it was found convenient to discuss the detailed land-use maps of sample areas in the context of a section cutting across the major physical zones. This sequence will again be followed.

At Kildale (Fig. 67) there was in 1808 greater complexity in the use of enclosed land than had been the case in 1612 (Fig. 36). Arable cultivation was now practised on many different kinds of site. Not only were the lower portions of the Warren and Percy Rigg spurs cultivated; but also certain of the heavier, wetter sections of the

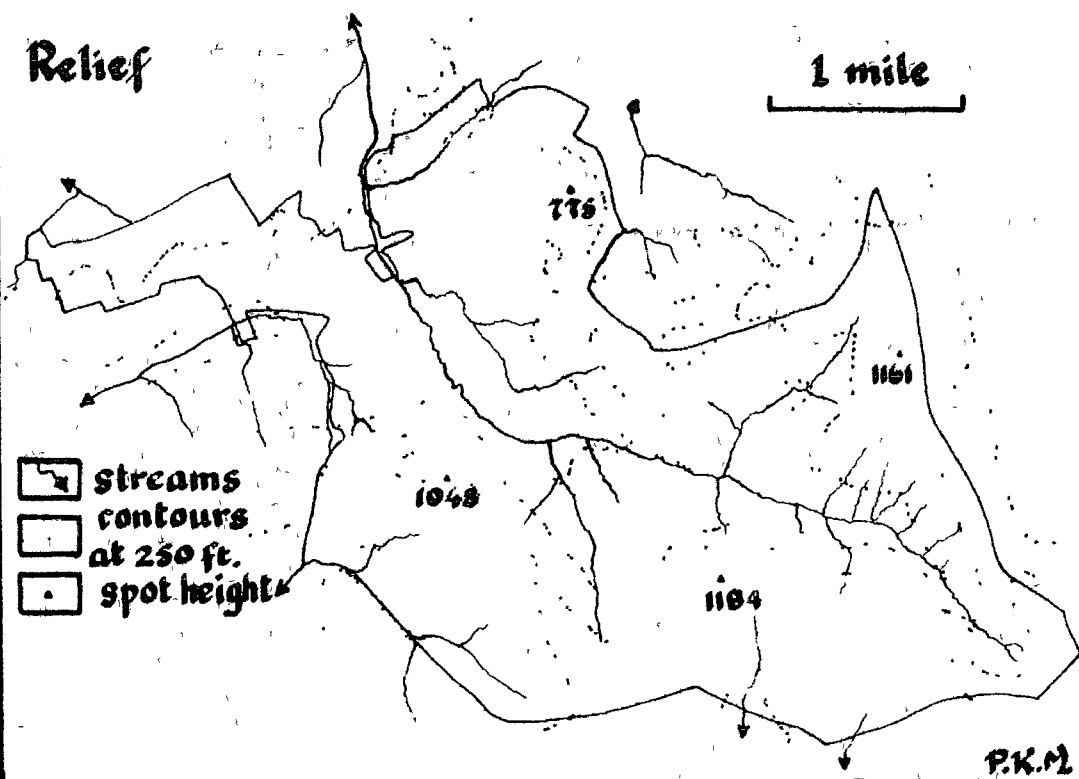
WHORLTON

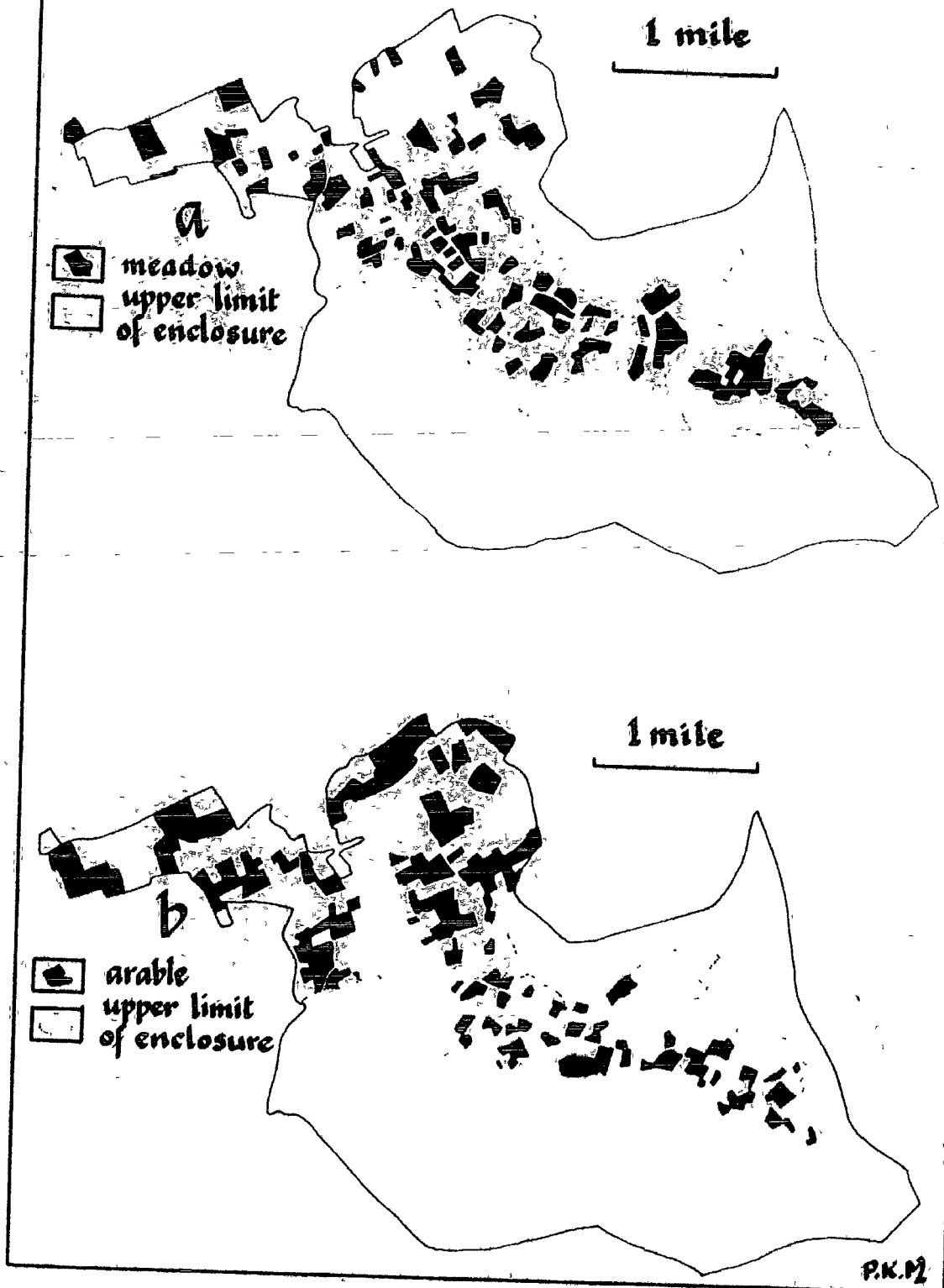
FIG. 68

Geology



Relief





valley floors (previously meadow) were under the plough. This change is especially noticeable in the area to the south and west of the moraine. Although some hay continued to be grown on the wet, alluvial sites, other of these (in Lounsdale, for example), were now depastured or, as below the Park, partly arable.

Physical conditions at Whorlton (Fig. 68) are at once like, and unlike, those at Kildale. Altitudes are comparable: there is a lowland section, an intermediate bench area floored partly by fluvio-glacial material, and upper drift-free zones leading to high moor. Orientation is different, and the valley section of Whorlton (Scugdale and Snotterdale) is much less open than Kildale: slopes are steeper, and there is no real development of the lower spurs comparable with Percy Rigg. In Scugdale, the "dogger" bed clearly defines the edge of the moor plateau, and its outcrop formed the effective "head dyke" upper limit of improvement at this date (Fig. 69). This relationship was especially well marked on south-facing slopes where, however, southerly aspect appears to have permitted expansion onto the moor plateau at a few points. In general, this break-of-slope seems to have constrained the improver more powerfully than did altitude. Unenclosed areas below it are rare: the largest tract was found on steep slopes of northerly aspect on the west side of the valley mouth, where the upper limit of boulder clay appears to have been an important consideration; a smaller area lies on the dank, steep slopes at Scugdale Head.

Arable land (Fig. 69) was found on three types of site: (1) on

large tracts of the clay and alluvial subsoils of the truly lowland portions of the estate in the north; (2) in plots of medium size upon the sandy veneer overlying the valley-mouth bench (especially on the east, whence cultivation extended onto the drift-free lower slopes of Whorl Hill), and (3) in scattered small plots on the floor and south-west-facing slopes of Scugdale. Exposure appears to have been a highly significant factor of this latter component of the distribution - the assymetry is very marked.

Spread much more evenly throughout the estate was the meadowland, although it became locally more significant in Scugdale generally, and especially in the stream-side areas south of Swainby village. In the Whorlton of 1806, however, there seems to be relatively little survival of that marked preference for damp meadow sites, which had been so conspicuous a feature of Cleveland land use patterns in earlier centuries.

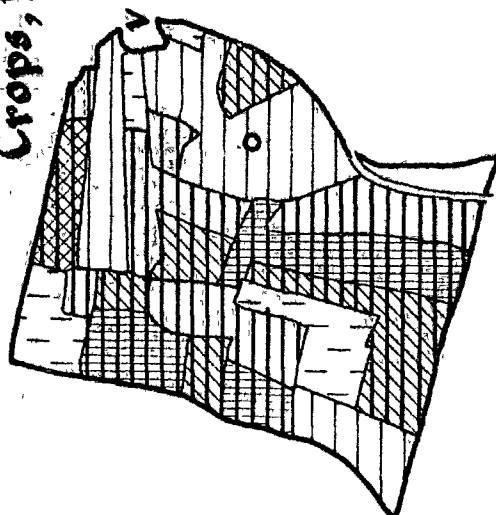
Scugdale farmers habitually used their upper fields, adjoining the moor, as pasture, but small grazing plots occurred also in the valley floor, especially near farmsteads. As in 1770,¹⁶ pastures capped Whorl Hill and were scattered through the lowland and scarp-foot zones, with some concentration about, and notably eastward of, Swainby village.

In the lowland north of Busby, distributions were much as they had been earlier - though with more land under the plough. At Parish Crayke Farm (Fig. 61) the fertile riverside silts were now being exploited for cereals, but otherwise there was little change.

FIG. 70

NEWTON

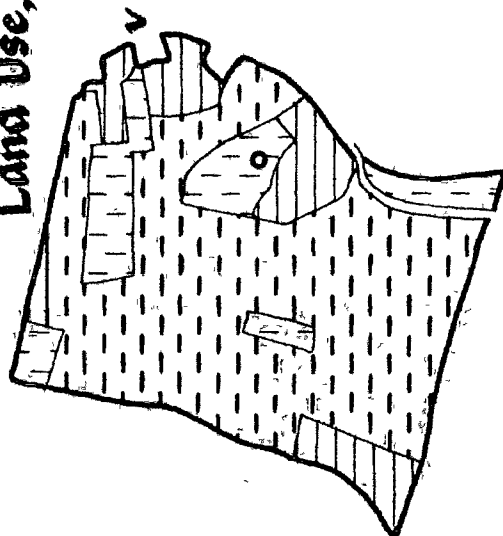
Crops, 1802



barley
mixed corn
pulses
roots
clover
homestead
village

pasture
meadow
grassland
arable
fallow
wheat
oats

Land Use, 1837

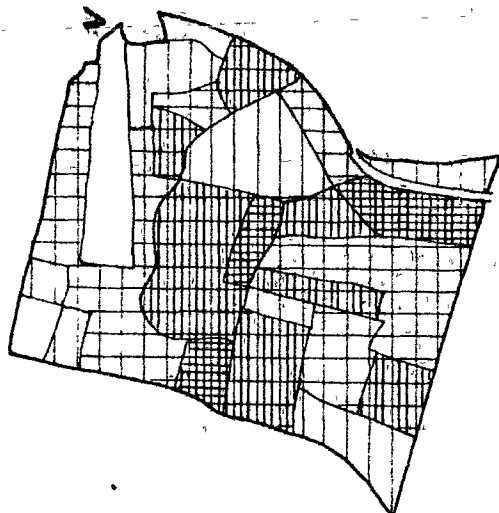


History of land use,

1740-1837

no evidence of arable cultivation
arable in ONE survey year
" TWO " years
" THREE " "
" ALL " "

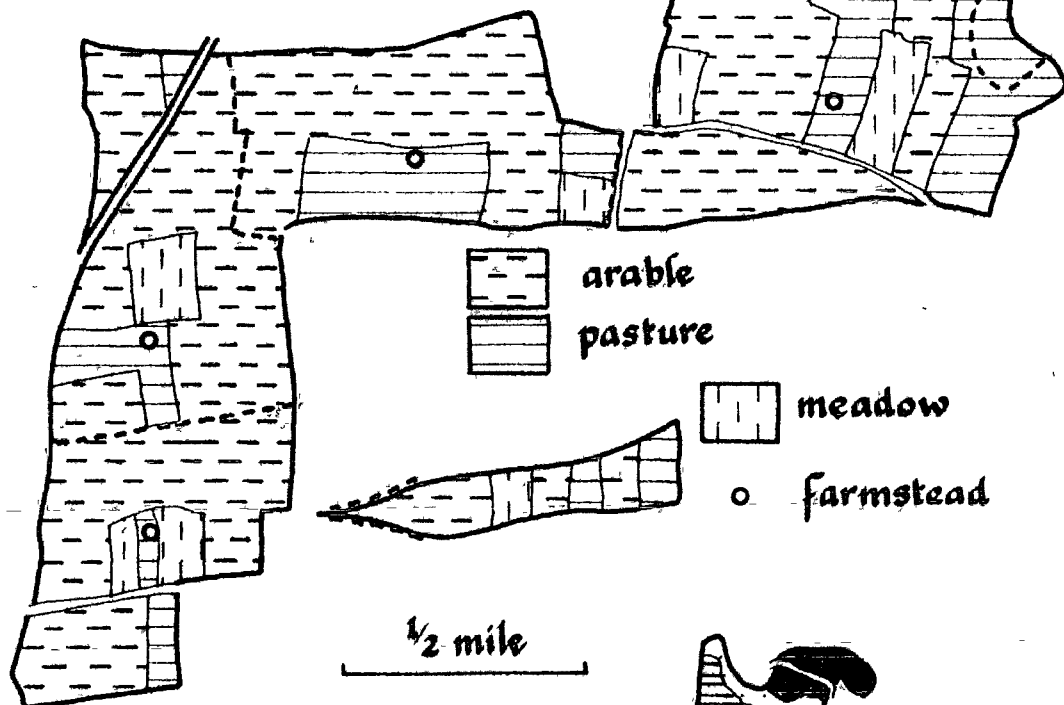
Survey years: 1740, 1760, 1802, 1837



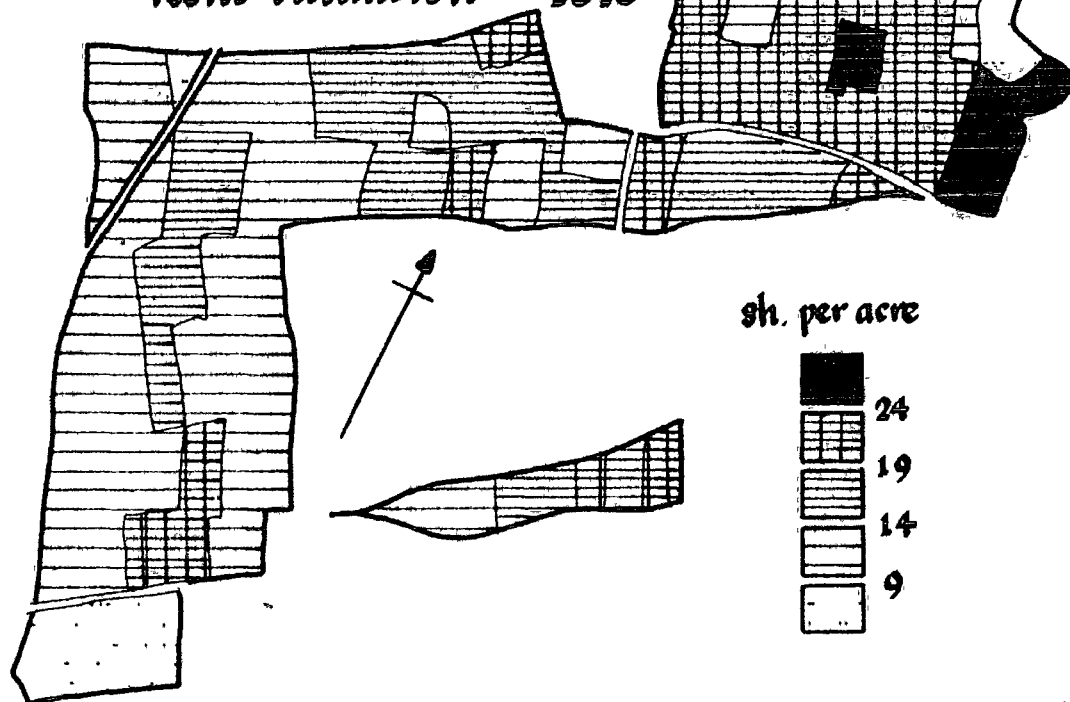
HUTTON RUDBY

FIG. 71

Land Use ~ 1816



Rent Valuation ~ 1816



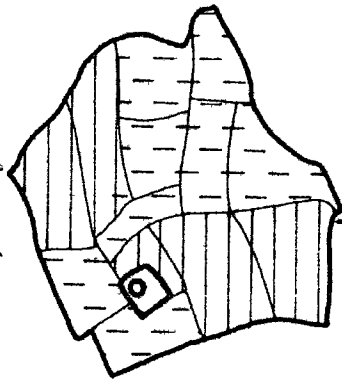
P.K.M

FOXTON

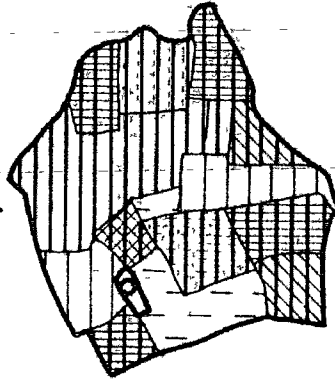
FIG. 72

For key see fig. 70

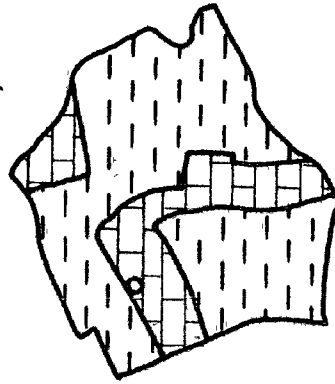
Land use, 1677



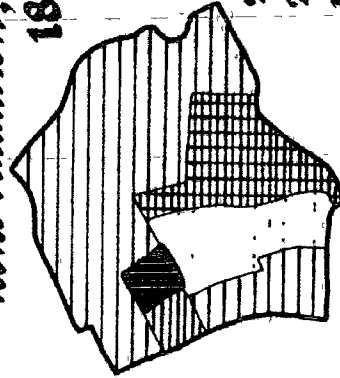
Crops, 1816



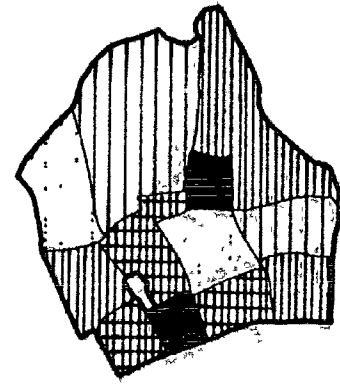
Land Use, 1840



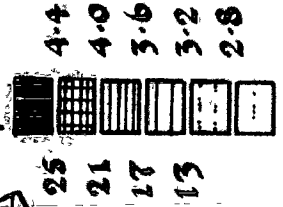
Rent Valuation,
1816



Tithe Rent Charge, 1840



s. per acre



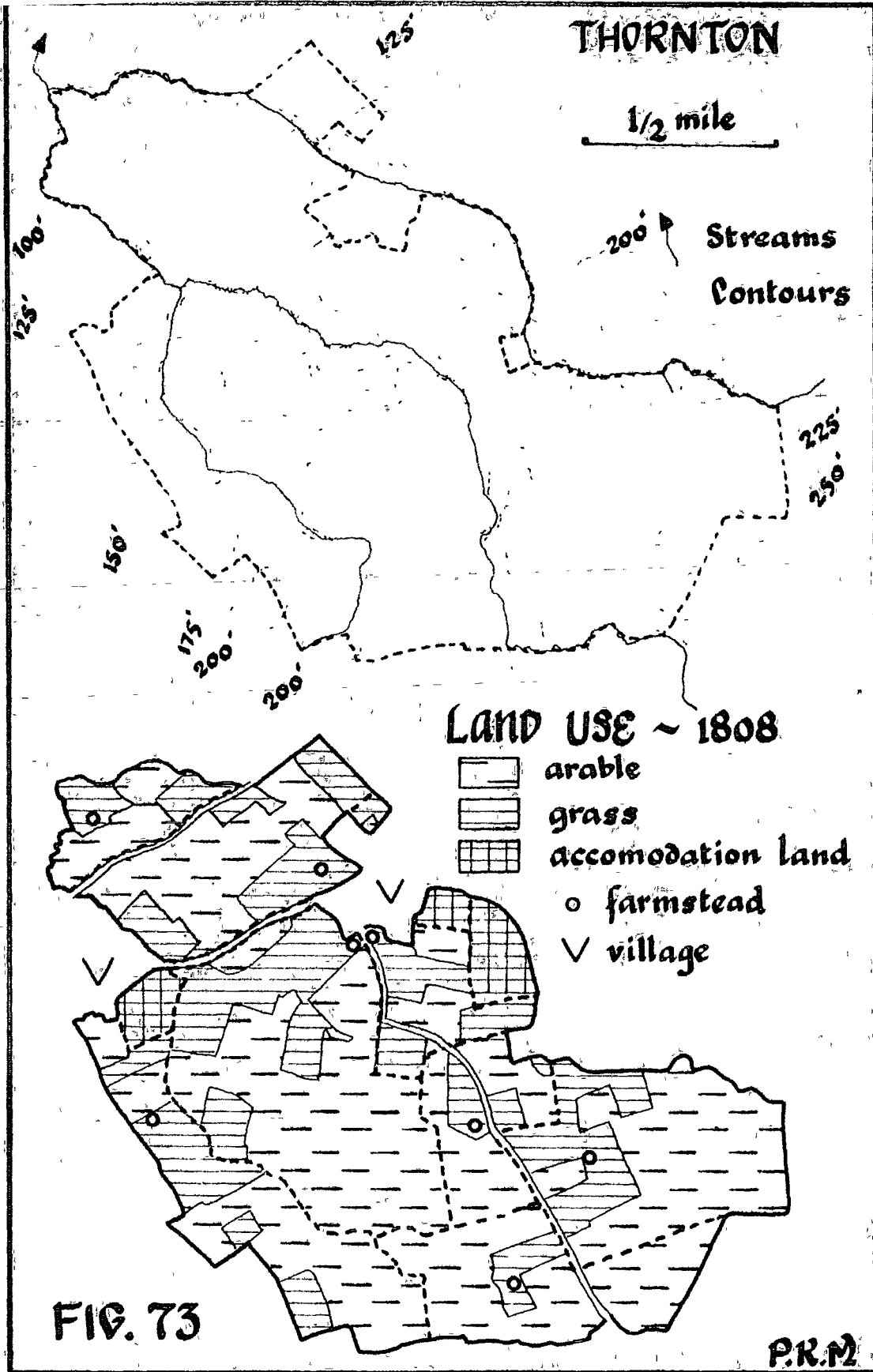
Relief and Streams



In 1802, the dampest corner of the Newton estate continued as meadow (Fig. 70). Otherwise, the main factor influencing land use patterns appears to have been the distribution of homesteads. Grass was preferred both near the village, and around the recently-constructed Whitegate Hill farmstead. This tendency was, however, far from absolute, and a significant spread of grass lay in the distant south-west corner of the estate.

The Kirkleatham Hospital's property in Hutton Rudby occupied most of the northern and western peripheries of the township. Apart from the slopes of the incised Leven valley, which forms the eastern part of the northern limit, gradients are shallow and the subsoil is, almost uniformly, a heavy boulder-clay. In his report, the surveyor described most of this land, and also that at Foxton, as "weak, wet clays." The eastern segments are of rather better quality than the rest, as is clear from the map of valuations (Fig. 71). River bluffs were assessed low, but the "holmes" were highly valued, as had been the case at nearby Crathorne in 1780. Where the terrain is broadly uniform, it is notable that value deteriorates westward, away from the village. A strip of pasture, some of it poor rough grazing, followed the river bluffs and spread onto the smaller "holmes," but the larger terraces were ploughed. Elsewhere, the pattern of "homestead grass" and "outground arable" was dominant, though some isolated pastures did occur.

At Foxton (Fig. 72), sites very similar to those of western Hutton Rudby are found, and the land use followed a similar pattern.



ORMESBY HALL ESTATE - 1808

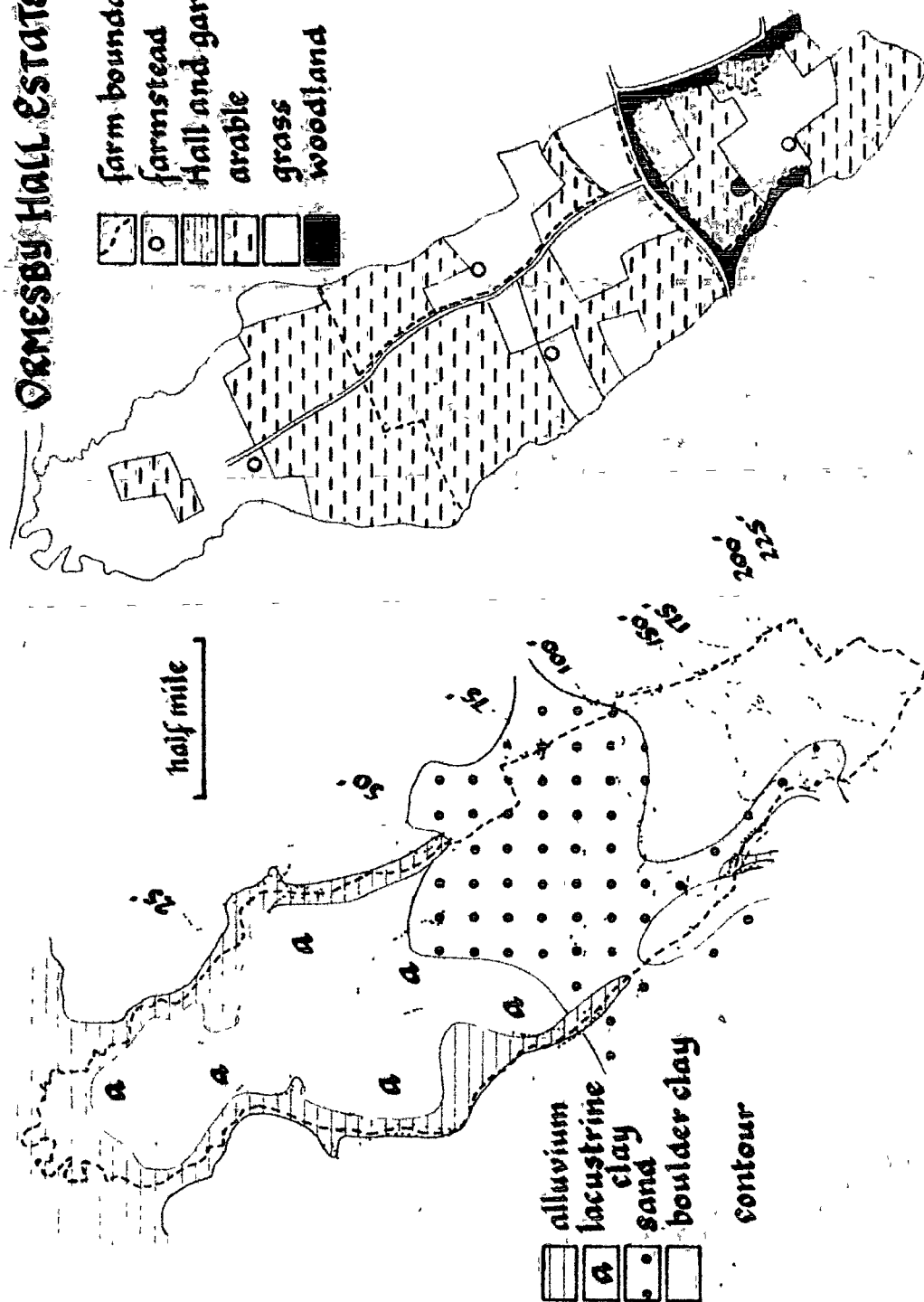


FIG. 74

PK. 12

Grassland, especially that close to the steading, was most highly valued, but it is not easy to see what other factors influenced the land use and valuation patterns.

Newton had had a long tradition of arable farming and Hutton Rudby had shown a similar emphasis in the 1680s. Thornton (on the northern fringe of the Cleveland moraine) had a comparable history, and was markedly arable in 1808. The farms there were generally compact (Fig.73), and a concentration of grassland about the homesteads is again noticeable. Another factor may also be operative, for it is observed that most of the outlying plots of grassland have access to drinking water, provided by one or other of the three streams flowing across the estate.

By contrast, the large arable acreages at Ormesby had been established recently. The Ormesby Hall Estate cuts transversely across a series of contrasting strips, (Fig. 74) from the boulder-clay hummocks of the south, through the belt of sandy loams, onto the flat and heavy lacustrine clays, and finally, onto the new alluvial land of the estuarine marshes in the north.

The lower alluvial and clay portions of the Ormesby Hall Estate were, in 1808, still largely grass below 20 ft. O.D., but above this level the lacustrine clays supported a large continuous arable tract, shared by three tenants. Upon the loams, grass and arable were equally important. The same was true upon the boulder clays to the south, though landscaping in the proximity of Ormesby Hall had led to the establishment of stream-side woodland and shelter belts which

intruded a distinctive element.

In 1792, the proportion of arable on the Brown Estate at Ormesby was less than it was to be a few years later, and the distribution of titheable crops is not a complete record of the arable (Fig.91). Direct comparison with the Ormesby estate is therefore not possible. The estate is of considerable interest, however, since it includes the full range of Cleveland environments from the drift-free Jurassic upland to tide-water (Fig.90). Also, it shows rather more arable exploitation of the lower lands than might be expected - though only one arable plot was certainly on the alluvial sub-soil. The rather limited sandy loam zone may have been reserved for grass, but there is a significant arable concentration along its junction with the clays. On the boulder clays, well away from the village, is another arable concentration, and a further belt may be distinguished linking up with the southernmost arable of the Ormesby Hall Estate, and extending thence eastward onto the drift-free summits of Hambleton and Godfaltar Hills, at elevations of up to 450 ft. O.D.

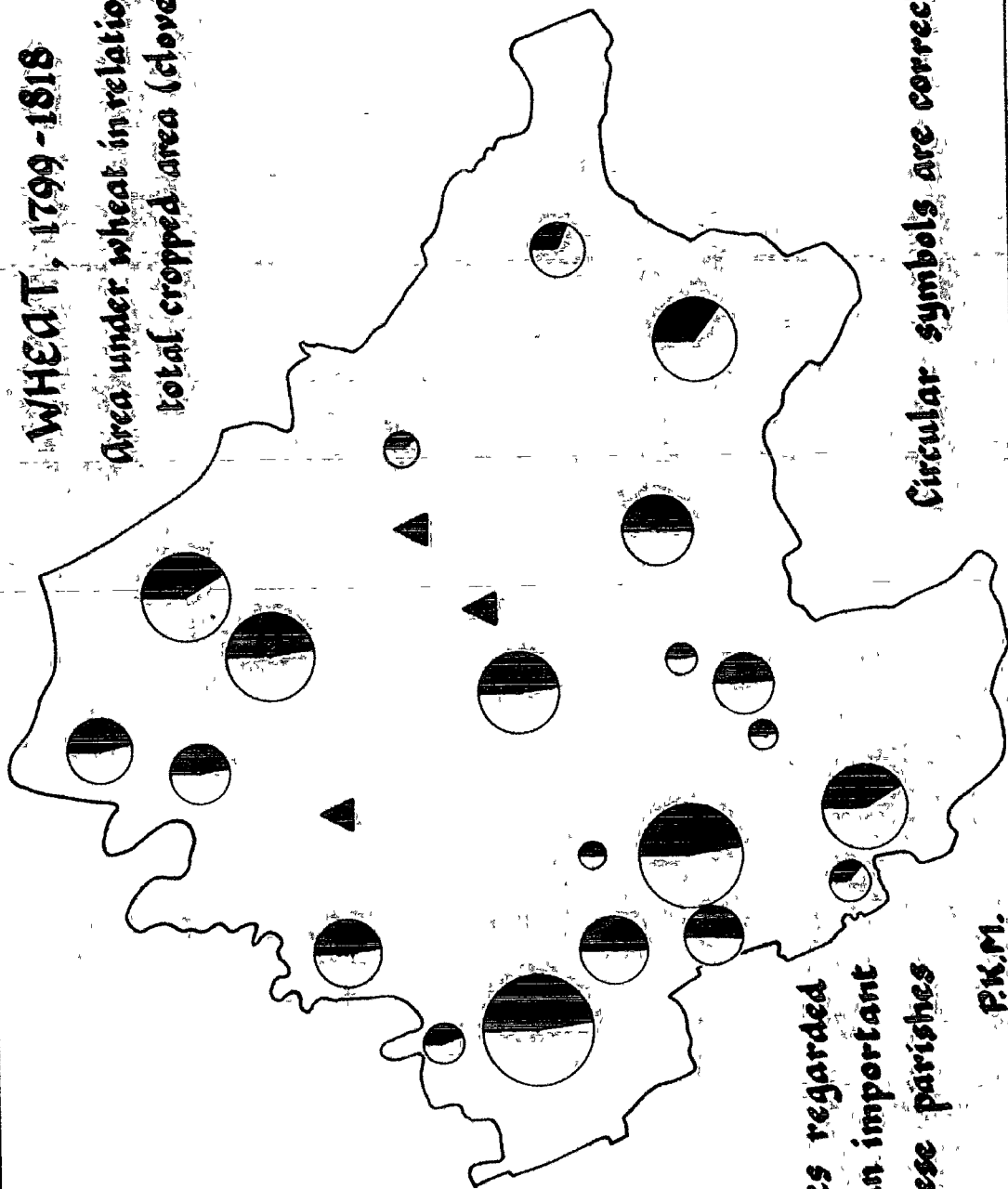
For this period, no material is available for the mapping of those lowland localities, such as Yarm, Stokesley and the Thornaby riverside strip, in which grass-farming was still dominant.

This review brings out a number of points, but most outstanding is the conclusion that very few of the environmental factors which might have influenced the distribution of arable appear, in fact, to have been operative at this time of high prices and expanding ploughland. This is not unexpected, for the greater the number of fields

FIG. 75

WHEAT, 1799-1818

Area under wheat in relation to
total cropped area (clover excl.)



▲ Graves regarded
wheat as an important
crop in these parishes

Circular symbols are correct scale

P.K.M.

to be ploughed, the less stringent could be the cultivator's requirements in terms of inherent quality, especially when land close to the homestead was required for pasture.

During the war years, wheat was the dominant crop everywhere in the lowlands (Fig.75), yielding place to oats (Fig.78) only in Kildale, Ingleby Greenhow and Newton. At Whorlton, where the 1801 figure (41.1%) includes lowland Potto, the value for the scarp-foot area in 1806 was lower (35.9%) and, no doubt, the proportion was lower still in Scugdale. Climatic and soil factors combined to maintain lower wheat acreages in the valleys. In the lowland parishes, wheat occupied between 45% and 52% of cropped area, except at Yarm and Ormesby. Ormesby township has spreads of the lighter arable soils, but the somewhat comparable soils of Seamer (47.5%) appear to have had no depressing effect on the interest in wheat. At Ormesby, wheat had been more important in 1792 (57.2% of tithable crops), but by exactly how much it is not possible to say. That the growing of wheat was the basis of the increased West Cleveland arable interest is amply illustrated.

Yields were not particularly high and show signs of decline. At turn of century, a good crop was expected to yield no more than 24 bushels, as compared with 28 to 32 bushels, or even 40 bushels in parts of the Vales of York and Pickering.¹⁸ In 1801, wheat yields at Yarm and Kirkleavington, were thought to be about 20 bushels per acre - 4 bushels lower than nearby High Worsall.¹⁹ Actual averages, based on tithe records, suggest that these general estimates may have been optimistic. At Ormesby, the average yield for the harvest

of 1792 was 14 bushels, the best fields gave 19 bushels, and the worst, 8 bushels.²⁰ Nationally, the 1792 harvest was poor, but Brewster implies that the local season was no worse than average.²¹ Two decades later, Ingleby Barwick yields over a five-year period averaged 14.8 bushels.²² There was remarkably little year-to-year variation in the maximum yield, which came close to Tuke's "good crop" (Tab. XLIX). On the average, 1815 was a relatively poor year, but the variation of other annual means is insignificant. It is likely

TABLE XLIX - Wheat yields at Ingleby Barwick,

1814 to 1818

Year	1814	1815	1816	1817	1818
No. of farms tithed	3	4	5	7	7
Wheat acreage	95	114	228	252	281
Maximum yield (bushels)	24	20	24	22	22
Minimum yield (bushels)	9	7	6	8	11
Mean yield (bushels)	16.3	12.1	15.5	15.5	14.2

that Tuke (and Marshall and Young before him) used the Winchester standard for the bushel. The measure in use in Cleveland may have exceeded this by two quarts, or 6.3%.²³ The highest average value that it seems possible to give Cleveland wheat yields of this period is 16 Winchester bushels per acre - appreciably less than Arthur Young's 1770 estimate.

Although yields were low, the quality of Cleveland wheat was excellent, and it was on this basis that, in years such as 1798 (when

the national supply was adequate²⁴) Cleveland prices could rise well above those of higher-yielding districts.²⁵ The Cleveland grain was heavier than average. Bartholomew Rudd, who farmed 1000 acres at Marton, stated that over a five-year period (1815 to 1820) his own wheat had averaged 61 lbs. per Winchester bushel. The average for the counties of York and Durham was 58 lbs. only. In the local markets, sale was often by weight: the seller of a bushel failing to reach 60 lbs. was required to augment the volume sufficiently to make up the discrepancy in weight. On the other hand, it was usual to pay a bonus of 3d. per pound for grain heavier than the standard.²⁶ The high quality is attributable to the heaviness of the clay soils - a stiffness increased by the heavy applications of lime regularly applied to the preceding fallows. Despite the very high transport costs, but in the absence of alternative "manures," applications of two to three chaldrons were commonly given.²⁷

If wheat was the king-pin of the cropping system, the preceding fallow was all that made it possible. Tuke makes it clear that the standard Cleveland rotation was still "fallow, wheat, oats: or, instead of the last, beans, or blendings": while a new (but technically dubious) rotation was. "fallow, wheat, oats: clover, two years".²⁸ Graves appears to accept the traditional rotation as universal (though modified where turnips and potatoes had been introduced) except at Marton²⁹ where he gives: F; W; Cl, Be, as the standard - even here, the pre-wheat fallow is maintained. Throughout Yorkshire, on strong lands, the fallow was a bare fallow - thrice-

FIG. 76

BARE FALLOW, 1795-1816
as proportion of total arable

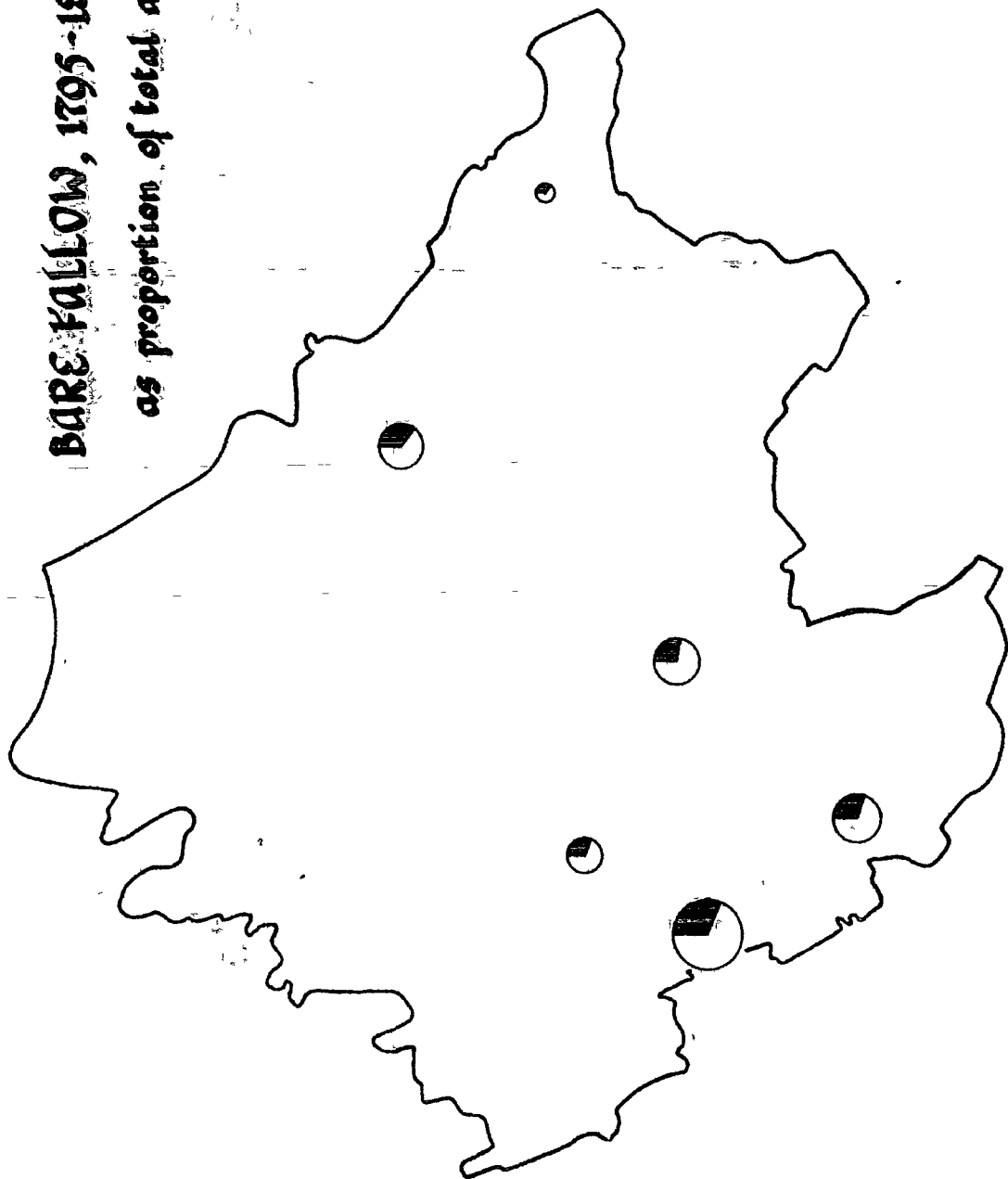
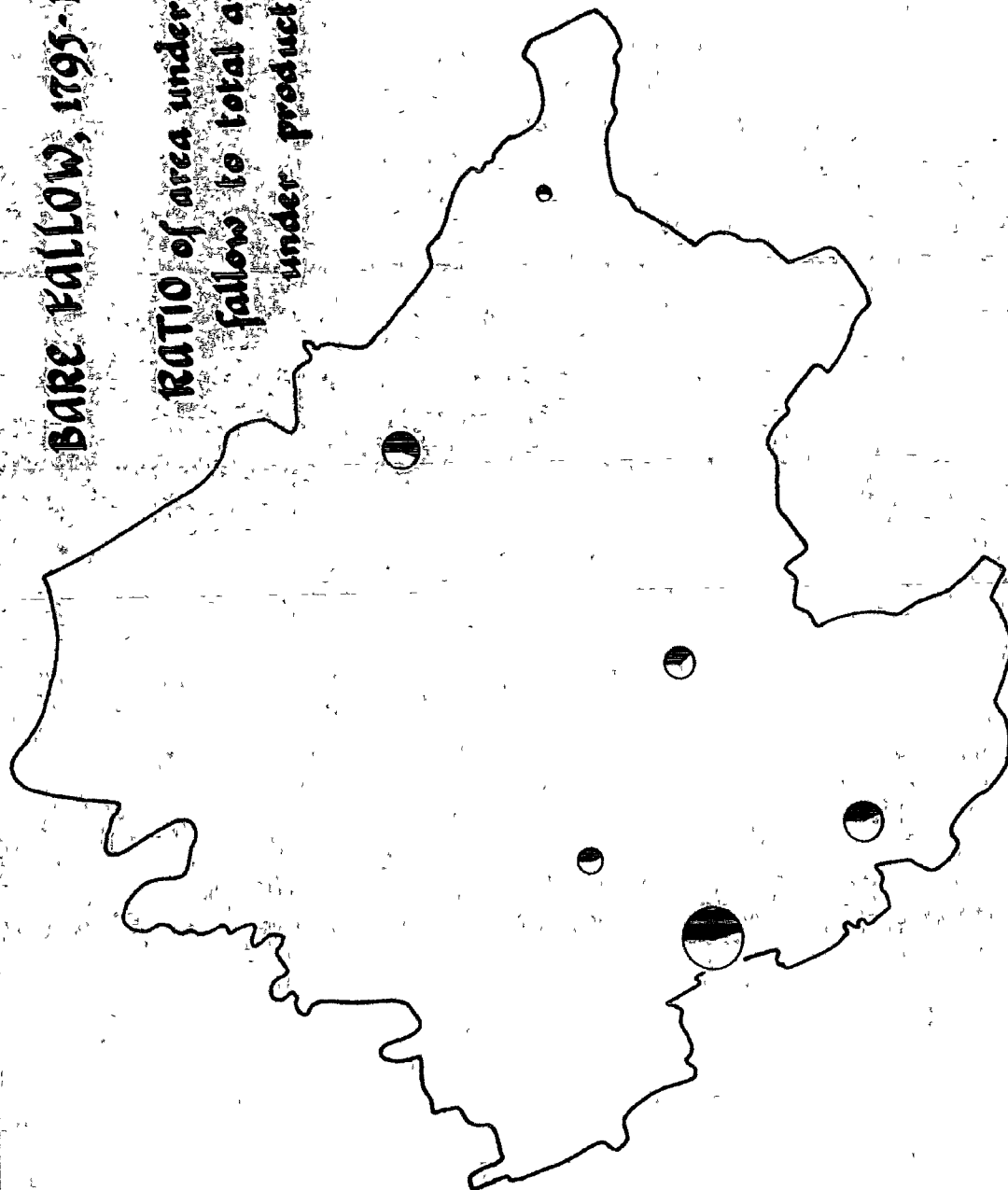


FIG. 77

BARE FALLOW, 1795-1816

RATIO of area under bare
fallow to total area
under productive crops



ploughed, including a cross-ploughing. Yard manure was occasionally applied, but more often it was still reserved for the grass.

Two maps of bare fallows have been prepared. Figure 76 shows fallow expressed as a proportion of the total arable acreage. The distribution, though data are sparse, is remarkably consistent in contrasting environments. Values range from 27.0% at Busby, to 36.7% at Kildale, thus confirming the triennial fallow as a ubiquitous practice. Figure 77 expresses the same data in a less simple way. Here, it is a comparison of the acreage under bare fallow (black segment) with the total crop area (whole circle) which is attempted. This permits a direct comparison of fallow with any other mapped crop. The ratio of fallow to productive cropland is 37.2:100 at Busby, rising to 55.4:100 at Newton. The Kildale value (54.7:100) is also high, but so was the wheat proportion on this single farm (65.2%): neither are typical of the locality. Roots, as will be shown, were grown at Busby and Whorlton. If, for the moment, their acreages are included with the fallow, the Busby ratio becomes 42.8:100, and that for Whorlton, 45.2:100. The implications of these figures (if representative of local practice) are that wheat and fallow were, in fact, as intimately associated as the accounts and the generalized rotations suggest. In those localities where wheat was the dominant crop, the values differ by no more than 3.5%. At Whorlton and Newton, where oats was dominant, the fallow (including roots) ratio is larger by 9.7% and 15.2%. In these environments, wheat could no longer command the prior use of fallowed land, and oats would be sown onto a proportion

FIG. 78

QATS, 1799-1818

Conventions as Figure 75

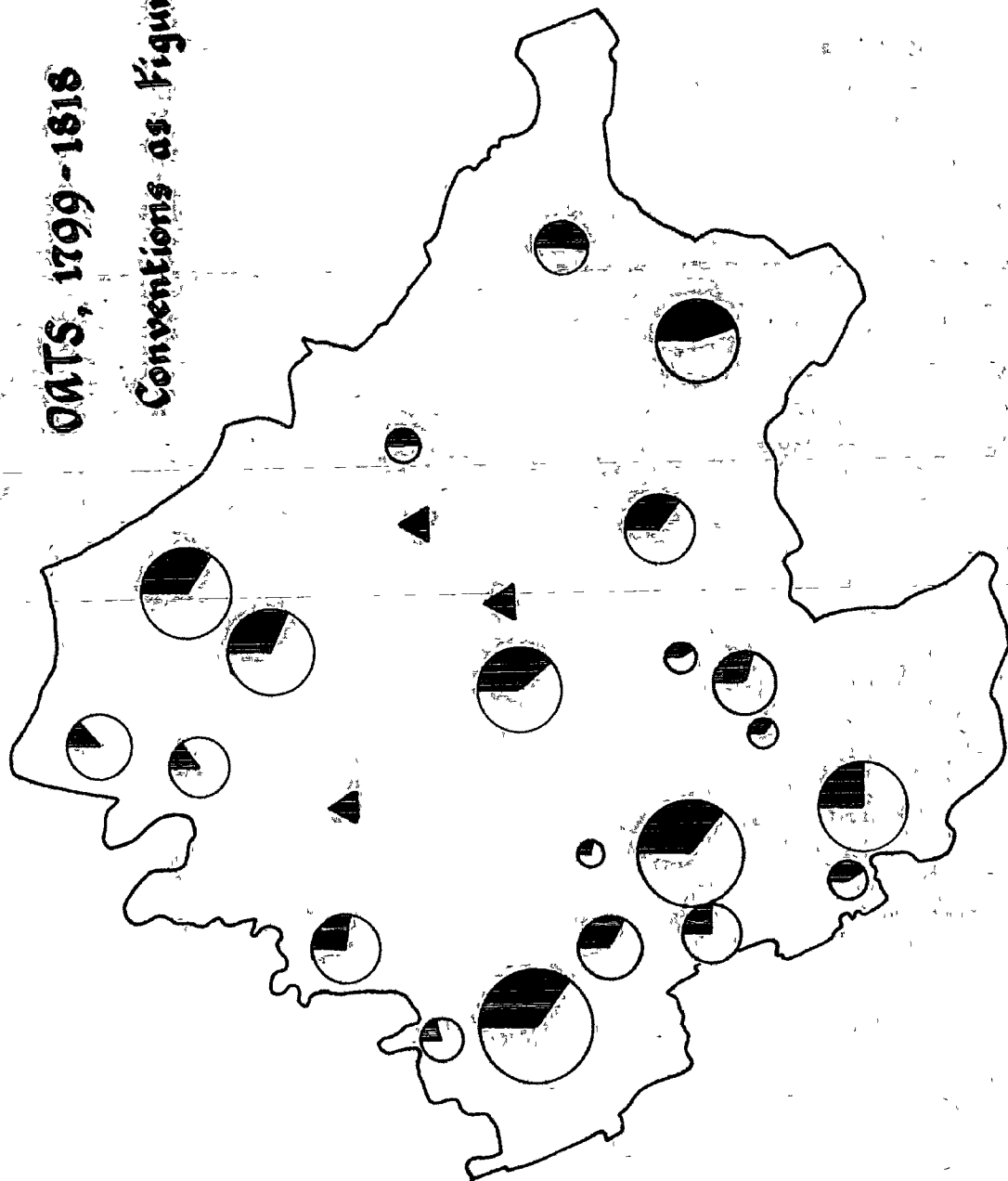


FIG. 79

MIXED CORN, 1802-1818

Conventions as Fig. 75

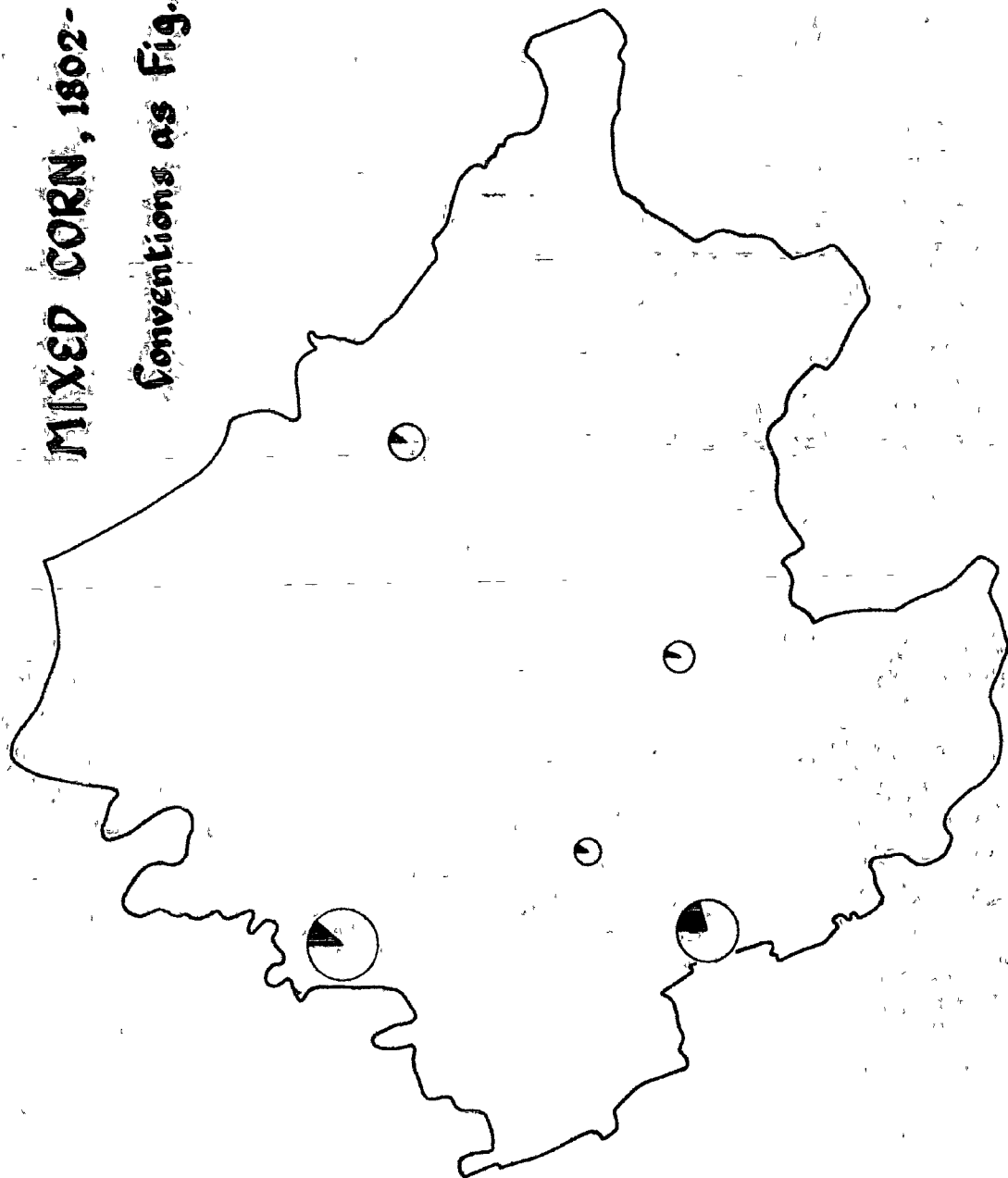
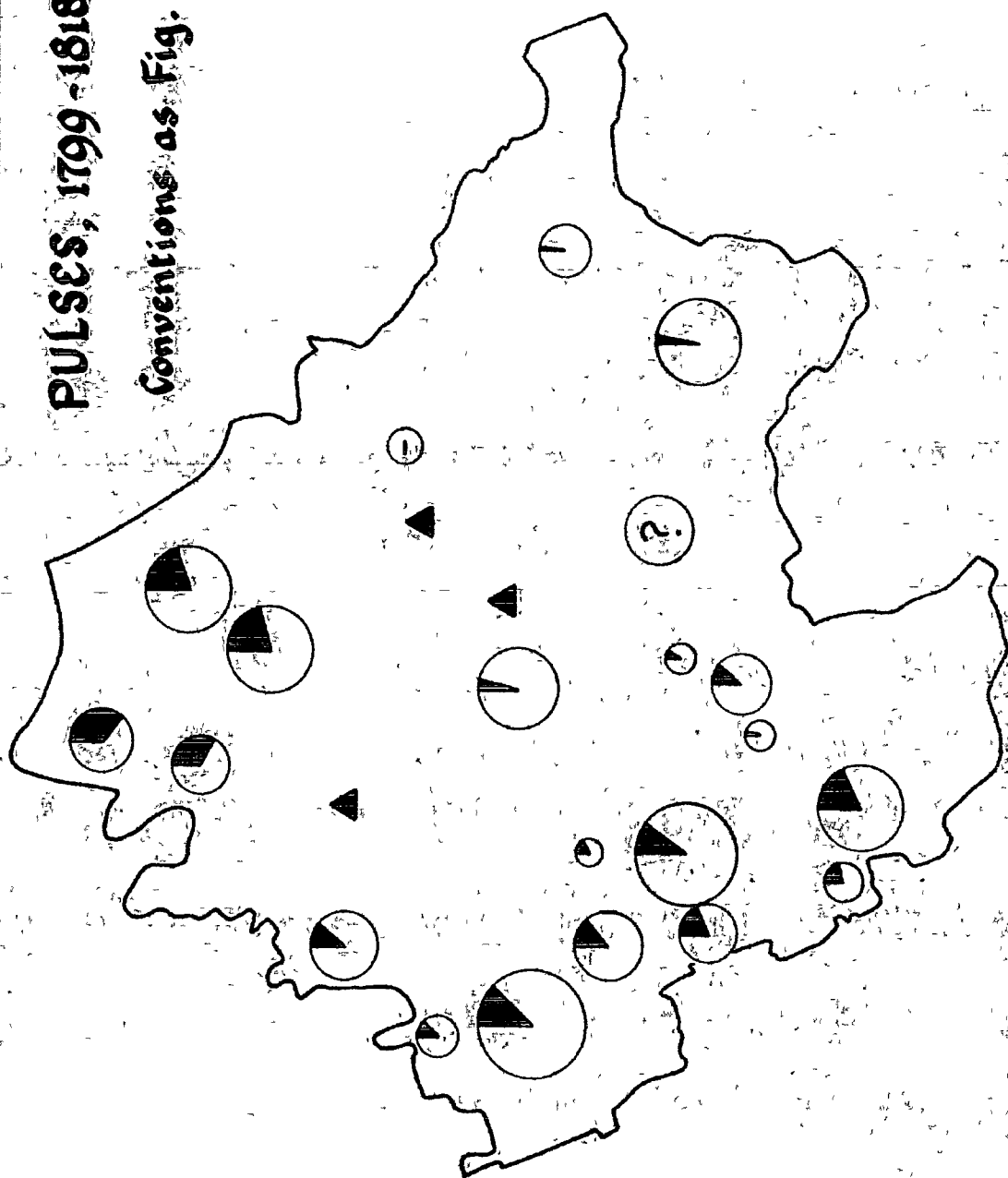


FIG. 80

PULSES, 1799-1818

Conventions as Fig. 75



of the fallows.

Occasionally, as for example when high prices made sudden demands for the cereal, wheat may have been sown (possible after beans) without an intervening summer fallow, although this was forbidden to most tenant farmers. In the Ormesby tithe material, it is possible to pick out six fields which had certainly been fallowed (and possibly also dunged). Their mean yield was 15.9 bushels, which is higher than the overall mean, though not significantly so. This suggests that they received similar treatment to most, but not all, other fields - the distinction may have been that the minority of other fields were not fallowed.

With certain limited exceptions, oats stood second in importance to wheat (Fig.78), which it normally followed in the rotation. At Acklam and Middlesbrough, the crop occupied third place. It was dominant in Newton, Kildale, Ingleby Greenhow and the higher parts of Whorlton. With the virtual abandonment of rye and maslin (Ingleby Greenhow was credited with 6 acres (0.8%), and there was no other), oats had become the principal upland cereal crop. Hardy, tolerant of acid or thinner soils, proportionately better oats yields were possible than of any possible competitor. In addition to its value as a cash-crop, it also integrated well into a livestock rearing economy.

Oats were also far from insignificant in the lowlands, but the distribution there cannot be understood without reference to other associated crops, particularly mixed corn (Fig.79) and the pulses (Fig.80). The former class included mixtures of wheat and oats,

barley and oats, oats and peas, or oats and beans, but not the traditional maslin. When the distributions of oats and mixed corn are considered together, a fairly uniform pattern emerges in which oats occupied between 30% and 40% of the cropped area. Apart from the "oat-dominant" districts, 40% was exceeded only at Busby, where oats and mixed corn together occupied more land than did wheat.

Of greater interest, are those localities where the oat acreage was small. These are: (a) The lower portions of Whorlton parish, especially Potto, (b) Yarm, and (c) Acklam and Middlesbrough. Yarm, with its large urban population, had a high proportion of roots (15.9%), and a significant area of beans (10.3%); barley was also grown. Cultivation was, perhaps, so intensive, and developed rotations so complex, that a large acreage under oats was impractical. Acklam and Middlesbrough (virtually all of which was incorporated in the Acklam Hall Estate by this time), prove most interesting, because the low oats acreage reflects the high level of cultivation which Graves observed the landlord to be introducing. Here were very large crops of pulses - 35.3% at Middlesbrough and 32.1% at Acklam - which may have acted as substitutes for roots (only 2.8% and 2.6%) in a modified Norfolk rotation: Pu; O & Ba; Cl, W, such as Pelham has suggested for the strong clays of Warwickshire.³⁰ The respective acreages are not conclusive (Tab. L). Equally, the values would support the modified application of the Marton rotation in the form: F (and a few roots); W; Cl; Pu & O. The key - and missing - factor is the clover acreage. If the clover acreage were small, then the much cruder F; W; Be & O,

TABLE L - Crop proportions at Acklam
and Middlesbrough, 1801

	Acklam		Middlesbrough	
	Acres	%	Acres	%
Wheat	185	47.6	208	45.8
Barley	13	3.3	14	3.4
Oats	56	14.4	59	12.9
Potatoes	1	0.3	1	0.2
Peas	48	12.3	-	-
Beans	77	19.8	160	35.3
Turnips & Rape	9	2.3	12	2.6
Total	389	100.0	454	100.0

would fit. Speculation might be prolonged - and inconclusive - but it is yet abundantly clear that a determined effort was being made, in this corner of the district, to utilise the valuable heavy-soil tolerance of clover and, particularly of beans, to overcome the handicaps imposed by the difficulties of turnip cultivation. The reasons for the low oats acreage in lower Whorlton may be of the same kind, though turnips were a crop more easily introduced there.

A good crop of oats in most parts of the Riding, was thought to amount to some 48 bushels. In 1801, at Yarm and Kirkleavington, the crop was said to average 50 bushels. At High Worsall, where wheat yields had been higher, oat yields were down to 40 bushels. At Ingleby Barwick (Tab. LI), the overall yield was 28.6 bushels. At

PEAS and BEANS, 1801



Ormesby, the 1792 average had been 27 bushels, with the extremes 20 bushels and 32.5 bushels. A Cleveland average of some 30 Winchester bushels might therefore be estimated - some 10 bushels per acre lower than Young's estimate for the district.

TABLE LI - Oat yields at Ingleby Barwick,

1814 to 1818					
Year	1814	1815	1816	1817	1818
Oat acreage	40	29	237	184	150
Maximum yield (bushels)	60	60	40	60	50
Minimum yield (bushels)	10	15	9	20	15
Mean yield (bushels)	28.7	37.9	26.5	32.3	28.9

The pulses, whose distribution has already been examined from certain points of view, formed the next most important group of crops. These protein-rich legumes (Fig.80) played a significant role in most of those localities in which wheat was the dominant cereal: the ecological demands of wheat and beans are not dissimilar, and the pulses' property of nitrogen-fixation, though probably not understood, may well have been empirically realised. By no means the whole of the pulse crop was beans, however, and peas were locally significant (Fig.81) where soils were lighter. This was most marked at Seamer, where a large tract of medium, sandy-clay loam dominates a parish in which peas, but no beans, were grown. The contrast is especially clear where management was otherwise uniform, as has been described for the Acklam estate. Here, the heavy-soiled Middlesbrough had no peas, but

FIG. 82

BARLEY, 1799-1818

△ Graves mentions barley
in this locality

— verified nil record

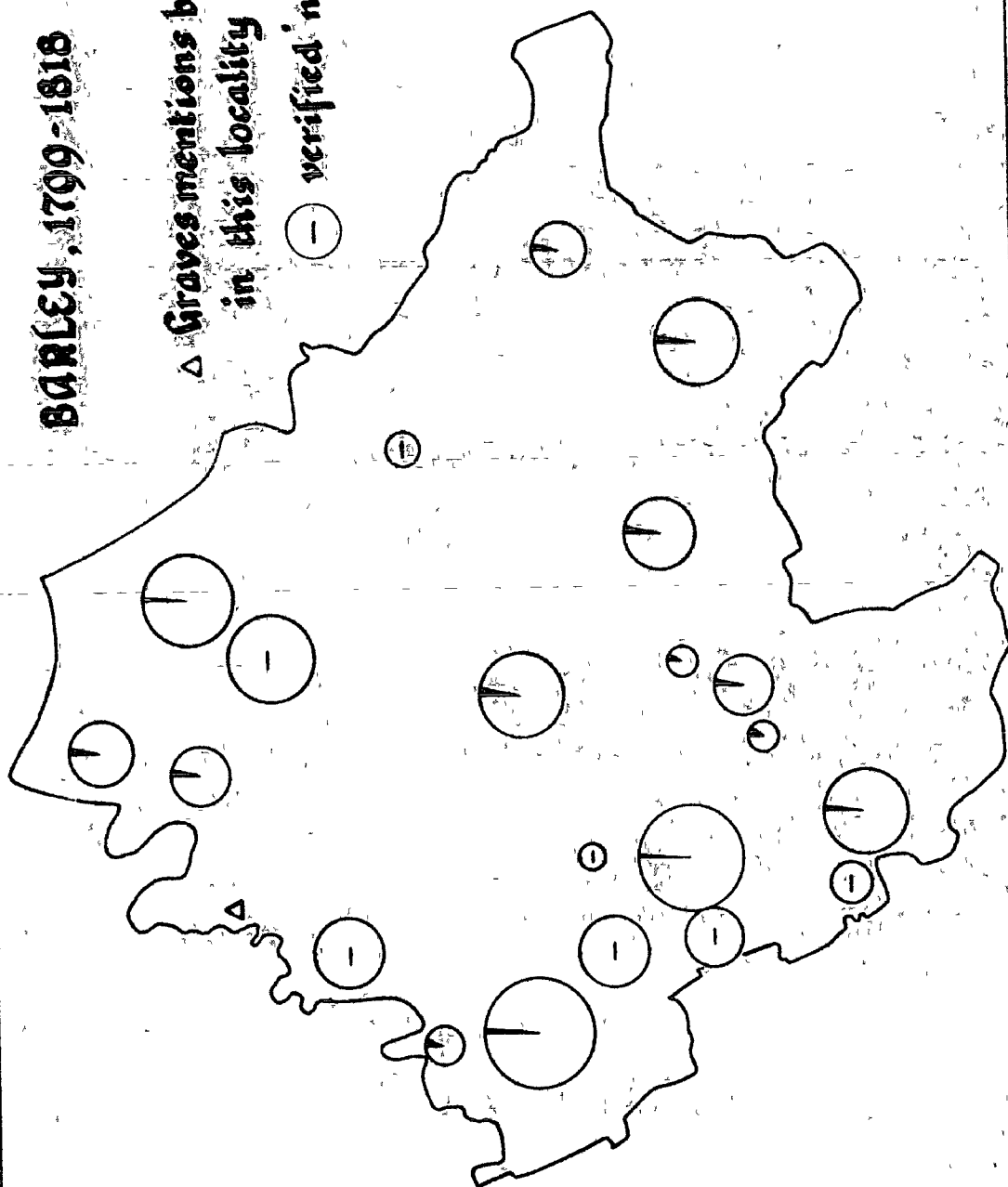


FIG. 83

CLOVER, 1795-1818

Graves noted crops
in these areas

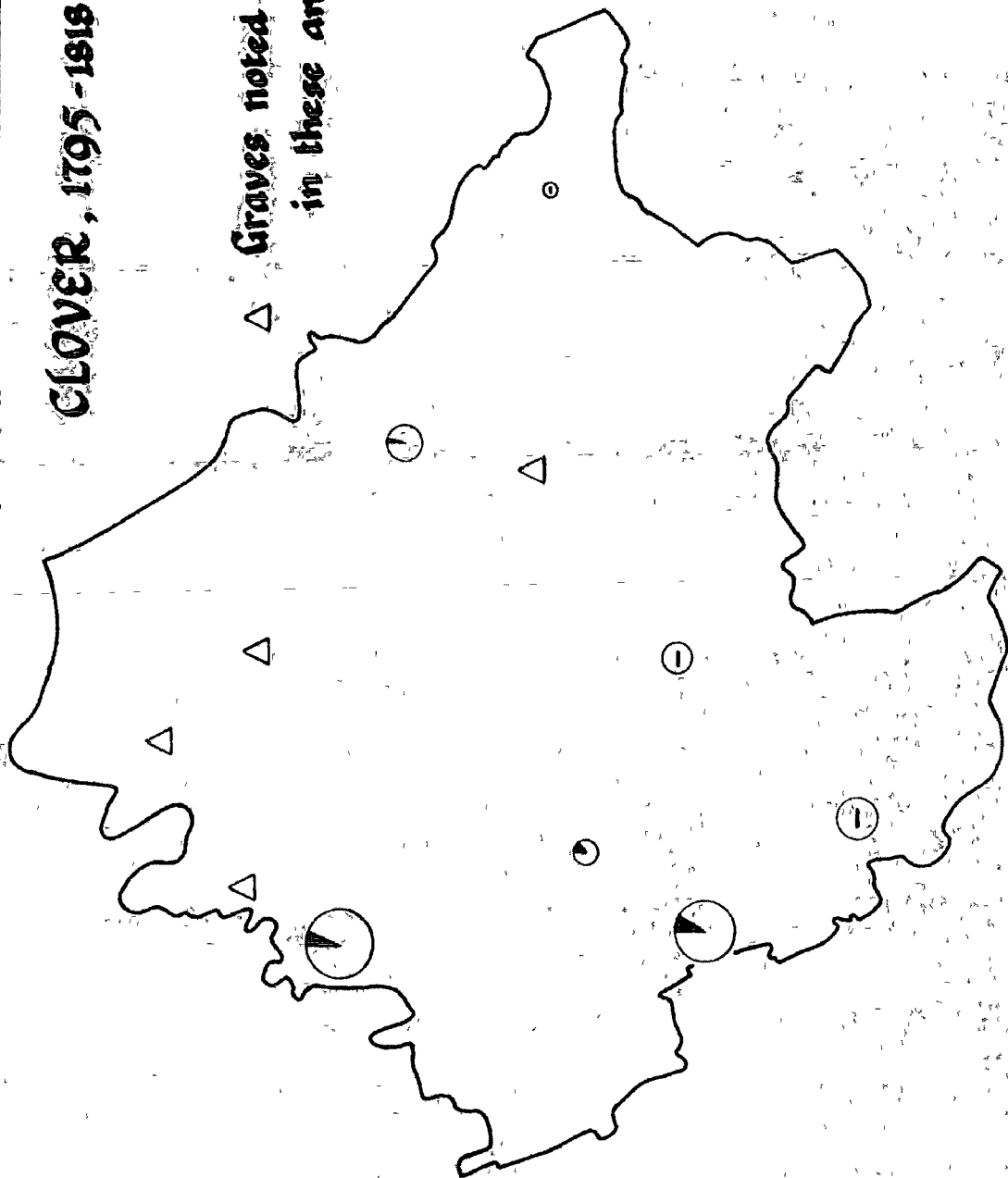
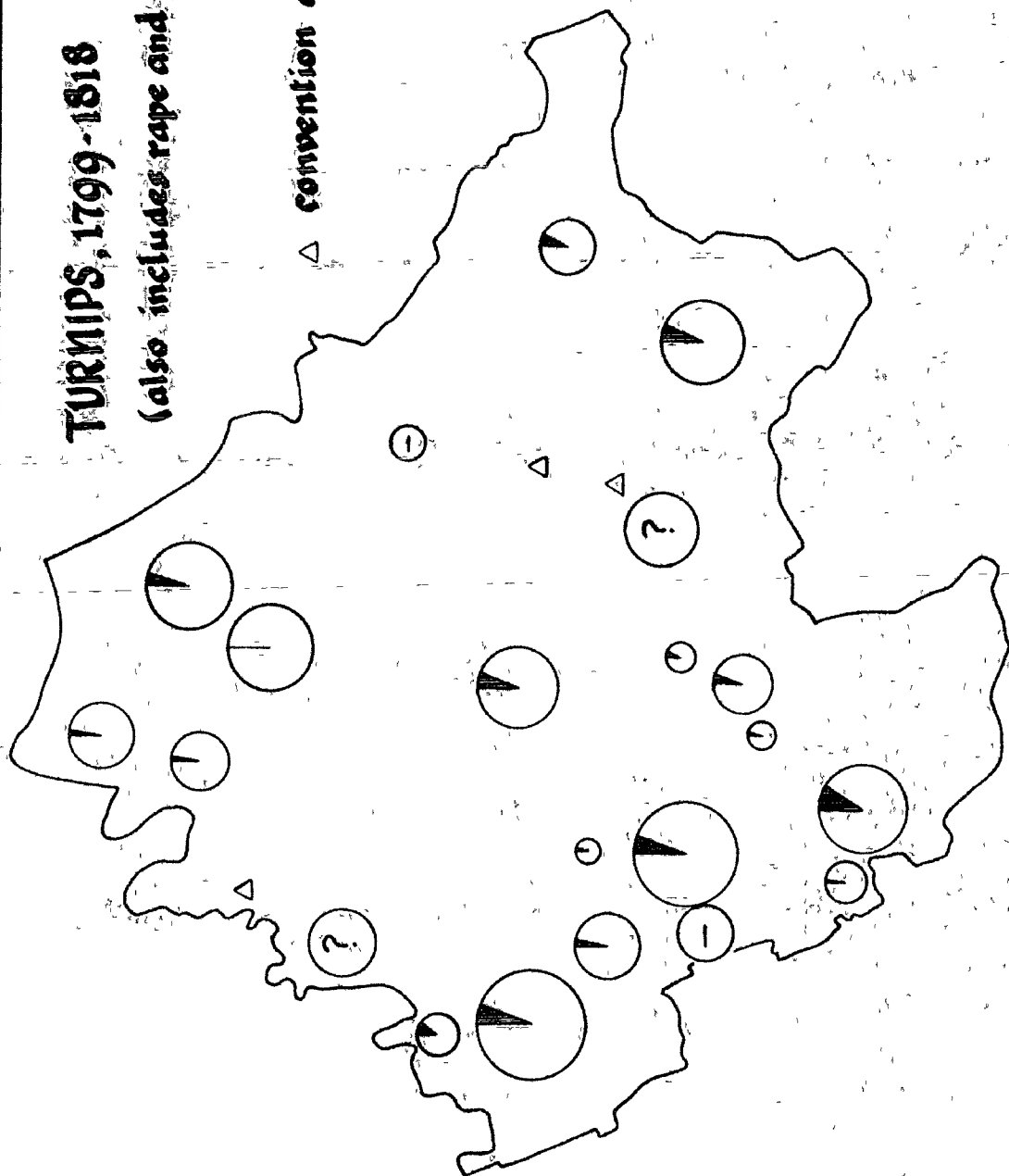


FIG. 84

TURNIPS, 1799-1818

(also includes rape and tares)

△ convention as Fig. 83



in Acklam (and also in Marton), where medium-light sandy loams also exist, peas were of considerable importance. Yields of pulses at Ingleby Barwick and Ormesby averaged respectively 19.1 bushels and 13.5 bushels, which are comparable with Tuke's estimate of 2 to 3 quarters for the crop when grown at the end of the rotation.

Barley was an insignificant contributor to Cleveland crop-combinations of the period (Fig.82). Yield data are totally insufficient for any acceptable estimate to be made.

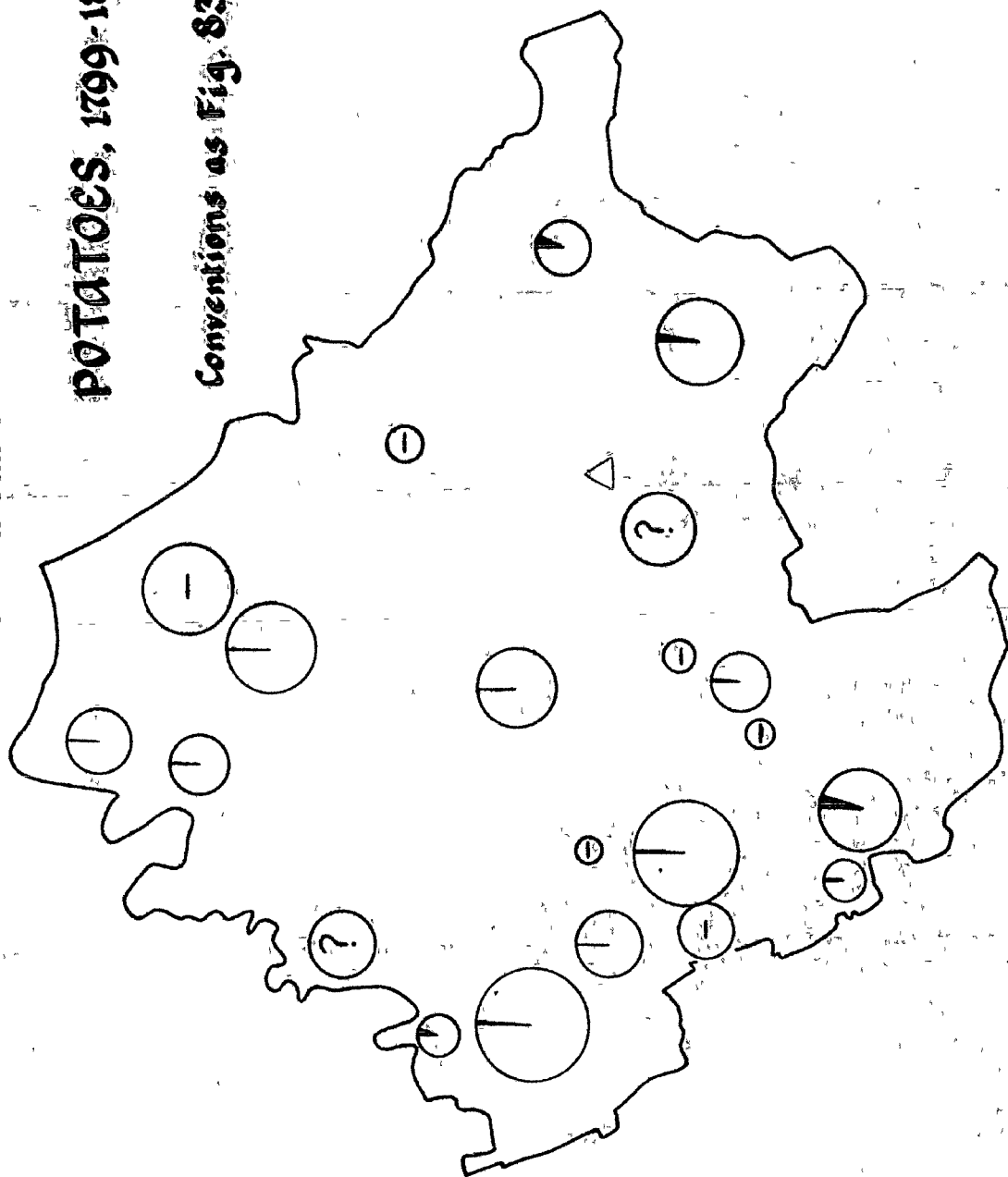
There can be no doubt that clover was beginning to play a significant part in Cleveland crop patterns in the early nineteenth century: its total neglect, deplored so passionately by Arthur Young, had been made good. There was, however, considerable contemporary controversy about the crop and its adaptability to heavy soil conditions.³¹ Tuke noted that the crop was still not as widespread in Cleveland as he thought it might be, blaming the lack of interest mainly on the rotation within which it was first introduced.³² By the 1810s, it was occupying 8.3% of cropland at Hutton Rudby, 13.3% at Foxton, and represented (with sown grasses) between 7% and 10% of tithable crops at Ingleby Barwick (Fig.83).

Small acreages of turnips (Fig.84), amounting to between 3% and 10% of crops, were grown in most West Cleveland townships at this time. Certain of the wetter, weaker clay areas (for example Newton and western Hutton Rudby) could not support the crop, which also tended to be insignificant where pulses (and especially beans) were important. Its absence from the heavier lands reflects not only the

FIG. 85

POTATOES, 1799-1818

Conventions as Fig. 83



ecology of the crop, but also a frequent local prescription against harvesting it other than by feeding off with sheep - a practice, on Cleveland clays, good for neither sheep nor soil. Had tenants been permitted to carry-off to stall-fed cattle, subsequently leading dung onto the land, both the incidence of turnips, and the subsequent history of Cleveland farming, might have differed to an appreciable extent.

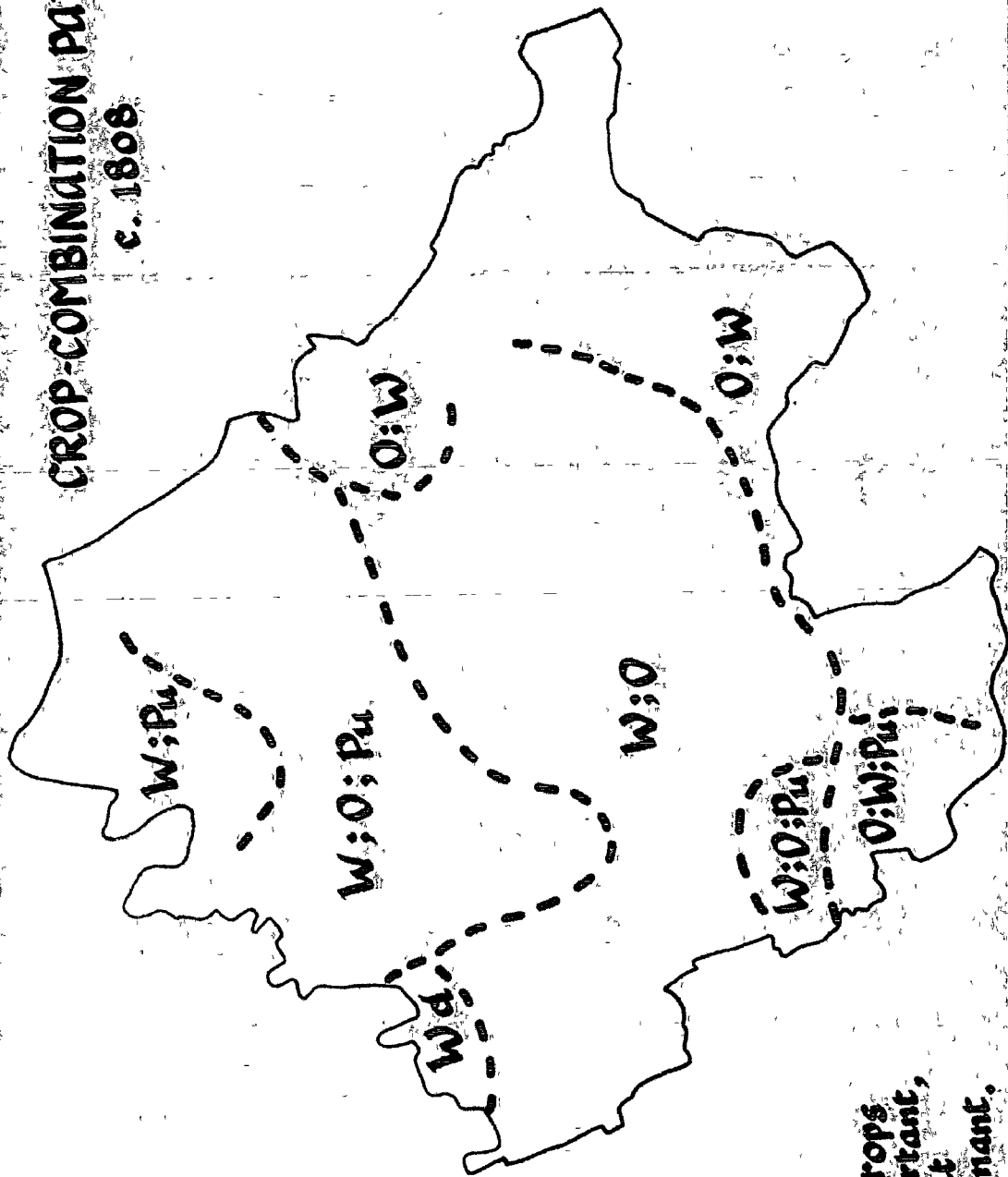
Potatoes were important only on the upland margins and close to urban Yarm (Fig.85). There was probably a considerable "subsistence" interest in the crop in both areas. At Yarm and Kirby they were grown on the rich, loamy, alluvial soils. In the hills, the acid-tolerance of the crop, and its ability to thrive on thin soils under fairly cool, moist conditions, was a distinct asset. Kildale retained the crop into the modern period, when labour problems led to a great reduction.

The examination of the distribution patterns of individual crops can reveal significant spatial variations and also, in some cases, make apparent the force of ecological controls. But any such pattern is unlikely to be absolutely clear-cut, except in areas adopting monoculture. If one supposes that a given site is particularly suitable for the growing of one crop, for example turnips, the expectation of observing the crop in that situation will depend on the rotational practices which the cultivator has adopted. A random inspection might equally reveal the site occupied by wheat or oats or any other crop of the rotation. It is therefore the sequence of crops occupying the site which reveals the cultivator's reaction to the site character-

FIG. 86

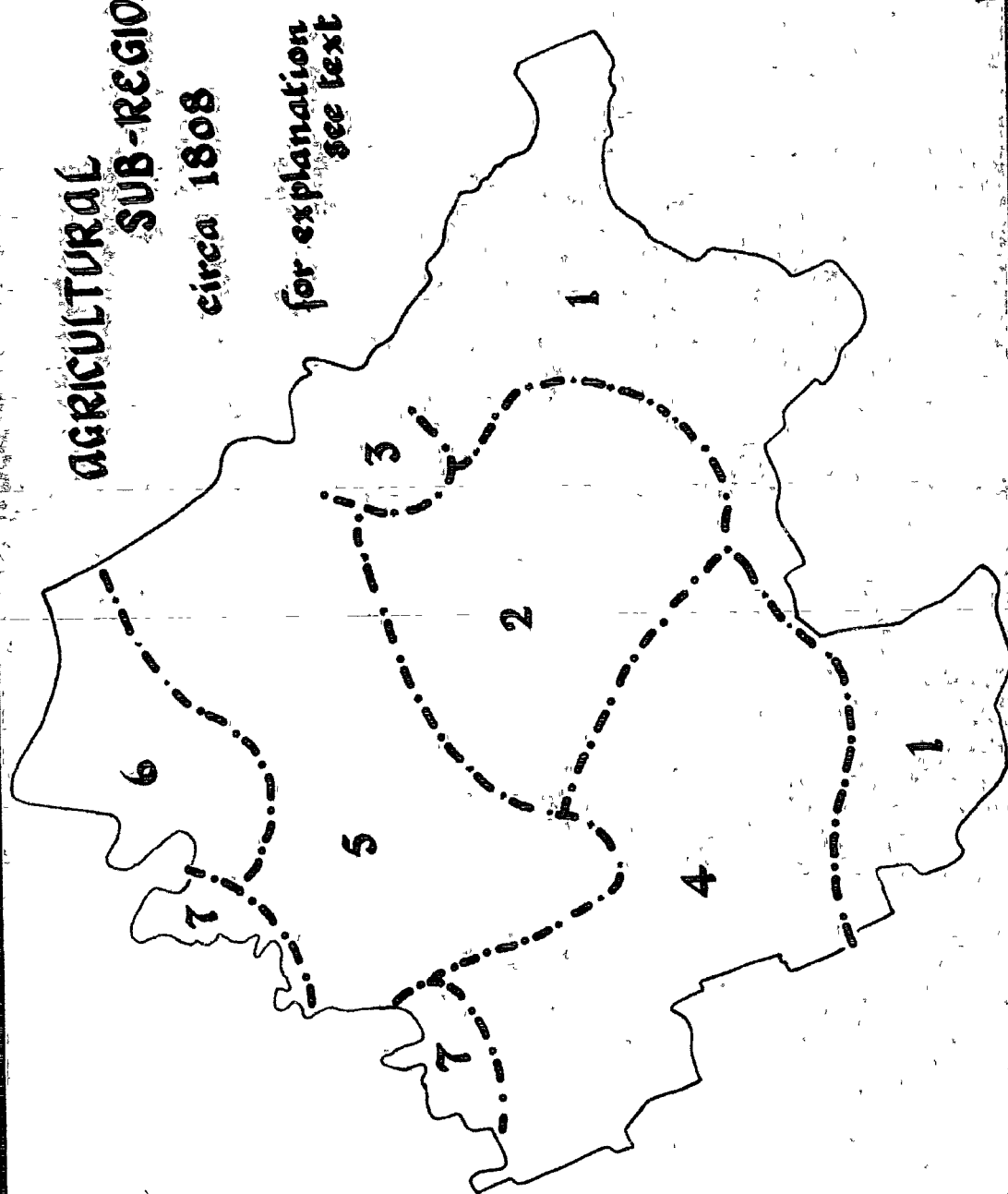
CROP-COMBINATION PATTERN

c. 1808



Wd ~ all crops
important,
wheat
dominant.

FIG. 87



istics. Since sequences are rarely recorded and quoted rotational practice is often generalized, the closest approximation comes by considering, within single farms or groups of farms, the significant combination of crops. Such an analysis (Fig.86) gives an indication of the major variations in arable practice.³⁴ Figure 66 has indicated the varying role of arable farming within West Cleveland. In the absence of specific information regarding livestock specializations at this date, the two distributions form the basis for a division of the area into seven sub-regions (Fig.87).

1. Valleys and immediate scarp-foot

Large areas of moorland still existed. Arable occupied some one-third of improved land. Oats was the predominant crop. In the east, the dominant crop-combination was O; W, but at Whorlton, pulses were also significant in third place. Potatoes, occupying some 4% of cropland, were a sub-regional speciality.

2. Vale of Leven

Arable was probably rather less than one-half of farmland. Wheat was the predominant crop, and W;O the dominant crop-combination.

3. Newton

Almost two-thirds of land was arable, but oats were predominant in a simple O;W combination.

4. Western Clay Plateau

Arable was probably dominant by 1801, and certainly so by 1816.

Wheat predominated in a W,O crop-combination. At Potto, pulses qualify as significant, and the crop is plentiful in western Hutton Rudby. Clover was of increasing significance later in the period.

5. Northern Slopes, Cleveland Moraine

Arable was generally two-thirds of farmed area. The dominant crop-combination was W,O;Pu.

6. Lacustrine Clays

The proportion of arable is unknown. Oats (under 15% of total crops) is absent from the dominant crop-combination of W;Pu. Turnips are less evident than elsewhere. Graves is followed in placing northern Ormesby within this zone: "In the northern extremity ... the soil a rich and fertile clay, remarkable for its produce of wheat and beans."³³

7. Yarm, north Barwick and Thornaby

Arable occupied about one quarter of farmed total, much of which, in Yarm, was let as "accommodation" pasture. Wheat was dominant, oats (21%) second in importance. Turnips, potatoes (and even barley) each occupied more than 5% of the cropped land.

The extent of the simple W;O and O;W combinations demonstrates the widespread adherence to the F;W;O rotation. Even the areas with more complex patterns may have followed a traditional variant - F; W; O or Pu. On the basis of this data, only in the Yarm area do more complex rotations appear to have become dominant. Having est-

Estate at Hutton Rudby

Crops ~ 1816

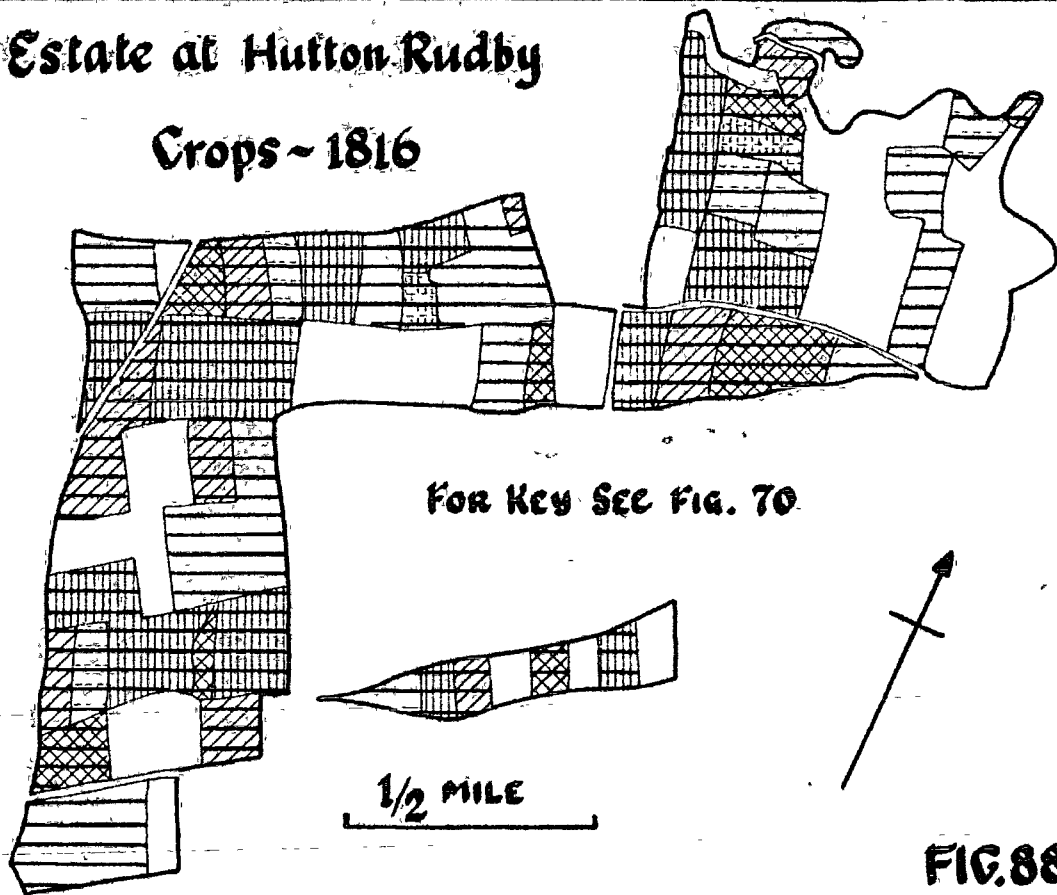


FIG. 88

Part of

Whorlton

Crops, 1806

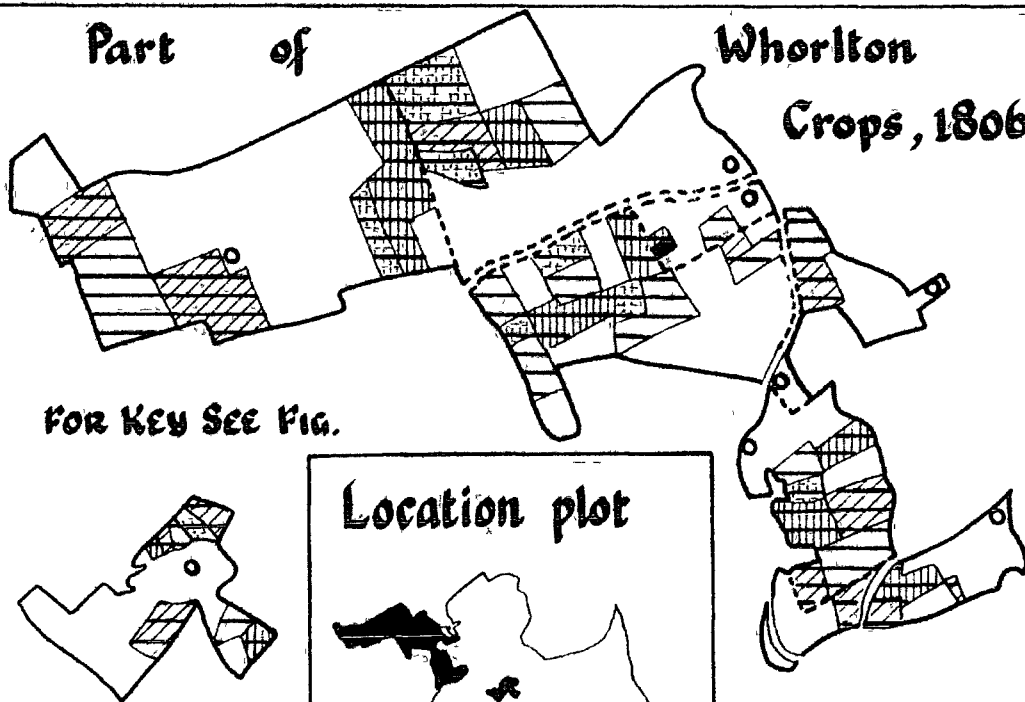


FIG. 89

See fig. 69

P.K.M.

ablished the characteristics of the local context, it is now possible to proceed to meaningful analysis of case-studies.

Complete crop distributions are unfortunately not available for all farms on the Whorlton Estate (Tab.LII and Fig.89). Most of the

TABLE LII - Land use and cropping patterns

at Whorlton, 1806

Farm or Tenant	Acreage	Land use %			Rent	
		Arable	Meadow	Pasture	Total £	Per acre s.
Black Horse	27.5	41.5	15.2	43.3	42	30.5
Wm. Garbutt	29.0	37.9	26.2	35.9	50	34.5
Shepherd Hill	39.6	33.1	9.1	57.8	40	20.2
Scarth Wood	62.8	66.6	8.0	25.5	56	17.8
Hollin Hill	62.6	26.0	13.2	60.8	56	17.9
Sleathorne Bank	99.3	42.7	31.4	25.9	127	25.6
John Todd	128.5	36.9	30.5	41.0	186	28.0
Summerfield Ho.	181.0	41.4	18.6	40.0	240	26.5
$\bar{x}$	78.8	40.8	19.0	41.3	..	25.1
σ	54.1	11.8	9.4	12.9	..	6.2
S.E. $\bar{x}$	19.1	4.2	3.3	4.6	..	2.2

Crop Proportions %	Wheat	Oats	Pulses	Turnip	Potato	Fallow ratio
Black Horse	43.2	24.7	-	16.0	16.0	40.7
Wm. Garbutt		100.0	-	-	-	34.1
Shepherd Hill	49.6	50.4	-	-	-	10.1
Scarth Wood	44.2	45.0	10.8	-	-	60.8
Hollin Hill	30.4	51.1	18.5	-	-	20.7
Sleathorne Bank	54.3	-	45.7	-	-	103.8
John Todd	25.6	22.1	52.3	-	-	25.6
Summerfield Ho.	34.3	53.5	12.2	-	-	36.9
$\bar{x}$	35.2	43.4	17.5	2.0	2.0	41.6
σ	5.5	29.4	20.7	4.5	4.5	29.3
S.E. $\bar{x}$	1.9	10.4	7.3	1.6	1.6	10.3

area mapped is lowland - the isolated Hollin Hill Farm (which is in some respects representative of Scugdale) and Scarth Wood with Shepherd Hill (on the scarp-foot bench) being the main exceptions. A useful

index of the comparative quality of the various farms, under contemporary practice, is provided by the rent valuations. The smaller farms are disproportionally highly valued, but (this factor apart) the low rented farms lie in situations less favourable for farming. The poorest farm, Hollin Hill, was also the one with least arable: it also had a low wheat acreage, though this characteristic was shared with some lowland farms. Apart from the small Black Horse Farm, however, wheat occupied second place in the crop hierarchy of all farms, and pulses (mainly beans) were important. There is some textual indication that, on the higher, lighter-soiled sites, pulses were grown in mixture with oats, but on the strong clay lowland sites, the crop was pure. There was a general association of high wheat and fallow acreages. Drier sites tended to be favoured for pure stands of oats. Wheat was evenly spread - surprisingly so on the less favoured sites.

Farms on the Newton estate had been re-arranged between 1760 and 1802. (Tab. LIII and Fig.70). The sample is therefore one of three farms only. The overall predominance of oats over wheat is marginal, and each farm is found to have followed a different crop-combination pattern, viz: W,O, W;O;Mc, and O;W. Cropping patterns were still very simple, though Wetherell was beginning to move away from the old three-course husbandry. Under the persistent pressure of high arable acreages, the inadequacies of ancient practice might have been revealed earlier, had not a significant portion of the 1802 arable been ancient grassland or rested under grass since enclosure. The smallest Newton farm appears deficient in meadowland, but these four acres were not

TABLE LIII - Land use, rents and cropping
patterns at Newton, 1802.

Tenant	Acreage	Land use %			Rent	
		Arable	Meadow	Pasture	Total £	Per acre s.
Garbutt	189.0	57.5	14.2	28.3	270	28.6
Wetherell	119.7	67.4	14.2	18.4	192	32.1
Gill	52.6	70.0	6.9	23.1	..	..
$\bar{x}$	120.4	65.0	11.8	23.3	..	..
σ	72.5	6.5	4.3	4.9	..	..
S.E.	42.6	3.8	2.5	2.9	..	..
Crop proportions %	Wheat	Oats	Mixed Corn	Clover	Fallow ratio	
Garbutt	51.9	48.1	-	-	56.6	
Wetherell	41.1	29.6	22.6	6.7	52.6	
Gill	31.3	68.7	-	-	44.2	
Mean	41.4	48.0	7.5	2.2	50.9	
σ	11.2	20.8	13.9	4.2	6.9	
S.E. $\bar{x}$	6.6	12.2	8.2	2.5	4.1	

the tenant's only resources - he was leaseholder of the great and small tithes (including hay) which he took in kind.

In the fourteen years which followed the Newton survey, arable acreages continued to increase. At the same time, some diversity was entering into cropping systems, especially with the extended use of clover and seeds. In 1816, almost 8% of the crop area at Hutton and Foxton carried clover (Tab. LIV and Figs. 72 & 88), but it was adopted

only by the better tenants - the surveyor's report makes it fully clear that the distribution of the crop reflected the levels of management rather than any edaphic considerations. The better farmers also favoured the use of beans in pure stands, whilst their colleagues tended to adopt the "safety-first" mixed corn crop. Oats as a pure stand was not entirely suited to these weak, wet clays, and, on the average, amounted to less than one quarter of the cropped area. The wheat and fallow acreages varied relatively little between farms. Wheat was unchallenged as the basis of the cropping system.

TABLE LIV - Land use, rents and cropping

patterns at Hutton Rudby and Foxton, 1816

Farm or Tenant	Acres	Land use %			Rent		
		Arable	Meadow	Pasture	Total £	Per acre s.	
E. Humble	44.6	62.5	12.1	25.4	35.6	16.0	
J. Allison	136.5	80.4	11.4	8.2	81.4	11.9	
R. Simpson	154.8	70.4	4.6	25.4	116.2	15.0	
D. Hayton	181.3	68.6	8.3	23.1	116.2	12.8	
Foxton Farm	193.5	74.0	11.1	14.9	149.3	16.7	
Wm. Wood	267.2	67.9	9.6	22.5	277.5	20.8	
$\bar{x}$	163.0	70.6	9.5	19.9	..	15.5	
σ	73.7	6.6	2.9	7.0	..	3.4	
S.E. $\bar{x}$	30.7	2.8	1.2	2.9	..	1.4	
Crops %	Wheat	Oats	Pulses	Mixed Corn	Clover	Tare	Fallow/Crop ratio
E. Humble	44.8	31.0	-	24.2	-	-	44.0
J. Allison	45.5	22.1	-	21.9	10.5	-	37.5
R. Simpson	52.5	16.3	12.2	9.5	9.5	-	47.8
D. Hayter	52.3	36.3	-	11.5	-	-	42.6
Foxton Farm	41.8	19.0	15.6	7.3	13.3	3.00	43.5
W. Wood	44.6	14.2	5.4	22.2	13.5	-	49.1
$\bar{x}$	46.9	23.2	5.5	16.1	7.8	0.5	44.1
σ	4.6	8.6	1.9	7.5	6.3	1.2	4.0
S.E. $\bar{x}$	1.9	3.6	0.8	3.1	2.6	0.5	1.7

BROWN'S ESTATE - ORMESBY, 1792

Symbols are correct scale

 alluvium
  l.c.
  lacust. clays
  sand
  b.c.
  boulder clay
  Lias

1 mile

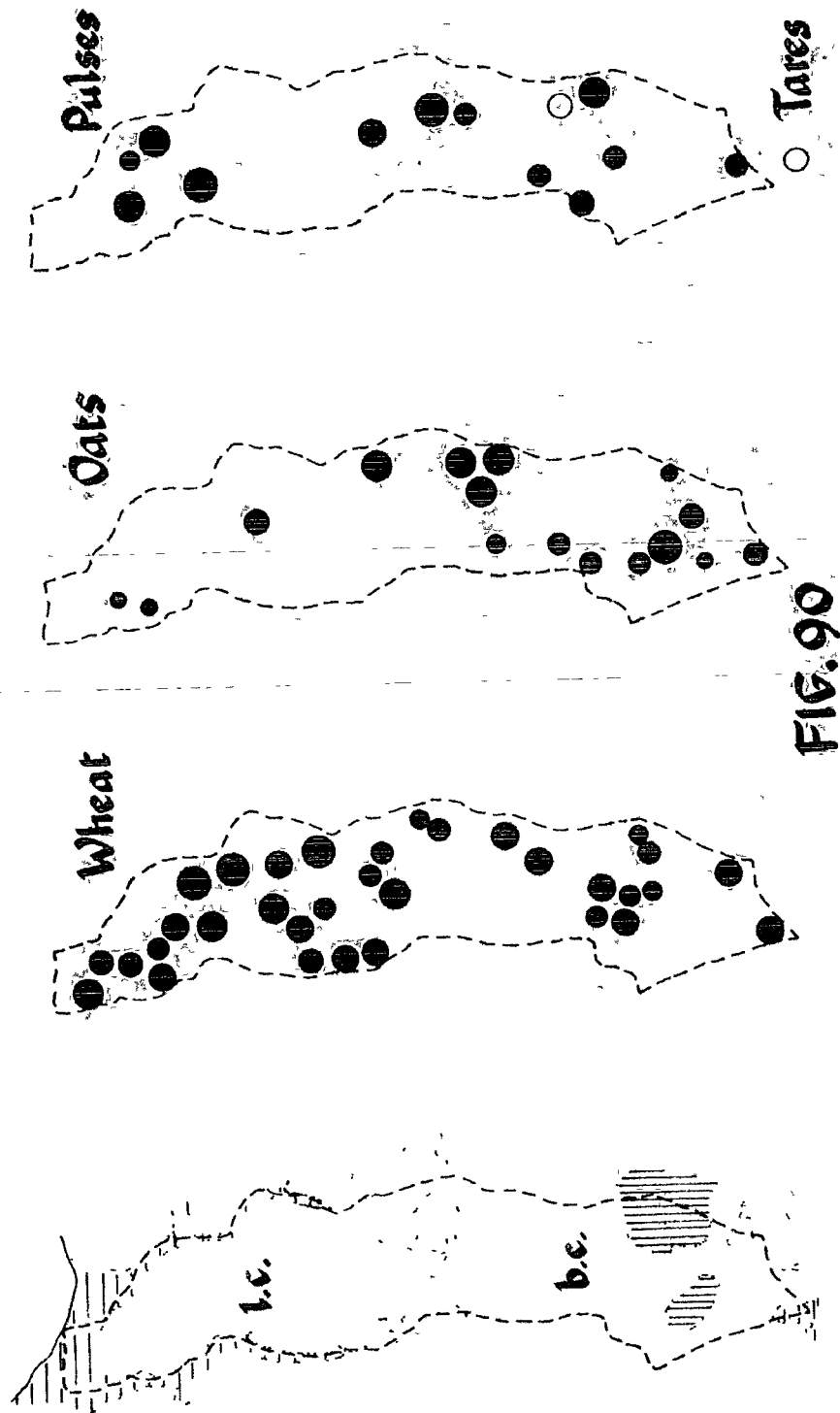


FIG. 90

BROWN'S ESTATE

FIG. 91

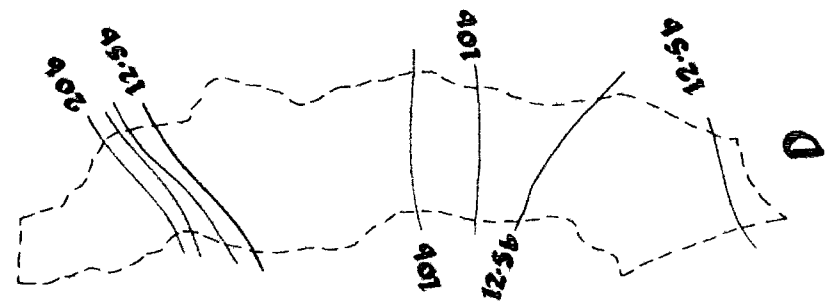
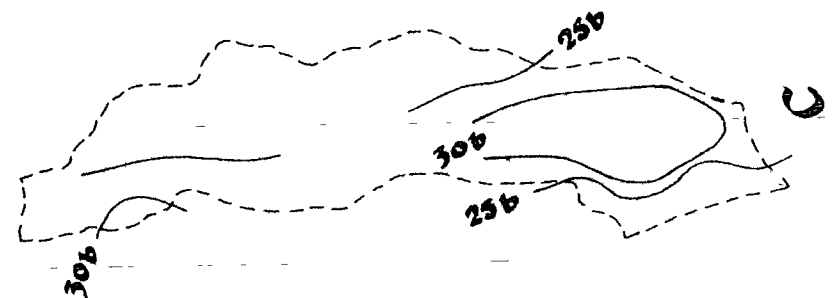
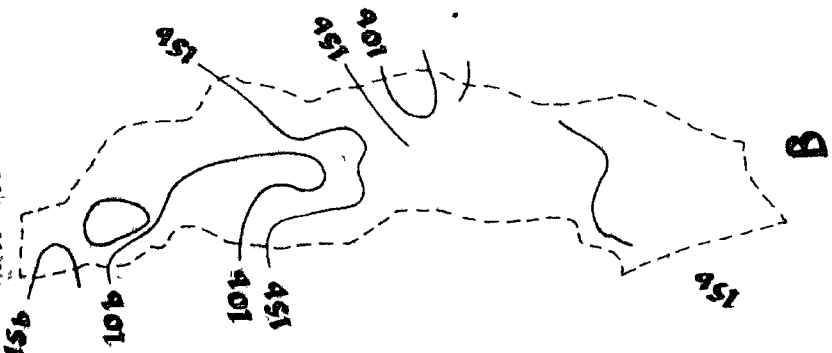
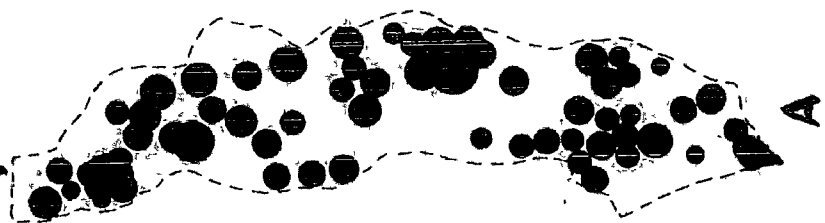
Titheable
Crops

Wheat

Yields

Oats

Pulses



Ormesby (Figs. 90 and 91) is considered last because it represents the end of a cross-section. The most clearly marked correlation between soil and crop is an inverse one - the heavy soils of the lacustrine clays were rarely sown with oats. Wheat and beans dominated in this northern portion of the estate, recalling the patterns of the country immediately to the west. However, although these soils were generally unsuitable for oats, isolated plots yielded in excess of 30 bushels per acre, equally as well as the more suitable soils to the south. Wheat did best on the boulder clays, and reasonably well on the medium loams at the sand/clay junction, but poorly on the sandy loams. On the "wheat and bean" land of the north, local patches of poor drainage caused partial failure, but along the low watershed, crops of up to 15 bushels of wheat were obtained. Here, too, beans flourished (two plots exceeded 20 bushels), but yields only half as good were found on the medium loams.

While it is appropriate that arable agriculture should receive great emphasis in a study of this period, the total lack of any quantitative data on livestock is disappointing. While it may be assumed that the major distributions of the 1770s survived for some time, it is likely that total stock figures declined in areas where arable was on the increase, despite the fact that roots and clover provided additional fodder. The implied trend in feeding patterns and what is known of breeding policies, would indicate some relative expansion of feeding for beef at the expense of the dairy and butter production.

- 1 W. Marshall, The rural economy of Yorkshire, (1st. ed; London: 1788), II, 273.
- 2 J. Tuke, General view of the agriculture of the North Riding of Yorkshire (Quarto ed; London: 1794 - Octavo ed; London: 1800).
- 3 Marshall, op.cit., I, 2-8 and frontispiece map.
- 4 Tuke, op.cit., (Octavo ed.), pp.101-102.
- 5 Ibid., (Quarto ed.), p.82.
- 6 Ibid., (Octavo ed.), p.290.
- 7 J. Graves, The history of Cleveland, (Carlisle, 1808), pp 62-63.
- 8 Ibid., p.100.
- 9 Ibid., pp.33, 100, 114, 156, 178, 182, 237, 247, 255, 436, 449, 450, 465 and 485.
- 10 Survey material collected from following sources:
 Busby - CRO/ Marwood Papers, "Richardson's Survey, 1760", later additions.
 Newton - CRO/ Staveley Papers, "A survey and rental of Mrs. Norton's estate at Newton-in-Cleveland, Yorkshire, 1802."
 Whorlton - WLC/ Emerson Papers, "Survey and valuation of the Whorlton Estate," by John Claridge, 1806.
 Kildale - GET-KM/ "Particular of the Manor or Lordship of Kildale," 1806.
 Ormesby et als - JBP-OH/, Field book, 1808.
 Subsequent comments on these localities are based on the above sources, except where another source is specifically cited.
- 11 BI/ R VII I 2407-2417 gives field-by-field lists of the acreage, landlord's valuation and tenants' admitted yield for all tithable crops harvested that year. Such crops occupied 29.9% of the farmed land and included: W, O, Ba, Be, and mixed crops of Be/Pe and or O/Pe. There is no direct statement of the extent of clover and roots (if any were grown), or of bare fallow. What might the relationship be between percentages of tithable crops, as here, and the percentages of total tillage? A solution of demonstrable accuracy is impossible, but a reasonable estimate can be achieved by use of the following argument:

1. The data arise from nine farms comprising almost 1500 acres of land: individual idiosyncrasies of cropping are therefore likely to be merged in the overall figures, and total non-systematic variations as between one year and that immediately following are likely to be minimized.
2. Normal practice was to precede wheat with a bare fallow. If this were the case here, then it follows that an area equal to that cropped by wheat in 1792 is likely to have been fallowed in 1791, and hence, barring systematic change in the farming system, that an equivalent area (some 250 acres) was fallow in 1792. As the tenancy of two of the farms changed at Candlemas (February 2) 1792, and their "way-going" crops of wheat may well have inflated the acreage under that crop, this fallow estimate is likely to be excessive rather than otherwise.
3. As to non-tithable crops, local practice was still conservative. Graves, who was looking for evidence of the cultivation of the newer crops such as turnips, failed to note any at Ormesby in 1808. He did, however, write of "an improved state of cultivation" in the parish, and an acreage of turnips amounting to 4% - and of rape to 0.4% - of the crops listed in the 1801 Returns, were said to be harvested in Ormesby in 1801 (PRO/ HO 62-26 Ormesby). It is thus probable that turnips were grown, but upon no more than 20 acres of Brown's estate in 1792, and these would, almost certainly, have displaced some of the fallow.
4. Graves failed to list Ormesby among the parishes growing clover: it was not abundant locally.

Putting these strands together, there seems no justification for assuming a total arable acreage of more than 700 acres - or 46.6% of farmland.

12 Graves, op.cit., p.500

13 CRO/ZCQ, "Barwick Tythes." Again the data are incomplete and the figure of 850 acres is an estimate. There is internal evidence for the growth of clover, and Graves observed turnips here: a more sophisticated rotation than the eighteenth century standard had been adopted. At Busby, where (as has been shown) innovation had come much earlier, bare fallow occupied rather more than one quarter of the arable in 1799, when 4% of the land was under turnips. If a somewhat similar combination applied at Ingleby Barwick in 1818, then an arable area of 850 acres (58%) would be consistent with the tithe accounts.

- 14 CRO/ZCQ, "A particular and valuation ... Crathorne and Hutton Rudby ... 1816."
- 15 Tuke, op.cit., (Octavo ed.), p.169.
- 16 A. Young, A six months tour through the North of England, (London, 1770), II, 102, gives a picturesque description of Whorl Hill in the late 1760s.
- 17 PRO/ HO 67 - 26, filed in alphabetical order.
- 18 Tuke, op.cit., (Octavo ed.), p.116.
- 19 PRO/ HO 67 - 26, returns for Kirkleavington and Yarm, which were made by the incumbent, John Graves.
- 20 BI/ R VII I 2407-2417. Two sets of data were quoted in these causes. One was the yield claimed by the tithe-owner, the other the defendants' counter-claims. The latter are, on the average, only 3% less (and are occasionally higher) than the tithe-owner's figures. Slightly the more detailed, they are adopted for analysis here.
- 21 J. Brewster, The parochial history and antiquities of Stockton upon Tees, (Stockton, 1796), pp.108-109.
- 22 CRO/ZCQ "Barwick Tythes."
- 23 Tuke, op.cit., p.234.
- 24 W. Minchinton, "Agricultural returns and the government during the Napoleonic Wars," Ag. Hist.Rev., I (1953), 35.
- 25 Tuke, op.cit., p.292 where, for year-end 1798, wheat prices "In Cleveland" are given as 6s.0d, as compared with 4s 10d, at Malton, and 5s 6d, in York. This distribution contrasts with that of less plentiful years, when considerations of quantity rather than quality dominated the market.
- 26 BM-SPR/ "Report from the Select Committee ... Agricultural Distress," Reports of Committees, (1820), II, 159.
- 27 Tuke, op.cit., p.234.
- 28 Ibid, p.109.
- 29 Graves, op.cit., p.465.
- 30 R. A. Pelham, "The agricultural geography of Warwickshire

during the Napoleonic Wars", Trans. Birmingham Arch. Soc., 67 (1948), 100.

31 Tuke, op.cit., p.127, footnotes.

32 Ibid, pp 109-110.

33 Graves, op.cit., p.450.

34 Absence of relevant information for more than a few localities has made it necessary to exclude clover and sown grasses from the analysis. In those localities where it might have been included, however, it was not sufficiently extensive as to have appeared in the "best fit" combination.

CHAPTER XIV
MALADJUSTMENT - ECONOMIC CHANGES AND THE
LOCAL RESPONSE, 1820 to 1850

7 Following the inflationary years of the Napoleonic era, cereal prices fell, but production costs were largely maintained. Although the relative profitability of arable production declined, there was no immediate reversion to grass. On the contrary, arable acreages may have increased slightly. The factors leading to this unexpected reaction are complex and partly psychological. With inadequate techniques, a shortage of capital and an absence of effective land drainage in a series of wet years, much West Cleveland arable farming might be regarded as "ruinous" by mid-century. However, this period was one of continuous ferment in British agriculture as a whole, during which the foundations of the High Farming of the 1860s and 1870s were laid. Some of this was bound to penetrate even the most conservative of districts - Cleveland in 1850 was not altogether without a leaven of improvement. But more significant for progress in the ensuing half-century was the changing role of the River Tees. No longer was it simply a routeway facilitating the shipment of the district's farm products, but a nucleus for considerable industrial and urban expansion. These developments initiated competition in the use of land, but no less significant was the stimulus to agriculture provided by a new and growing market.

After the high wheat prices of the preceding decades, the lower prices of the 1820s fell as a heavy blow on Cleveland farmers. It was not that the prices were absolutely low, as witnesses to the 1822 Select Committee were ready to admit,¹ and for most years of the decades 1820 to 1840, the average British price was, in fact, appreciably higher than in the two pre-war decades.² On northern clays, a

price between 48s. and 56s. per bushel had been considered "fair" (that is, profitable) in the last years of the eighteenth century.³ Between 1820 and 1840, the national price was above this range in all but seven years, and fell below it in only four. The real problem was not the fluctuation of price per se, but the fact that the high costs of the inflationary period were slow to subside and often failed to return to pre-war levels. Agricultural workers' wages, for example, had averaged 6s.6d. per week in the North Riding in 1770, but were 11s. per week in 1850.⁴

Charles Howard considered that the post-war Yorkshire farmer required an average price for wheat of 60s. per quarter in order to make a profit.⁵ He further stressed that this must be the average price for the whole crop, including grain of poor quality, which had to be sold at reduced prices or was used on the farm. The national price of marketable grain failed to reach 60s. in nineteen years during the period 1820 to 1850, and exceeded 70s. once only: it seems very unlikely that Howard's requirements would be met in any year of this period. Within this generally gloomy phase, market conditions were singularly bleak in 1822, when the national average fell to 44s.7d. per quarter, and again in 1834 (46s.2d), 1835 (39s.4d) and 1836 (48s.6d). The latter series of low prices followed three years of late frosts and very wet summers, when yields on clay lands had been very poor.⁶ There is cause for no surprise that distress mounted.

Since wheat had for many years been the "paying crop" on clayland farms, it was the price of this one cereal which dominated contemporary

thinking. In general, the price of the other cereals had not been so severely depressed, but they were said not to be "renumerating" on clay soils. Moreover, barley was still rare in Cleveland at this time, and oats, on many farms, was not a cash crop.⁸ Wheat price fluctuations therefore provide a reasonably good index of the declined fortune of arable farming.

By comparison, the profitability of livestock farming was maintained, despite the short-term price fluctuations, such as the low wool and mutton prices of 1821 and 1822.⁹ In 1833, it was said that beef and mutton prices were high in Yorkshire, partly because of the widespread sheep rot, which had destroyed many of the lowland flocks. Another reason was that many of the old grazing grounds, formerly used for fattening bullocks, had been ploughed out and neither replaced nor restored.¹⁰ Throughout the period, and especially in its earlier years, livestock products had a scarcity value and the demand appears to have been nationwide.

Hindsight, therefore, makes it possible to see with the utmost clarity that the wise course for a Cleveland farmer to have taken in the year of Waterloo, would have been to sow down much of his arable with good grass seed and to build up his livestock, particularly his cattle and pigs - in short, a reversion to something like the patterns of 1770, or even of 1715. In fact, this was not widely done.

Although it is abundantly clear that the increase in arable acreage between the earlier war years and the period circa 1845 was considerable (Tab. LV), it is likely that most of it occurred during

TABLE LV - Changes in the proportion of arable land
in certain localities, circa 1805 to circa 1840¹¹

Locality	Acreage	Arable as a percentage of farm total				
		Year	%	Year	%	Change %
Busby	410	1799	58.1	1843	66.6	+8.5
Newton	360	1802	61.9	1837	70.3	+8.4
Tunstall	320	1806	44.8	1847	68.6	+23.8
Whorlton	2776	1806	29.5	1842	45.4	+15.9
Ormesby	875	1808	59.8	1839	64.7	+4.9
Thornton	837	1808	65.5	1849	68.9	+3.4
Hutton Rudby	789	1816	70.5	1839	75.7	+5.2
Foxton	194	1816	74.1	1842	77.5	+3.4

the time of high prices. The figures for Kirby (Tab. LVI), indicating a slight decrease between 1825 and 1844, would support this view.¹²

TABLE LVI - Later changes in the proportion
of arable land¹¹

Locality	Acreage	Arable as a percentage of farm total				
		Year	%	Year	%	Change %
Kirby	1500	1825	51.5	1844	49.1	-2.4
Ormesby	875	1839	64.7	1853	66.3	+1.6
Tunstall	320	1847	68.6	1853	72.1	+3.5
Thornton	837	1849	68.9	1853	68.7	-0.2

However, both Caird¹³ and Milburn¹⁴ suggested that the trend continued well after the war, and their opinion is supported by the data from

Hutton Rudby and Foxton (Tab. LV) and from Ormesby and Tunstall (Tab. LVI). There was clearly considerable fluctuation from place-to-place and from farm-to-farm. All the increase between 1839 and 1853 at Ormesby was on one farm; arable declined on the remainder. Several Kirby farms showed significant increases between 1825 and 1844. Evidently the material does not permit precise conclusions as to the timing or amplitude of changes, but the picture of an overall general increase during the period is confirmed. Less convincingly, a continuing upward trend appears to be indicated by the evidence of the tithe apportionments. The median arable ratio in those townships commuted before 1840 was 55%, while the appropriate figure for later apportionments was 63%.¹⁵

The records from Hutton Rudby and Foxton are especially valuable because they confirm both the fact of post-war extension and also other changes accompanying that increase. This trend, on farms already more than two-thirds arable, went directly against the advice of the 1816 surveyor, who had recommended a slow reduction, even if corn prices were to be maintained. The tenants were already in difficulties at that time - "poor and disprited" was the phrase - and unless the land were immediately drained, a 10% abatement of rents was suggested for the years 1815 to 1817. Draining, it was thought, would "put the lands into such a state of cultivation as may enable them to pay their rents in future with ease and pleasure."¹⁶ The draining at Hutton Rudby was probably not begun until 1824 and no more than 12% was drained by 1840: at Foxton, 12½ acres had been completed by 1840.¹⁷

The rent of the latter farm, valued at £149 6s. in 1816, had later to be reduced to £137 10s. and, shortly before 1840, to £120 or 12s.4d. per acre.¹⁸ These reductions, however, failed fully to reflect current economic conditions and the failing productivity of the land. An impartial witness before the Assistant Tithe Commissioner judged that the arable was not worth 8s. per acre, and that none of the pasture was better than 25s.¹⁹ Another witness estimated the farm's average produce of wheat at 12 bushels; while a third declared 15 bushels to be "a great crop for that farm".

One problem was mildew. The tenant complained,

The field behind the house of 12 acres is only to mildew and grub. It was mildewed in 1838. It would yield half bushel (per stook) on average.

Not only was his bulk yield low, but his sample weighed no more than 60 lbs. and, whilst the neighbourhood price was 6s.3d. per bushel, he received only 5s. At Low Foxton, under a different landlord, yields were no better, averaging between 7 and 15 bushels per acre. "We have not had any capital crops lately", was its farmer's comment. Such poor returns were not the result of a faulty application of the locally prevailing techniques, evidently, because witnesses further referred to the land as being "in a very creditable state of cultivation". Local practice, however, was not a golden standard by which to judge. Of nearby Castle Levington, Howard wrote "the farming is as good as that of the neighbourhood, which is rather below than of average par."²⁰ Milburn, writing of the years between 1320 and 1848, commented "the district has descended further and further in the scale of good culti-

vation."²¹

The Foxton farms were no exception; the whole region was becoming notorious for its backwardness and poverty. Contemporary observers were not slow to point to the contrast between what they saw happening in early Victorian Cleveland and what they had heard of its successes as a grazing district a century earlier. The conclusion seemed obvious, but the evidence for any significant or widespread return to farming on permanent grasslands is non-existent. The period therefore poses two problems which are similar, but which need not necessarily have closely related solutions:

- (1) Why did Cleveland farming fail to re-adjust by reversion to a previously well-established pastoral economy?
- (2) How did it come about that there was a small, but perceptible, expansion of the arable in the face of economic circumstances so patently adverse?

The first of these questions is the more difficult to answer.

A number of factors may have led farmers away from the solution which, already by 1832, seemed obvious.²² Caird, after a devastating criticism of Cleveland's farming at the time of his visit in November 1850, and of its evolution during the previous half-century, was not slow to contrast it and similar districts with comparable lands in Cheshire and Lancashire. In these latter districts, yields from dairy farming were annually increasing, and over the preceding century, prices had doubled both for cheese and butter.²³ On the other hand, Cleveland yields of arable crops had declined, and the

price was no higher than in 1770: the district had been famed for its cheese and horses,

but the latter are scarcely to be met with as a distinctive breed, the farmers having been tempted to part with their brood mares at high prices, and the best stock having thus in process of time been taken out of the country.

He also complained that the farms were small "and the tenants generally not an enterprising class."²⁴

Lack of enterprise had not prevented the farmers of 1790 from reacting rapidly to obvious economic change. A major part of the problem of the 1820s was that the farmer was confronted with changes which were not obvious. Throughout the eighteenth century, grain prices had fluctuated in a more or less cyclic manner. During the war, (which, it is useful to remember, spanned a whole generation) prices had dropped in occasional years, only to recover and even improve later. Even the experts before the Select Committees appear to have failed to realise that, Corn Laws or no Corn Laws, a new phase had been entered, in which the heavy clay soils could scarcely repay the expense of arable cultivation. There is no doubt that many tenants had experienced a new affluence in the preceding thirty years, and this affluence was intimately associated with wheat growing on an increased area of tillage. Expecting high prices to return, they chose to stay as they were, ready for an upward surge in the cycle. It did not come.

In this, they were encouraged by their landlords, who also had been experiencing unprecedented prosperity - the cynics of the day

suggested that a reduction in their expenditure would solve any problem of "rural distress". Rather than reduce rents, short-term abatements were offered. For example, Barwick rents were reduced by 10% in 1821 and by 15% in the following year, but it was not until very much later that a permanent reduction was agreed. Similarly, two Nunthorpe farms were let in 1822 at as much as 97% of their war-time valuation, although the tenants probably did not pay so much.²⁶ By giving short-term relief, while at the same time maintaining high rents, the landlords thus maintained and fostered the opinion that high cash returns would recur at some future date. In the meantime, even the reduced rents were more than the farming system could support, and the tenant's capital was slowly eroded.

There is no local evidence of the extreme situations such as occurred, for example, in Howdenshire. In 1833 it was said of that district, characterized by its weak clay soils, "they have nearly ceased to cultivate." Many farms were unlet, and, the land being fit only for wheat and beans, the soil had become so impoverished that it failed to support grass.²⁷ Nor were there, locally, the widespread forced sales of livestock, first heard of in the Midlands during the 'little depression' of 1810/17, and which recurred in later years in many parts of the country. However, there can be little doubt that the livestock population of Cleveland had been reduced from its pre-war levels. The one detailed record from early in the period comes from Ingleby Greenhow, and is a list of the farming stock of a tenant who was relinquishing the same farm that is described in an

inventory dated 1777: the date of the stock list is unknown, but it is earlier than 1830 and may be 1820.²⁸ The contrast between the two dates (Tab. LVII) is remarkable in that the whole decrease had taken place in replacement breeding stock. Too much weight may not be placed on a single example, but if this case was at all typical, any reversion to grass could not be anything but slow, because stock would not be available to use the grass: capital shortage prevented much buying-in at this stage.

TABLE LVII - Stock changes on an

Ingleby Greenhow Farm

	1777	<u>circa</u> 1825
Farm horses	3	3
Colt or filly	1	1
Milk cows	6	6
3-yr old heifer	2	-
2-yr old heifer	3	-
Yearling heifer	2	-
Yearling bullock	-	1
Ewes	7	-
Pigs	-	4

Just as it is much easier to cut down livestock numbers than it is to re-build herds and flocks, so it is a simple matter to put greensward to the plough and more difficult to establish anew a comparable turf. In chapter ten, it was observed that eighteenth century

farmers experienced great difficulty in the production of satisfactory grassland. Not until the middle years of the nineteenth century, or later, were the necessary techniques well understood and propagated.²⁹

Social, psychological and technical factors, therefore, seem to have combined with economic problems to keep Cleveland amongst the country's arable districts through the years of depression. It was mainly its technical backwardness which brought it to the brink of disaster by mid-century, when many other districts had begun to recover. The heavy clay soil, which had earlier been the basis of a reputation for high-quality wheat, gave in 1848

the whole district a degree of exhaustion, wetness, and sterility ... a peculiarly barren aspect, especially the lower portions, which are full of stagnant water ... a few wet seasons once prevailing, the great mass of farms being totally undrained, there is nothing but starvation spread over every parish.³⁰

From Milburn's highly coloured account, and the more temperate language of Caird, it is clear that three factors were responsible for the situation which they found: undeveloped rotational practice; lack of manure; and inadequate drainage.

Before the 1847/48 Select Committee on Agricultural Customs, a witness was asked if the old course of "two white crops and a fallow" was not maintained in Cleveland. His reply, though perhaps ill-expressed, is clear on the main point:

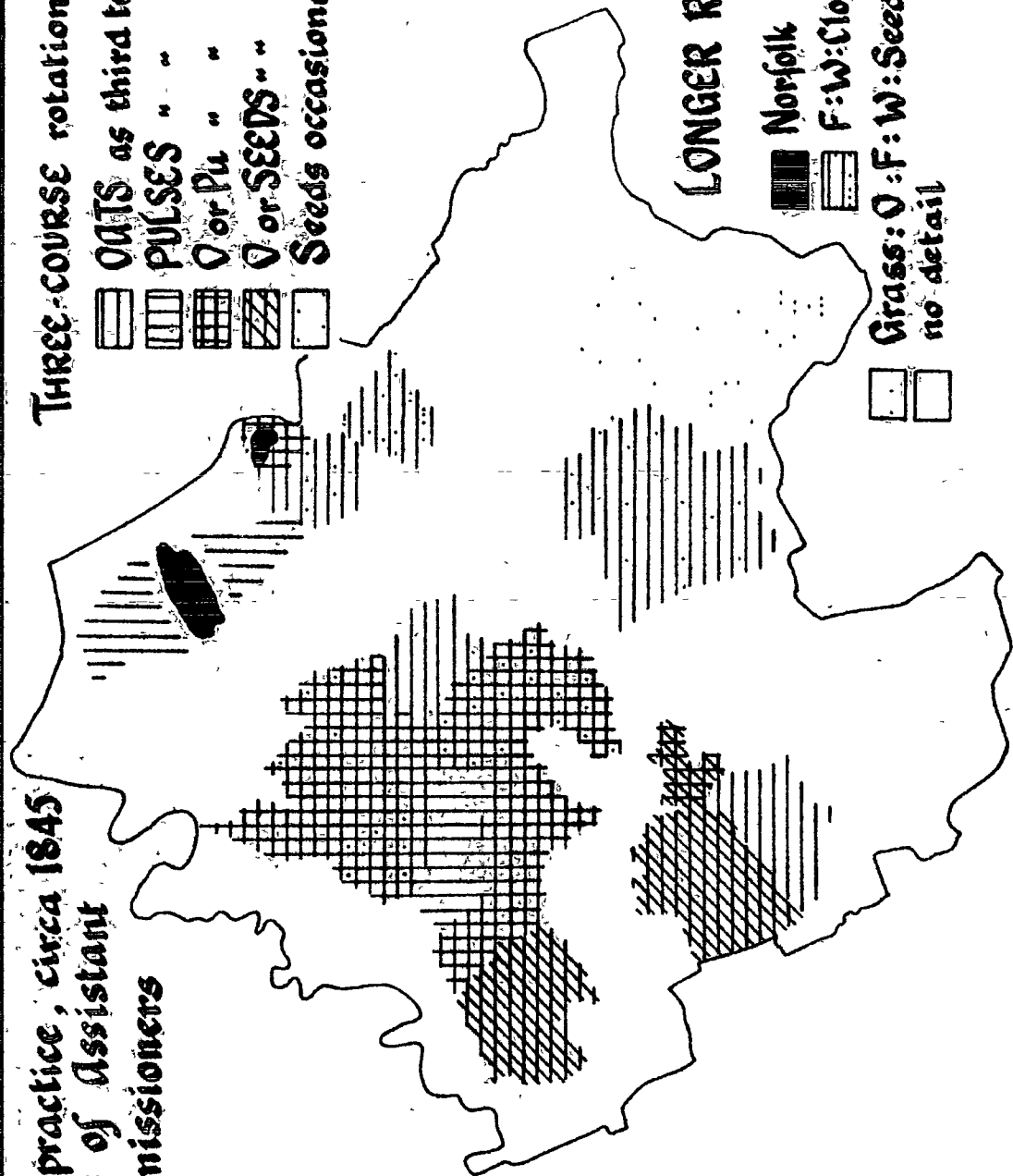
Yes, that is the custom, even upon very good soil, only producing excellent grain crops, a naked fallow and two white crops again; it gets poorer every year.³¹

According to Milburn, even the best cultivators were unable to dispense with the bare or open fallow altogether, although he suggests that a

Rotational practice, circa 1845
~ evidence of Assistant
Tithe Commissioners

THREE-COURSE rotation, with:

-  OATS as third term
-  PULSES " " "
-  O or Pu " " "
-  O or SEEDS " " "
-  Seeds occasionally " " "



LONGER ROTATIONS

-  Norfolk 4-course
-  F:W:Clover:O or Sds
-  Grass: O: F: W: Seeds
-  no detail

FIG. 92

P.K.M.

few had found it possible to extend the interval between them. However, "the mass of farmers adapt their management to the cognomen of the soil 'Two-crop and Fallow'."³² The testimony of the various Assistant Tithe Commissioners, mapped at figure 92 supports the general contention. Data are not available for every township, but only in four of the localities where local practice was described were more extended rotations general. On patches of light land in Ormesby³³ and Upsall,³⁴ the "Norfolk" rotation was in use. At Newton,³⁵ clover had been introduced between the second and final terms of the established rotation, while at Ingleby Greenhow³⁶ a "ley-farming" practice was adopted. Elsewhere, the main improvement which had occurred since 1800 was the more widespread occasional substitution of clover and sown grasses (known in Cleveland collectively as "seeds") as the final term of a three-year course, so as "to rest the land."³⁷

These conclusions are based entirely on contemporary generalization. For a few farms there survive records of the actual sequence of crops for two or more successive years - these cases serve as a check on actual management. For example, at Ayrsome and Linthorpe (1839/41) practice closely followed the standard F;W;O or Pu, but in one case two successive wheat crops were taken, and in another, pulses were introduced as a fourth term after oats.³⁸ At Ormesby, seeds were introduced as an alternative third term between 1838³⁹ and 1853.⁴⁰ The Tithe Commissioner's suggestion that the "Norfolk" course occurred locally in the parish is confirmed by the later evidence. At Thornton, F,W,O; S seems to have been established on some farms,

although the better sequence of F;W;S; O was in use on others - and also at Tunstall - by 1853.⁴¹ At Kildale, on the lighter soils of the higher arable lands, the sequence in 1847 was: T or F; O or Ba; S;O or Ba. Potatoes or rape might replace bare fallow, and wheat occasionally came in the fourth year.⁴² In the moorland valleys generally, Milburn had observed T;O;S;S; O to be typical, the seeds being pastured in both years.⁴³ On heavier Kildale land, the course was F;W;S;O.

On the clay soils, therefore, the primitive F,W;O (with its variants) was general earlier in the period, but it was rapidly being replaced later by F;W;S;O. This course was laid down for Ingleby Greenhow tenants as early as 1820, according to the schedules accompanying leases of that date, but the terms of the leases are ambiguous and could be read to imply that the seeds were to follow oats and were to stay two years.⁴⁴ The seeds mixture was specified as follows: 10 lbs. white clover, 4 lbs. cow grass or red clover, 2 lbs. rib grass and 2 bushels of hayseed and rye-grass. The resulting sward would therefore contain a high proportion of perennial grasses, anticipating the later practice of the estate as described by Charles Howard in 1839. He wrote,

a grass field is ploughed up and sown with oats, succeeded by summer fallow, Wheat and Seeds which are pastured for a number of years at the discretion of the cultivator. The farming is on this account rather above the average of the neighbourhood where the lands are usually exhausted by constant corn crops.⁴⁵

This system implies that farms were adequately stocked by this date, and its adoption was possible only because the amount of cropland had

been curtailed. An accurate figure is not available for the land use balance of the parish, but it was estimated that there were no more than 1700 acres of arable, as against 2340 of meadow and pasture.⁴⁶ Estate policy seems to have been directed towards keeping the arable acreage down as early as 1820, when the ploughing penalty had been raised as high as £50 per acre. Elsewhere, at this date, it was normally no more than £10. Both in the reduction of the arable and the establishment of ley-farming systems, Ingleby farmers were being pushed well ahead of most contemporaries.

A tentative suggestion was put forward in chapter ten, to the effect that forty years might elapse before ploughed-out ancient grassland, cropped traditionally, began to show signs of deterioration. Practically all the arable in Cleveland at mid-nineteenth century had probably been cropped continuously for at least as long as this. Deterioration was therefore widespread. According to Caird, as yields began to fall off, more grassland was

broken up to support the otherwise failing rents of needy landlords and as it was then 'called on' as long as it would carry anything ... it is rapidly passing into the same sterility as the other parts of the farm for whose rescue it was broken up.⁴⁷

Thus are the increases in the arable acreage to be explained. This response amounted to the adoption of extensive methods, but extensive farming was never likely to provide a solution - and so it proved.

Backward rotational practices were not the only difficulty. Under-stocking, related to the reduction of grassland and shortage of capital, meant that little manure was available. In 1838, for

example, a visitor to Newby noticed that "a very small quantity of stock is kept in the Township and the manure made is consequently small in quantity and inferior in quality."⁴⁸ Stock figures upon a Newby farm five years later were as follows: 10 draught horses, a pony, a colt, a filly, 7 cows, 3 calves, 8 yearlings and five 2-year old heifers and steers, 9 ewes and lambs a ram and 21 shearling sheep, and 11 store pigs.⁴⁹ The farm, of 282 acres, had 86 acres of permanent grass.⁵⁰ In terms of livestock units, the total stock carry was 38.9 units at a density of 7.2 acres per livestock unit - appreciably lower than was general in Arthur Young's day. On the other hand, grassland density was higher, at 2.2 acres per livestock unit. Although Milburn (and several of the Tithe Commissioners) thought of stock as depending mainly upon grass, this had not been fully true in 1770 and was less so by 1850. Taking into account seeds, fodder beans and oats for the horses, it would appear that each livestock unit was dependent on between 4 and $4\frac{1}{2}$ acres of land, which again indicates lower densities than the comparable value (3.7 acres) of 1770.

The newer, more intensive, techniques which were needed to make a success of arable farming called for more, not less, stock than had been carried in the eighteenth century. Expert opinion of the 1850s and '60s thought a stock carry equivalent to between 3 and $4\frac{1}{2}$ acres per livestock unit was desirable on clay land.⁵¹ This area to be used as follows: 1 to $1\frac{1}{2}$ acres permanent grass and about 1.8 acres of seeds and other fodder crops per livestock unit. No doubt, under "High Farming", stock densities often fell below these ideal

levels, but not so far as they did on this Newby farm or in Cleveland generally at this date.

That shortage of capital was the main problem, is illustrated by the following example. Bates, the shorthorn breeder, noticed as early as 1812 that a tenant was not maintaining enough stock, and had him evicted. Bates, doubling the stock after taking the farm into his own hands, improved the quality of stock and farm alike. In 1826, the farm was let to "an industrious tenant" who proved, however, to be financially incapable of providing a sufficient number of animals. By 1829, despite the tenant's undoubted ability as a practical farmer, the land began to show signs of deterioration, which obliged the owner to take it back. He was later able to demonstrate (to his great satisfaction) that, after a year or two, the land was able to carry as much stock as before.⁵² Bates was assisted in maintaining high stock densities by his practice of not following the general custom of high feeding for breeding stock. When his stock was dispersed in 1850, "the herd was brought to the hammer only in ordinary condition, and some of the heifer-calves were really too poor". Nevertheless, the sale averaged £70 per head, and one bull was to appreciate 500 guineas in the following three years.⁵³

Under management which left the whole farm short of manure, continued limitation as to its use further contributed to the district's problems. As late as 1822, tenants were required

to lay all the manure which shall arise and be made from the crops thereof on the grassing land, except for Turnips,

and this applied to farms which could grow very few turnips.⁵⁴ Many farmers were still adhering to this practice in 1848.⁵⁵ So long as capital was available, lime continued to be laid on the fallows, but, as one of the Skutterskelfe tenants pointed out, this failed to improve the land.⁵⁶ Had the extra produce which liming had earlier encouraged been even partially returned to the fields as manure, or had the land been drained, the money expended on lime might have proved profitable. Since manuring was virtually prohibited, liming at the rate of 2 chaldrons per acre every third year, as required of tenants, merely led to further problems of capital shortage and hastened mechanical breakdown of the soil.

Another prohibition, rectified by 1848 (probably as a result of the sheep losses from rot in the early 1830s), was placed upon the carting of turnips, which had to be eaten where they grew. Even as late as 1848, it was thought that

2/3 of the turnips [in Acklam] wd be eat upon the land without being pulled, the other 1/3 given the Cattle in the house.⁵⁷

These inadequacies in the management of farmyard manure could not easily be made good by purchase. Remote from urban centres, the district could not obtain night soil, or the sweepings from town stables and dairies. Towards the coast, experiments had been made in the use of kelp, and industrial by-products were also tried, but these ventures had little overall influence.⁵⁸ Bone meal, rapedust and, after 1840, guano were available,⁵⁹ but cost prohibited their adoption by the poorer farmers whose land was in worst condition and

most in need of aid.⁶⁰

For many observers, the solution to the district's problems lay in land drainage. Towards the end of the period, Government grants became available, repayable at $6\frac{1}{2}\%$. This, together with reductions in cost as a result of more efficient pipe-making machines, led to a great deal of activity after 1850.⁶¹ Earlier, progress had been much slower. In 1847, it was said that "there is a great deal of undrained land at Cleveland that is capable of great improvements in draining."⁶²

Traditionally, attention had been concentrated on the removal of surface water. Arable was still ploughed in the "crooked high-backed ridges," which Caird also observed in Durham.⁶³ After sowing, open 'grips' and ditches were dug, water from each land flowed into the adjacent furrow, where much of it stayed. As a result,

no crop was even expected to grow in the furrow, and the consequent deficiency in the yield per acre was considerable.⁶⁴

Even these yields were only possible if sufficient labour was applied to keep "the ditches well scoured and the water-furrows open." On most Cleveland farms at this time, labour costs prevented this, and, as Merry described in the Vale of Pickering, yields might fall by 4 to 12 bushels per acre as a result.⁶⁵

Some of the little under-draining which had earlier been achieved, using iaggots, turf, or stone, proved too shallow. Even when deep-draining, in the manner of Parkes,⁶⁶ was used, his further recommendation that the lands be laid perfectly flat was ignored. subsequently it was

often found necessary to re-drain along the lines of the old furrows.⁶⁷ Fieldwork, the experience of a number of modern farmers, and the contemporary opinion of Sir William Foulis of Ingleby Greenhow, who had successfully drained his estate with drains 16 to 18 inches deep,⁶⁸ indicate that the application of Parke's principles sometimes led to over-deep lines, and ineffective draining on some of the more tenacious Cleveland clays.

There were, however, local pockets where considerable improvement had been effected. The Tithe Commissioner (1848) considered the productivity of Acklam to have been improved by upwards of 6% by the tile drainage executed since 1835.⁶⁹ At Little Ayton, William Procter

had furrow drained the whole of the Farm except 2 or 3 acres - thoroughly and had put in a good deal of management /a large quantity of purchased manure/ ... his produce was double what it had been when he entered in 1833.⁷⁰

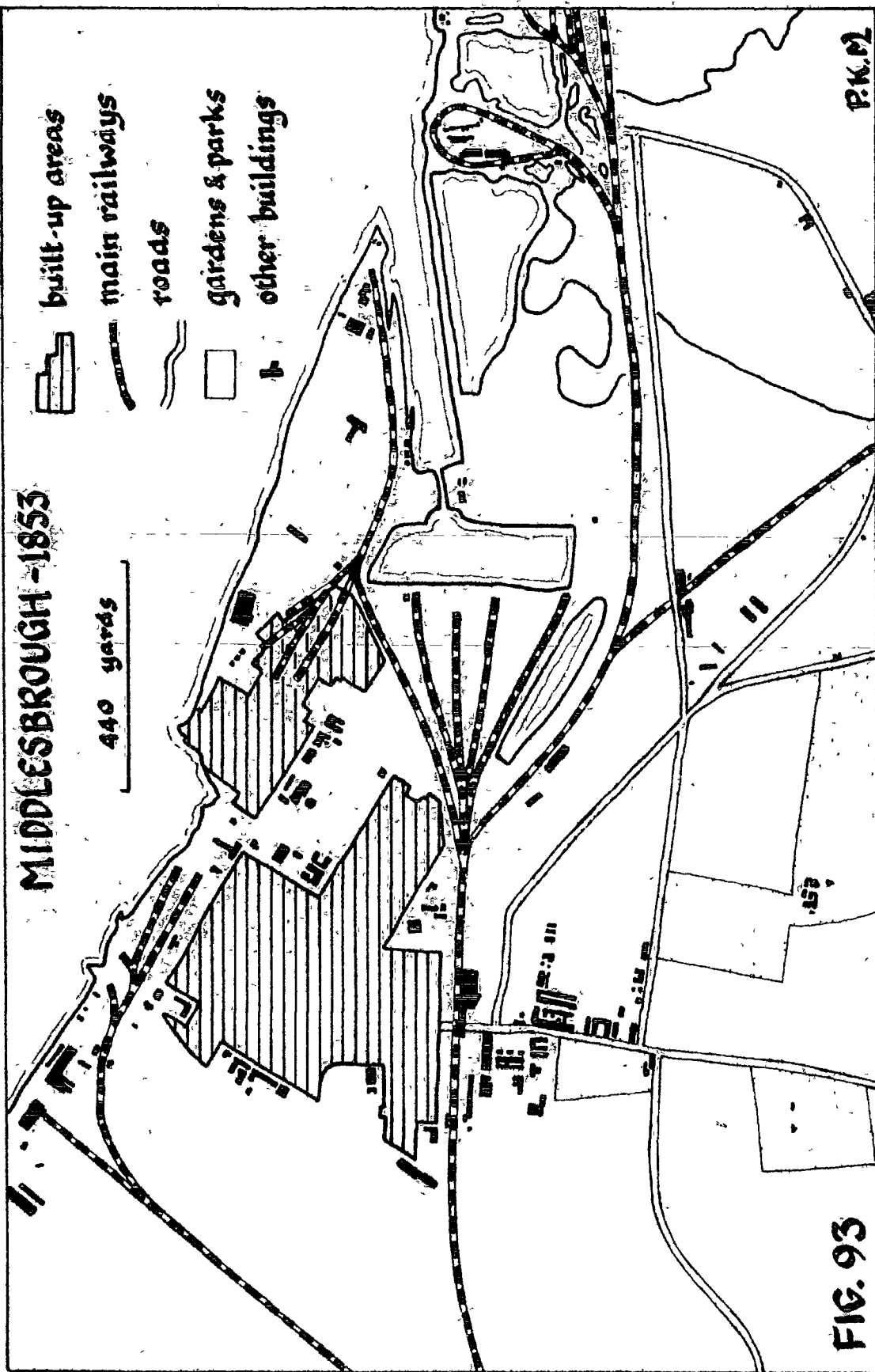
In Marton parish, John Penleaze found the land to be "fairly farmed - and draining tiles were being laid to a considerable extent."⁷¹ Tile drainage had been introduced about 1820: as already noted the technique was used at Hutton Rudby in 1824 and at Barwick in 1830, but stone was still in use there as late as 1833.⁷²

Despite the need to drain the arable, Milburn observed that draining had done more for the grassland.⁷³ To be fully successful, drainage had to be part of a new approach, demanding a greater use of home-grown and purchased manures, an expanded stock population, and an increased use of sown grasses, root crops and other green fodders. On these terms only could the productive efficiency of Cleveland arable

be re-established. Developments of this sort were to take place after 1850, but it is impossible to say how far these were the direct result of the great investment of private and Government monies in drainage, or of a growing awareness of the need for "High Farming" policies in an era of free trade; or whether, indeed, the more local stimulus of the growing urban market of Tees-side was the main incentive for a new approach. The latter factor certainly induced some of the reversion to grass for which there is evidence in the 1850s and 1860s.

In 1850, Middlesbrough was soon to achieve its charter of incorporation, and its 1851 population was in excess of 7,000. North Ormesby's first terraces were being laid out in the northern part of the Ormesby Hall Estate in the early 1850s. South Stockton had been growing since the early 1840s; it stood in Thornaby township, and later adopted the name of its Yorkshire parent. Stockton also was growing, and there were new developments along the north bank of the Tees, at Port Clarence, for example. In these towns, observed Caird, "Milk sells at 2d quart ... and the demand for dairy produce at remunerating prices is constantly increasing."⁷⁴ It should be observed that this demand was, in part, impinging on a zone with long traditions of milk supply, and that "Some milk cows [were] kept to supply Stockton with milk," at Ingleby Barwick in 1849 was no innovation.⁷⁵

The growth of the coal-shipment staithes of Port Darlington into early industrial Middlesbrough has been well described.⁷⁶ Some indication of the effects of this growth are apparent in the market gardens,



Landscaping at Kildale, circa 1835

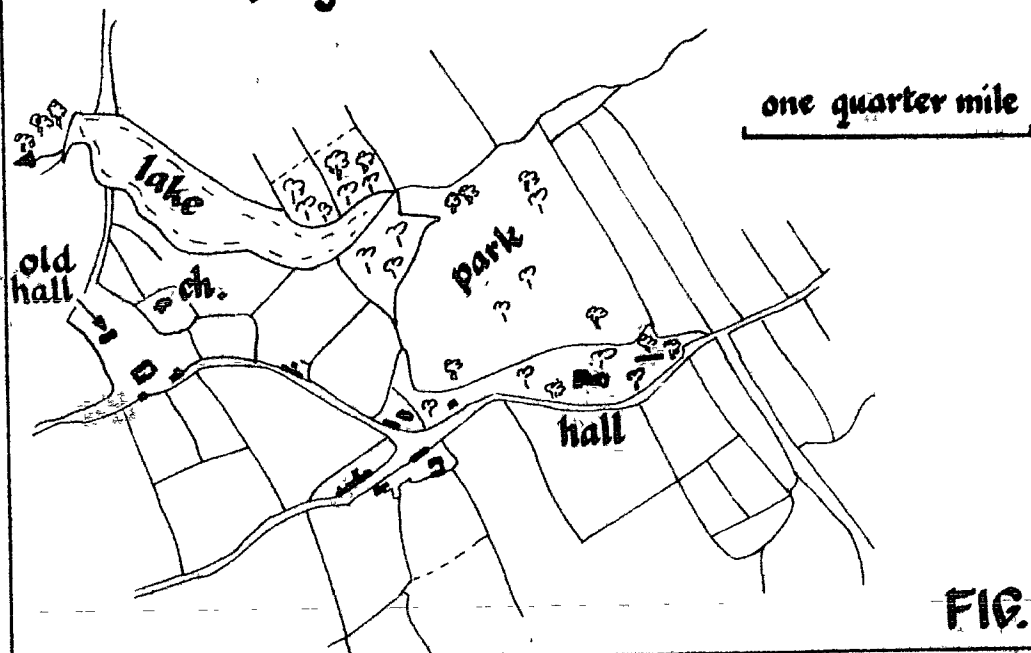
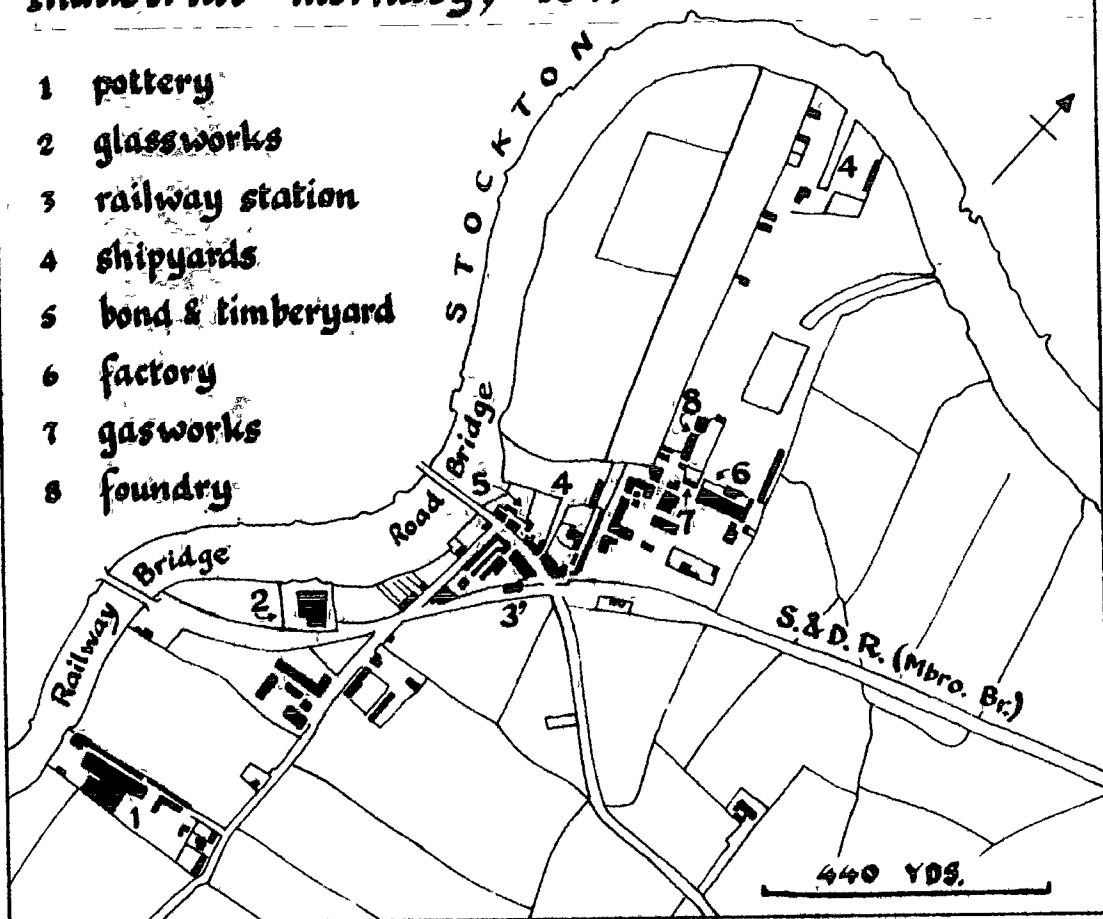


FIG. 94

Industrial Thornaby, 1849

FIG. 95

- 1 pottery
- 2 glassworks
- 3 railway station
- 4 shipyards
- 5 bond & timberyard
- 6 factory
- 7 gasworks
- 8 foundry



villas and parkland developing in the suburban zone by 1853 (Fig.93). The main factors responsible for development at South Stockton (alias Thornaby) appear to have been the river, the road bridge linking Stockton with Cleveland (and at that time the lowest on the river) and the crossing of the Guisborough road, almost at the bridgehead, by the Middlesbrough branch railway (Fig. 95). A pottery had been established on the river bank in 1825, and land was taken for the railway before 1829,⁷⁷ but the main development began after the sale of the 110-acre Carr House Farm in 1838.⁷⁸ By 1844, 50 acres were built over and, in addition to the pottery, a pipe factory and a weaving mill had been established. The direct effects on agriculture were two-fold: the grassland was now mainly devoted to the keeping of cows for milk, although some store cattle and a few sheep were also maintained; and the acreage of potatoes had very greatly increased, on the farms as well as in private and market gardens.⁷⁹

In 1849, another farm was in process of absorption and the industrial content of the new complex now included a shipyard, foundry, gasworks and timber yards. It would be difficult to disentangle the effects of these developments on the Yorkshire side, from those due to growth in Stockton itself. To many, the new settlement was "part of the suburbs of that town." Traffic across the road bridge was great.

Vast numbers of carriages, carts, horses, and foot-passengers, are constantly returning from or proceeding to that thriving market town

wrote Ord in 1845.⁸⁰ Rawlinson, reporting in January 1849, noted that in consequence of the great increase in size and prosperity of

Stockton,

a great change has been wrought upon the management of land, in the adjoining township of Thornaby ... the quantity of land mown for hay had increased enormously and there was/ ... a still greater increase in the quantity of land cultivated for potatoes, carrots and other green crops.

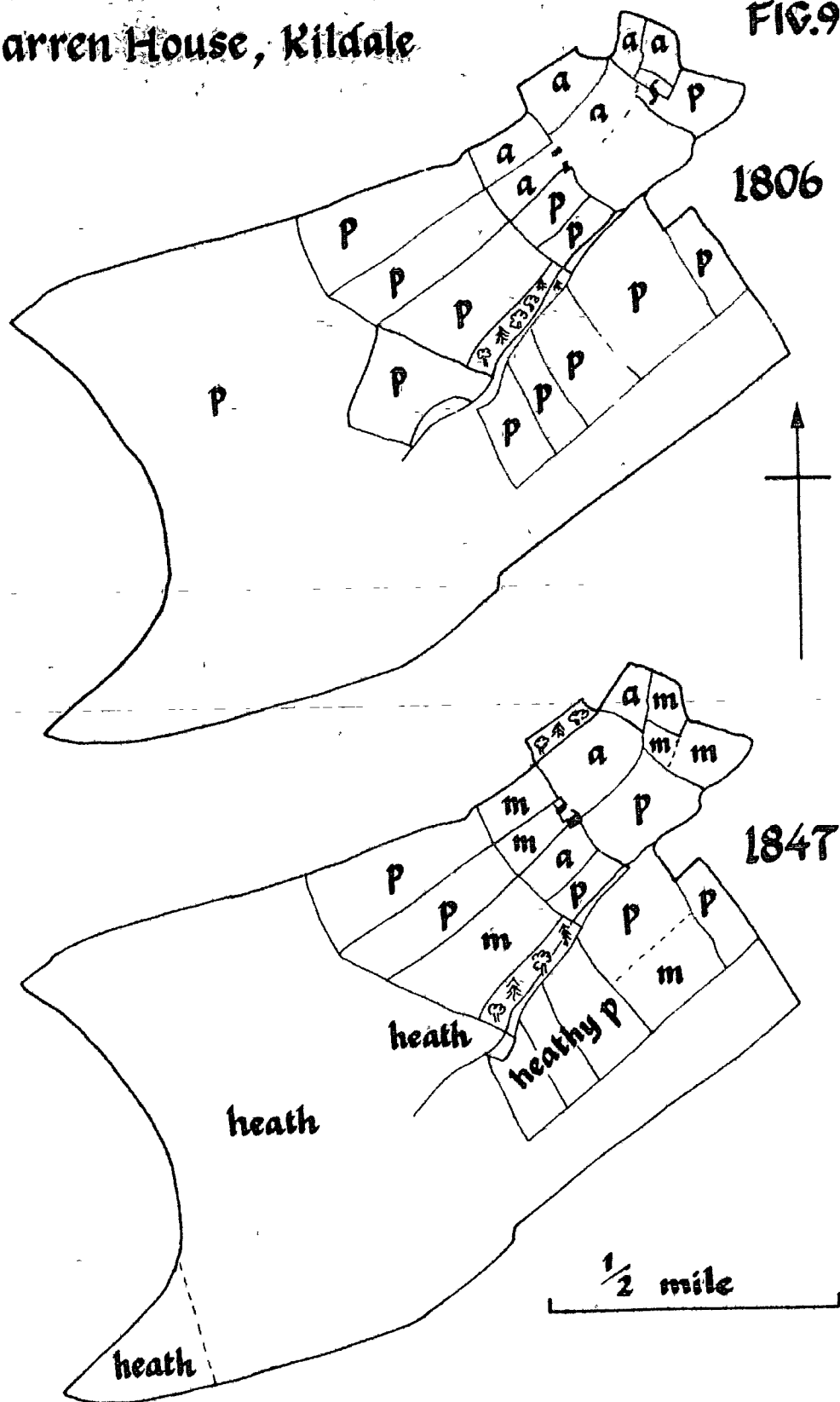
At the same time, there had been a corresponding decline in the numbers of rearing and feeding stock in the township. In 1844, the tithes of agistment on these classes of stock had been estimated at £16.5s.6d - in 1848, they were "very trifling". But despite this reduction, the small tithes, as a whole worth £30.10s.0d in the 1830s, had increased to £67.17s.1d in 1848 "from the increased cultivation of potatoes, carrots etc." and expanded dairy herds.⁸¹

Changes such as these were to spread outward, into the Cleveland countryside, as the riverside towns continued their expansion in the second half of the century.

Whilst the main reaction of Cleveland farming to the depression took a rather unexpected turn, certain other features of the period 1820 to 1850 are less surprising. In particular, there is considerable evidence of withdrawal from the more hostile environments of the upland margins. On the Whorlton Estate, for example, the summary statistics of table LVIII indicate a slight reduction in the measured area of the estate between 1806 and 1842.⁸² This was related to the increased accuracy of survey; and partly reflects the balance of a number of small sales and purchases. The area of moorland is seen to have declined by some 53 acres, and 40 acres of what remained had been unsuccessfully planted with larch. Detailed inspection of the

Warren House, Kildale

FIG. 96



P.R. 12

TABLE LVIII - Land use changes

on the Whorlton Estate, 1806 to 1842

	Acres	
	1806	1842
Farmland	2920-1 -07	2894-0 -25
Woodland	203-3 -27	262-3 -32
Moorland	2956-0 -04	2903-0 -06
Total	6080-0 -38	6060-0 -23

surveys reveals that all 53 acres had been taken in for farming probably before 1820. Some of it was subsequently planted, a use to which some of the farmland of 1806 was also later devoted. Furthermore, almost 500 acres of the farmland, which in 1806 had been described either as "pasture", "meadow" or "arable", was listed by 1842 in one of the following categories: "Fern, sheep-walk etc.", "Rough", "Ling and grass", or "Moorside". Similar changes are observed in the nomenclature at Kildale (Fig. 96)⁸³ No doubt some of this implied deterioration was fictional, resulting simply from a more realistic appraisal of land quality in the less optimistic 1840s, but some of the reversion to moorland was real enough.

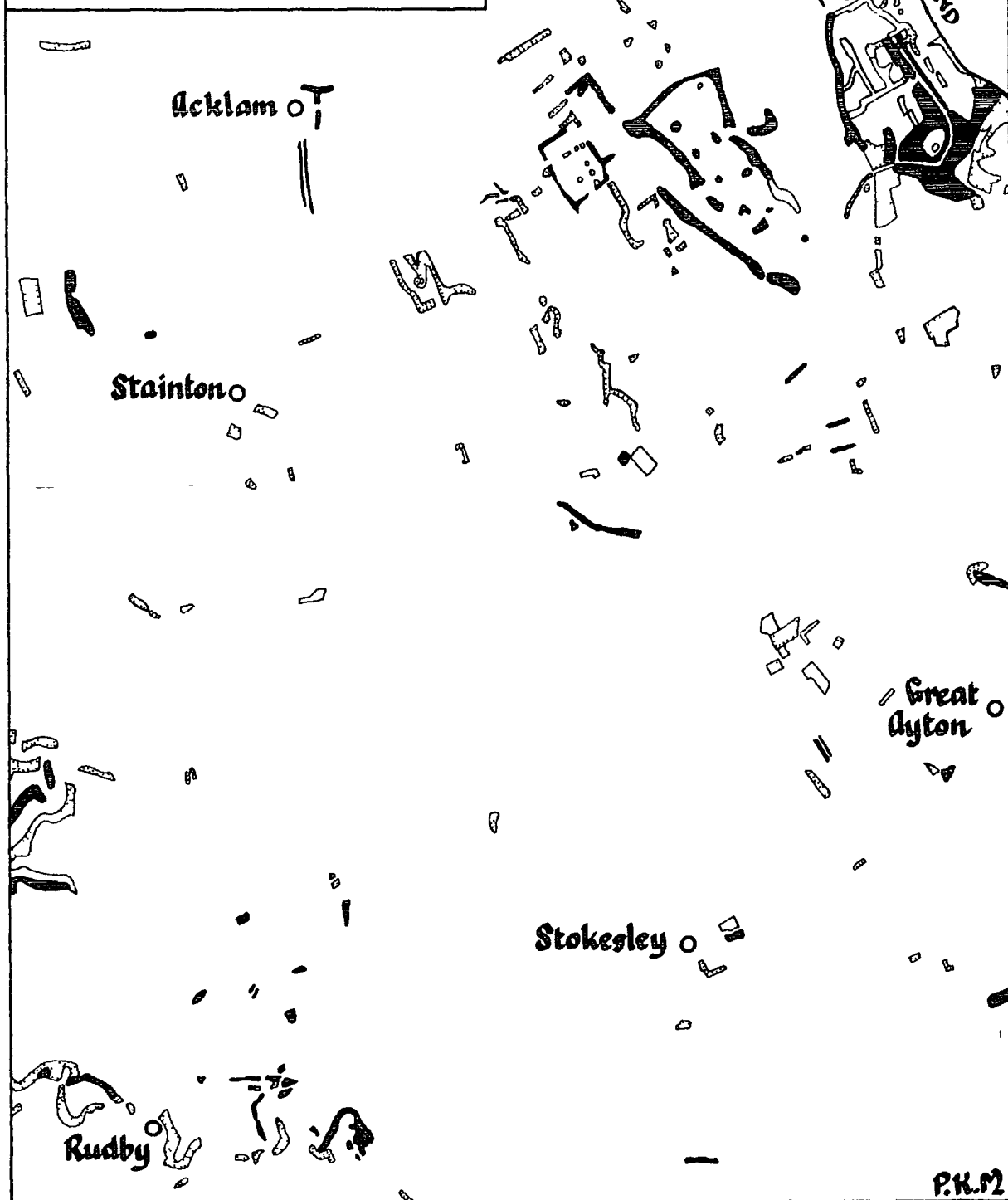
The further increase of woodland acreages in Whorlton amounts to no more than an extension of the programmes already under way by 1820. The same is to be said of the extensive schemes going forward at Normanby. A new aspect of the afforestation of the district was, however, becoming apparent by the end of the period. This was the establishment of woodland in parts of fields, or over whole fields,

WOODLAND in part of W. Cleveland 1817-1853

- woodland established before 1817
- planted between 1817 and circa 1845
- ◻ additional planting by 1853

0 1 2 miles

FIG. 97



remote from country houses and on land which had, in the past, shown itself capable of arable cultivation. Such was the case, for example, at Low Worsall, where G. E. Waldy planted 27.21 acres in the early 1830s.⁸⁴ Field work suggests that these were fields in which the problems of disposing of surface water had proved intractable. Similar plantations were established in Morton township before 1839 and near Brass Castle in Marton between 1839 and 1853.⁸⁵ Sites of this type are revealed (Fig. 97) by the regular shape of the plantations so created. Tuke, whose large-scale map first appeared in 1787,⁸⁶ had suggested that some 2.13% of all Cleveland was wooded;⁸⁷ sampling of West Cleveland Tithe Awards indicates that this value had probably risen to 3.97% by the mid-1840s.

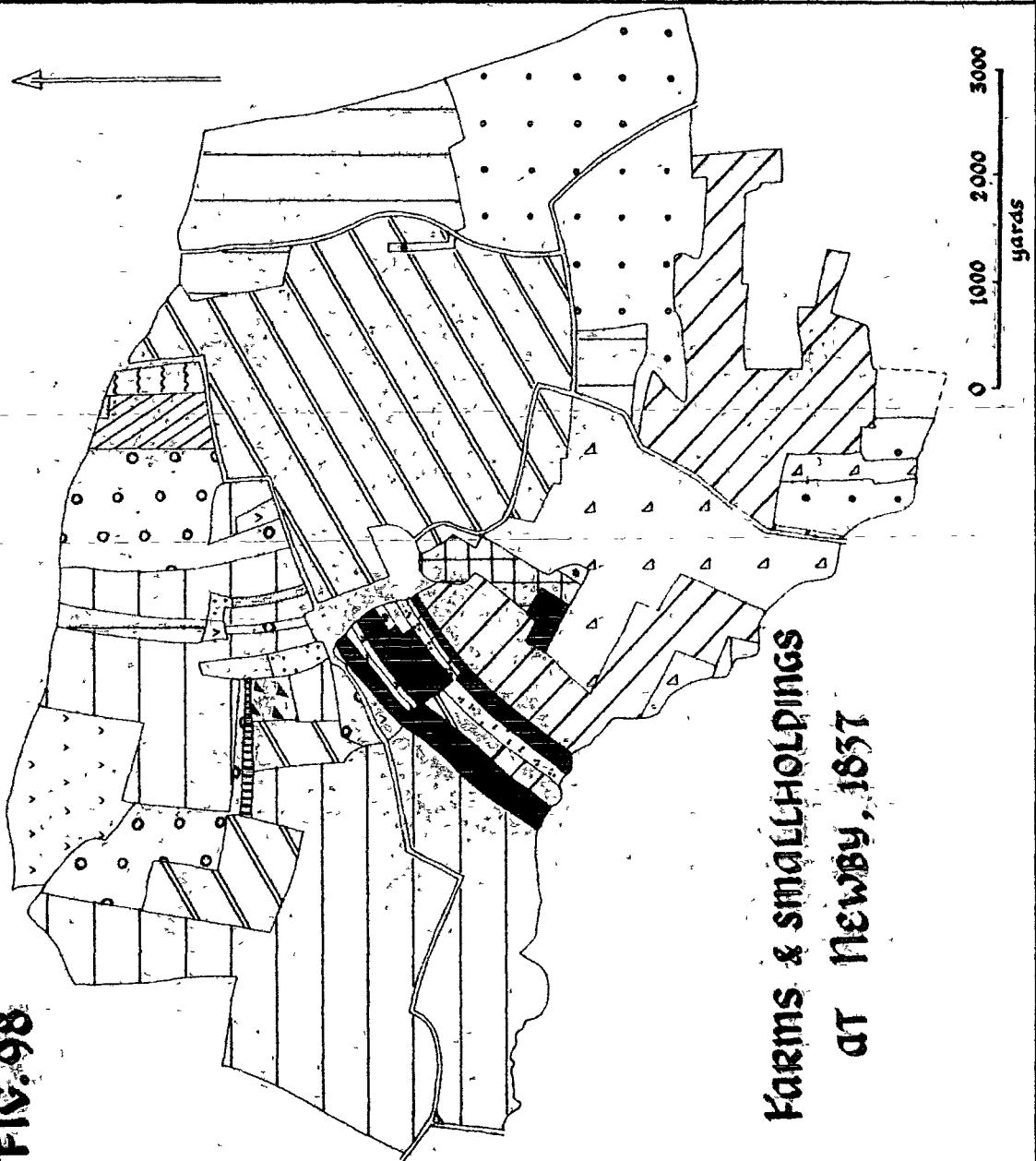
Landscaping around new or re-built country houses was another feature of this period, despite the alleged capital shortage among the gentry. At Normanby, for example, the Hall was re-sited above the Yarm to Marske road and many new plantations made, the principal purpose of which was decoration.⁸⁸ At Kildale, cottages were pulled down and the road diverted to build a mansion on the old village street; land was taken in to form a park, which, decorated with clumps of trees, ran down to an artificial lake, backed by a plantation screen (Fig. 94).⁸⁹ Later, the dam holding the lake was destroyed by flooding and the lake drained.⁹⁰ The land around Ormesby Hall, some of which had been ploughed during the war, was laid to grass shortly thereafter, again, no doubt, with the object of enhancing the view: the area is marked as parkland on Greenwood's map of

1834.

Throughout the period, some landlords were able to apply capital to their estates, though it is not certain that the capital was always locally derived. On the Whorlton Estate, where the Marquis of Ailesbury was an absentee landlord, building of new farmhouses and buildings proceeded slowly but steadily. Holliday House Farm, for example, had a brand new house and steading when the estate was surveyed in 1842,⁹¹ though other tenants were less fortunate and several farmsteads were in little better shape than they had been in 1806. However, 8 farms had gin-houses for horse-powered threshing machines, while on another there was "also a machine but no shed." Since each cost from £30 to £40, this represented appreciable capital. Most of the tenants owned their own machines, but on one 68-acre farm the surveyor reported, "The threshing Machine belongs to Lord Ailesbury & it is said some of the furniture in the house." It is highly likely that this state of affairs had its origins in the tenant's inability to pay rent at some time during the depression. On the Marwood Estate also, new building and investment proceeded. For example, Parish Crayke homestead had been re-sited in a more convenient place by 1840 (Fig. 61).⁹²

Consolidation of holdings also continued through the difficult years, and may even have been quickened by the consequent higher mobility of tenants. A comparison of figures 49 and 123, shows that many boundary changes had taken place at Busby during the intervening years. The new patterns were much simpler than the old, although

FIG. 98



a number of smaller holdings near Great Busby Village were still fragmented in 1840. The position was much worse in Newby, where patterns of ownership and of tenure were extremely complex.⁹³ The largest owner in the township held land in five blocks and another in nine; only the smallest owners had fewer than three separate plots, and several of these owned land in other townships.⁹⁴ By obtaining adjacent tenancies, and even by interchanging properties on lease, the tenants produced a slightly less time-wasting arrangement of the actual working units (Fig.98), but inconvenience must still have resulted. The Newby pattern contrasts markedly with, for example, that at Ormesby (Fig.125) or at Hilton (Fig. 100) where a single owner could impose a simpler arrangement. The convenience of the Thornton pattern (Fig. 73) had been somewhat disturbed between 1808 and 1835 by the sale of some land, including two "inliers" within the estate boundary (Fig.126). With consolidation went amalgamation, and a reduction in the number of small holdings. Sir Charles Turner had already re-organised Kildale in the eighteenth century, but in 1806 there still survived nine holdings with between one and 15 acres. By 1847, there were no more than 4 holdings in this class and the total number of holdings had been reduced from 24 to 20. There is little doubt that the holdings which remained were more likely to prove viable.

Improvement of livestock and the extended use of the newer crops was encouraged by the Cleveland Agricultural Society, founded probably in 1833. by the early 1850s, it was conducting competitive

experiments with machinery - reapers, for example.⁹⁵ During this period, Bates completed his work on the Dairy Shorthorn; his greatest triumph was at the Royal Agricultural Society's show at Oxford in 1839.⁹⁶ While the shorthorn dominated the local cattle population, experiments were made with other breeds. George Marwood, for example, began breeding Jersey cattle about 1826 and had a large herd by the 1840s.⁹⁷ By the 1840s, also, it was a well-established practice in townships as diverse as Potto and Ingleby Barwick to buy in Scotch or Irish cattle for feeding.⁹⁸ It is not clear when this pattern became established or whether it was the cause or the consequence of a decline in local rearing. At Hemlington, we read,

C. B. Bewicke Esq., has a seat here, and holds 131^a of which 26^a are arable ... say 100^a of grass. He has usually kept 2 or 3 cows & bought in about 30 head of Scotch or Irish Cattle to graze.⁹⁹

A grazier of Acomb, York, found it worthwhile to bring stock from there to feed on pastures which he owned in Low Worsall.¹⁰⁰ The Assistant Tithe Commissioner for Stainton parish observed that the payment of tithe assessed on the basis of the calf crop was largely avoided in this way,¹⁰¹ but it seems unlikely that this was the cause of so fundamental a development. The buying-in of stores for feeding off grass was a natural step towards the arable-fattening of cattle in later farming practice.

By mid-century the old Teeswater sheep had virtually disappeared, both by improvement (particularly with Dishley or Cheviot blood) and replacement (by Border Leicesters, or as at Normanby,¹⁰² by Merino),

as well as by the scourge of rot which was most prevalent during the very wet early 1830s. At Barwick, in the immediately post-war years the numbers of Cheviots and Teeswater crosses (called there "Country" sheep) were roughly equal.¹⁰³ At Newby in 1843, a flock was dominated by Cheviots in the ratio of 3:1.¹⁰⁴ The breed's survival was not greatly desired, for although the lambs were worth a guinea to the Cheviot's 12 shillings and the fleeces were of equal value, it was a big animal, slow to fatten and requiring more grass than the improved strains. The impact of the rot outbreaks on sheep numbers may be judged from their effect on the sheep population of Ingleby Barwick, where, in 1816, 110 lambs were reared and 254 fleeces shorn. In the later 1840s, the crop was only 45 lambs and 130 fleeces.¹⁰⁵ What was said of Hutton Rudby was largely true of the district: "very few sheep are kept in the township and still fewer bred."¹⁰⁶

Pigs begin to appear in significant numbers of Cleveland stock lists in the nineteenth century. A centre of improvement of the local breed was Ingleby Greenhow, where blood of the smaller, quick-maturing Chinese race was introduced,¹⁰⁷ and there appear to have been similar developments at nearby Kildale.¹⁰⁸ Sows were also noticed in Hemlington and other northern townships.¹⁰⁹

Apart from the alleged loss of the best Cleveland Bay mares, little change appears to have taken place in the horse population. By mid-century, the traditional market for locally-bred animals was beginning to fail, the light town Brougham having replaced the family coach in fashionable circles,¹¹⁰ but a new outlet was found in the

light-soiled regions of England. These areas were increasingly assuming dominance in the nation's grain production, and the Cleveland was found to be the most economical plough-beast for such soils.¹¹¹ In the vale, efficiency of horse-work had almost doubled since 1770, when one animal had been required for each 10 or 12 acres of arable: some (if not the major part) of this increase, was the result of developments in the design of implements - of ploughs especially - but it is also likely that horses of the Clydesdale type were being introduced to good effect.

Few new crops were introduced during these years, though a little linseed is known to have been grown at Kildale after 1847, and tares appear occasionally in crop lists.¹¹² The cultivation of potatoes was greatly expanded close to the towns, and on the upland margins, where the presence of potato sheds among the farm buildings suggest that more were grown than mere subsistence would demand. Turnip acreages also increased a little, but the greatest impact was made by the Cleveland farmer's adoption of, first clover, and then sown grass mixtures. "Clover sickness" appears to have been less of a problem here than, for example, in the Vale of York.¹¹³ Towards the end of the period, the legume was rarely grown in pure stand and was often only a small part of the seeds mixture - this change appears to have been introduced in the 1830s, when one reads that at Newton, "sometimes grass seeds are sown for a two years pasture in place of red clover."¹¹⁴ At this time, seeds regularly stayed down two years (being mown first year; grazed next) at Newby and Seamer; practice

varied at Hutton Rudby, but at Kirk Leavington "the clover is chiefly mown and very rarely allowed to stand two years."¹¹⁵ An important result of these introductions, and the concurrent development of more advanced rotations, was a decrease in the amount of bare fallow. Two examples will illustrate the magnitude of post-war achievement in this regard: at Kildale, the proportion of bare fallow declined from 36.7% of arable to 15.3%. At Hutton Rudby the corresponding figures were 31% and 25.3% (chapter fifteen). Progress was not so great everywhere. At Busby, for example, there appears to have been little change in this factor, despite the advances made in that township almost a century earlier.

The years from 1820 to 1850, therefore, were not only years of declining yields and profits, and some agrarian distress; but were also, on some farms, a time of real progress and improvement. There is little point in speculation as to what would have happened had not, to quote Tweddell in 1872

the immense increase of population in the Cleveland ironstone mining and manufacturing district ... given us a home market which native produce is unable to supply.¹¹⁶

The fact is that the appearance of such a market came at a time when the district had slipped far behind even the average of contemporary practice and grave injustices were being inflicted on its soil resources. Fortunately, Cleveland, unlike Howdenshire, could grow grass still. Also, undercurrents of improvement had been at work - dairy cows and pigs improved, the value of under-draining demonstrated, communications further developed, the buying-in of feeding stock

initiated - preparing for progress in the new economic environment of the third quarter of the century.

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- 1 BM-SPR/ "Second report from the Select Committee ... Agriculture", Reports from committees, No. 668 (1822), vol V, passim.
 - 2 National average prices from R. E. Prothero, English farming - past and present, (Longmans, 1912), p.491.
 - 3 BM-SPR/ "Second report ...," p.65, evidence S. C. Curwan.
 - 4 J. Caird, English agriculture in 1850-51, (Longman; London: 1852), p.474.
 - 5 BM-SPR/ "Second report from the Select Committee ... Agriculture," Reports of Committees, No. 189 (1836), VII, 5454.
 - 6 BM-SPR/ "Report from the Select Committee on Agriculture", Reports from Committees, No. 612 (1833), V, 314.
 - 7 Sel.Com.Rep. (1836), qq. 5605-5607.
 - 8 TRC/ TF 11922.
 - 9 Sel.Com.Rep (1833),qq. 3098.
 - 10 Ibid., qq. 3129-3132
 - 11 Sources for the various localities are those cited in chapter thirteen for the early years and the appropriate tithe apportionments for the later years, except for the following:
 Whorlton - WLC/ Emerson Papers, Field book of 1842.
 Busby - CRO/ Marwood Papers, Field book of 1843.
 Tunstall, Ormesby and Thornton - JBP-OH/ Field book of 1853.
 Kirby - KCh/ "A survey and valuation of all the lands, houses, gardens and orchards within the townships of Kirby and Great and Little Dromonby in Cleveland ... By me Rd. Otley June 1825."
 - 12 W. Wright, "Improvements in Yorkshire farming since ... 1848"; JRAS, XXII (1861), p.110 also took this view. He wrote "The high price of grain, however, between 1790 and 1812 induced the occupier, when not restricted from so doing, to take every

opportunity for converting into tillage every kind of land."

- 13 Caird, op.cit., pp. 326-8.
- 14 M. M. Milburn, "On the farming of the North Riding of Yorkshire," JRAS, IX (1848), 496-521.
- 15 Neither group shows any sign of bias to vitiate the obvious conclusion that an actual increase had taken place.
- 16 CRO/ZQ, "A particular and valuation ... 1816."
- 17 CRO/ZQ, Account books, entries for 23rd December, 1824 and 3rd May, 1830 record the first use of tiles at each place. CRO/ZQ, "Account of quantities of land and rent charge in lieu of tithes in Hutton Rudby" has an appended contemporary note indicating which fields had been drained.
- 18 CRO/ZQ, Rental account books.
- 19 TRC/TF 11922. This Crathorne file is devoted almost entirely to a discussion of this, and the other farm which together made up Foxton.
- 20 TRC/TF 11901.
- 21 Milburn, op.cit., p.512.
- 22 Cobbett, who did not himself visit Cleveland, commented on tendencies in the northern vale of York and in Durham in the following terms: "/southern farmers/ are always hankering after laying down fields in pasture ... these fellows in the North, as if to rival us in "improvements" and perverseness, must needs break up their pasture-lands"; and again, "Grass is the natural produce of this land, which seems to have been made on purpose to produce it." (W. Cobbett, Rural Rides, - Reeves and Turner; London: 1886 - II, pp.363 & 367).
- 23 Caird, op.cit., p.485
- 24 Ibid., p.326.
- 25 CRO/ZQ, Rental account books.
- 26 CRO/ Marwood Papers, tenancy agreements.
- 27 Sel.Com.Rep., (1836), qq. 5327.

- 28 WLC/ Goulton Papers, "Sale of the farming stock of Robert Watson".
- 29 See especially M. H. Sutton, JRAS, XXIII (1861), pp 416-21. The best techniques for manuring grassland were also under discussion at about that time, see for example, J. Dixon, JRAS, XIX (1858), pp. 204-218, on practice in the grazing districts of Lancashire, Cheshire and in Craven.
- 30 Milburn, op.cit., pp. 511-12.
- 31 BM-SFR/ "Report from the Select Committee on Agricultural Customs," Reports of Committees, No. 461 (1847/48), III, q. 2735.
- 32 Milburn, op.cit., p.513.
- 33 TRC/TF 12154.
- 34 TRC/TF 12282.
- 35 TRC/TF 12135.
- 36 TRC/TF 12044.
- 37 For example at Kirby, TRC/TF 12055.
- 38 TBL/ Hustler Papers, a bundle of tithe papers relating to Ayrson and Linthorpe.
- 39 TRC/TF 12154.
- 40 JBP-OH/ Field book of 1853.
- 41 Ibid.
- 42 GET-KH/ Field book of 1847.
- 43 Milburn, op.cit., p.517.
- 44 WLC/ Goulton Papers, Sir Wm. Foulis to John Goulton, 1st January, 1820.
- 45 TRC/TF 12044.
- 46 TRC/ Ingleby Greenhow Tithe Agreement, 1839, Summary.
- 47 Caird, op.cit., p.326.

- 48 TRC/TF 12139.
- 49 MPL/ The Stokesley Advertiser, 1st April, 1843.
- 50 TRC/ Tithe apportionments for Newby and Stokesley.
- 51 W. H. Beevor, "Time of entry on farms", JRAS, XVIII (1857), pp. 311-42.
C. Wratislaw, "The amount of capital required for the profitable occupation of mixed arable and pasture farm in a midland county", JRAS, XXII (1861), pp.167-89.
J. L. Brereton, "On stocking land", JRAS, n.s. I(1865), pp.130-41.
- 52 G. M. Tweddell, The people's history of Cleveland, (Stokesley, 1872), p.97.
- 53 E. Bowly, "On the management of breeding cattle," JRAS, XIX (1858), p.147.
R. Smith, "Report on the exhibition of livestock at Chester", JRAS, XIX (1858), p.360.
- 54 GRO/ Marwood Papers, tenancy agreements.
- 55 Milburn, op.cit., p.513.
- 56 TRC/TF 12217.
- 57 TRC/TF 11810.
- 58 J. W. Ord, The history and antiquities of Cleveland, (London, 1846), p.94.
- 59 P. Pusey, "The agriculture of England in 1839", JRAS, I (1839), pp. 1-19.
- 60 Sel. Com.Rep., (1833), q. 2521.
Prothero, op.cit., p.366.
- 61 Caird, op.cit., p.328.
- 62 Sel.Com.Rep., (1847/8), q. 2734.
- 63 Caird, op.cit., p.349.
- 64 Wright, op.cit., p.110.
- 65 Sel.Com.Rep., qq. 2396 and 2398.

- 66 J. Parkes, "On draining", JRAS, VI (1846), pp 249 et seq.
- 67 Wright, op.cit., pp.110-11.
- 68 Ord, op.cit., p.430.
- 69 TRC/TF 11810. The valuation of tithes made in 1848 was reduced by this proportion before being adopted as the rent-charge which, according to the Act, was to be based on the "years of average" in the preceding decade.
- 70 TRC/TF 11841. In this context, "furrow drained" appears to indicate deep draining "up the ancient furrow" (Wright, op.cit. p. 111), rather than the traditional surface drainage. However, if the latter is intended, Procter was simply reverting to an eighteenth century practice - that his action in so doing called for special comment would indicate that the general level of local husbandry had fallen very low indeed.
- 71 TRC/TF 12093.
- 72 CRO/ZCQ, Account books, entries for 3rd May, 1830 and 21st December, 1833.
- 73 Milburn, op.cit., p.512.
- 74 Caird, op.cit., p.327.
- 75 TRC/TF 12043.
- 76 A. E. Smailes in R. Glass (ed.) The social background of a plan, a study of Middlesbrough, (Routledge & Kegan Paul, 1948), pp.195-221
A. Briggs, Victorian Cities, (Odhams Press, 1963), pp.245-82.
- 77 Ord, op.cit., p.510.
- 78 YAS/DD 26.
- 79 TRC/TF 12251.
- 80 Ord, op.cit., p.511.
- 81 Material in this paragraph is drawn mainly from TRC/TF 12251.
- 82 WLC/ Emerson Papers, Field books, 1806 and 1842.
- 83 GET-KH/ Field books, 1806 and 1842.

- 84 TRC/TF 13816.
- 85 Conclusions based on the examination of:
C. Greenwood, Map of the County of York ... 1817 (Wakefield, 1817).
Tithe maps of West Cleveland townships.
Ordnance Survey, Six-Inch Map of England, (local sheets, 1853).
- 86 A map of Yorkshire in four sheets, published in 1787 and re-issued in 1816.
- 87 Tuke, A general view ... North Riding of Yorkshire, (Octavo ed; London: 1800), p.183.
- 88 MPL/ m.s. Journal of W. W. Jackson, vol B, passim.
- 89 GET-KH/ Estate papers, various.
- 90 Ord, op.cit., p.91.
- 91 WLC/ Emerson Papers, Field book, 1842, passim.
- 92 TRC/ Little Busby tithe map.
- 93 TRC/ Newby apportionment and map.
- 94 TRC/ Apportionments for Stokesley, Seamer, Marton and Stainton.
- 95 JRAS, XIII (1852), p.336.
- 96 R. Trow-Smith, English husbandry, (Faber and Faber, 1951), p.178.
- 97 CRO/ Marwood Papers, Garden Book, where the herd history is summarized. The cattle are there described as "Alderney", but see Le Conteur, "On the Jersey, misnamed Alderney, cow," JRAS, V (1845), 43-50.
- 98 TRC/TF 12043, _____ 12170.
- 99 TRC/TF 12012.
- 100 TRC/TF 13816.
- 101 TRC/TF 12088.
- 102 MPL/ m.s. Journal of W. W. Jackson, passim.
- 103 CRO/ZQ, "Barwick Tythes".

- 104 MPL/ The Stokesley Advertizer, 1st April, 1843.
- 105 TRC/TF 12043.
- 106 TRC/TF 12040.
- 107 Tweddell, op.cit., p.105.
- 108 A piggery is marked on Greenwood's map of 1834. However, the farm so labelled stands on Percy Rigg and it is not impossible that "Piggery" is a mis-print for "Percy Rigg."
- 109 E.g. TRC/TF 12012.
- 110 Wright, op.cit. p.112.
- 111 Prothero, op.cit., p.355.
- 112 GET-KH/ Field book, 1847.
- 113 Milburn, op.cit., p.508.
- 114 TRC/TF 12135.
- 115 TRC/TF 12139, _____12203, _____12040, _____12066.

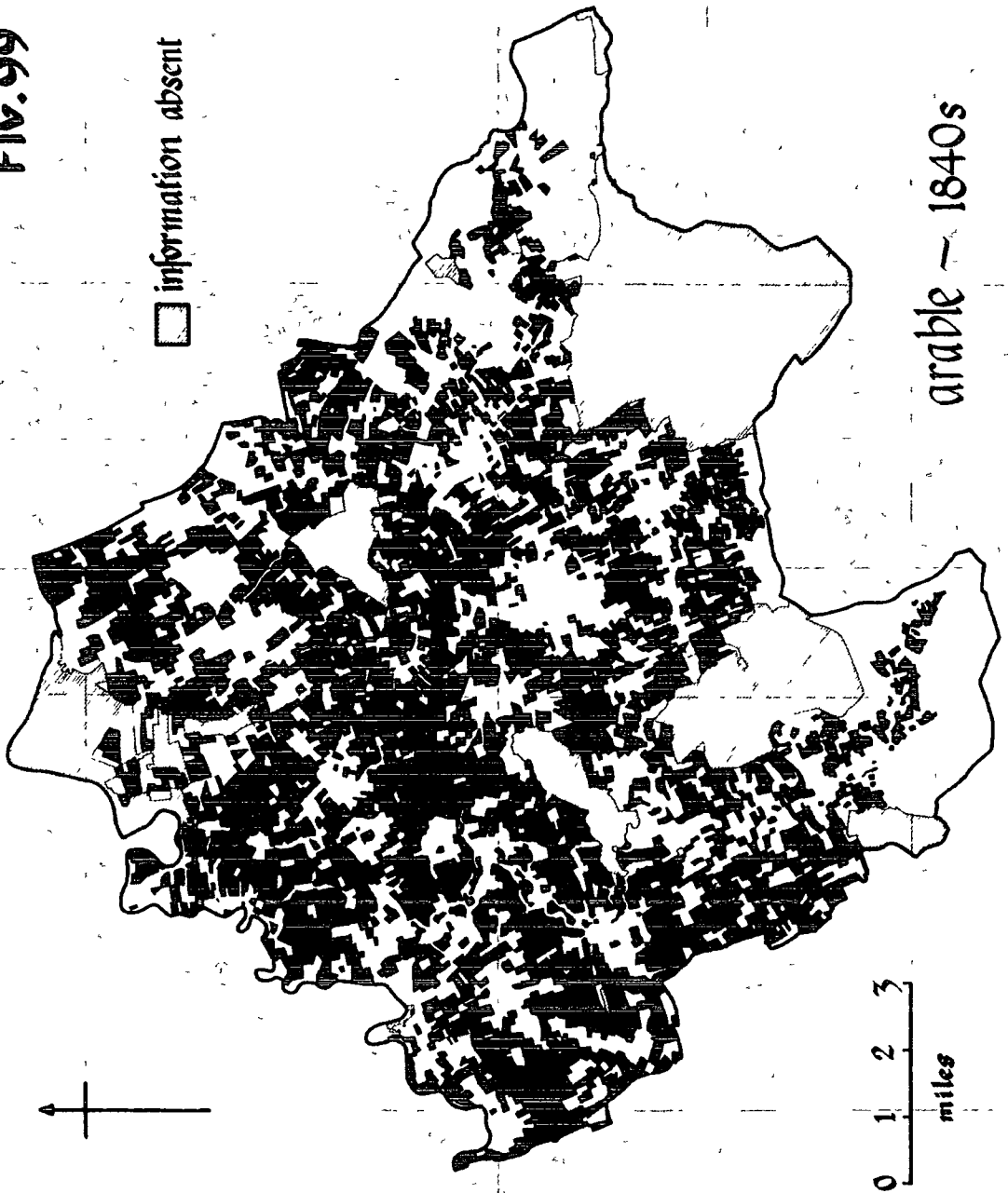
CHAPTER XV
WATERSHED - LAND USE AND CROP PATTERNS AT
MID-NINETEENTH CENTURY

The middle years of the nineteenth century represent a watershed in the affairs of local agriculture from almost every point of view. Nationally, agriculture moved from a period of almost persistent depression into a golden age of prosperity. An expanding urban population (not yet fed from the virgin lands of the new countries) provided a market; developing agricultural science taught the techniques necessary for the expansion of production. Cleveland shared the national trend, but the contrast was heightened by the burgeoning of local consumption on Teeside, which after 1850 grew big enough to affect more than a mere fringe of northern townships. As a result of these special circumstances, the late 1840s saw the crest of arable utilization of the soil. Moreover, the conservative local agriculturalist was moved at last from his age-old preoccupation with wheat-growing and the bare fallow to embrace new rotations in which sown grasses, roots and barley found a place. But this development would scarcely have been possible without the fundamental change in the edaphic basis brought about by widespread and successful sub-surface drainage. Milburn had seen West Cleveland farming on the brink of disaster; Caird - a mere two years later - could see that drainage, and the urban demand, were the keys to a promising future.

There is, unfortunately, no convenient summary of Yorkshire or North Riding land use patterns of the 1840s comparable with that of Tuke for the 1790s.¹ The regional context is therefore uncertain and no useful generalization can be made.

Within West Cleveland, however, data are available which place analysis on a more secure basis than for any other time.² Arable was

FIG. 99



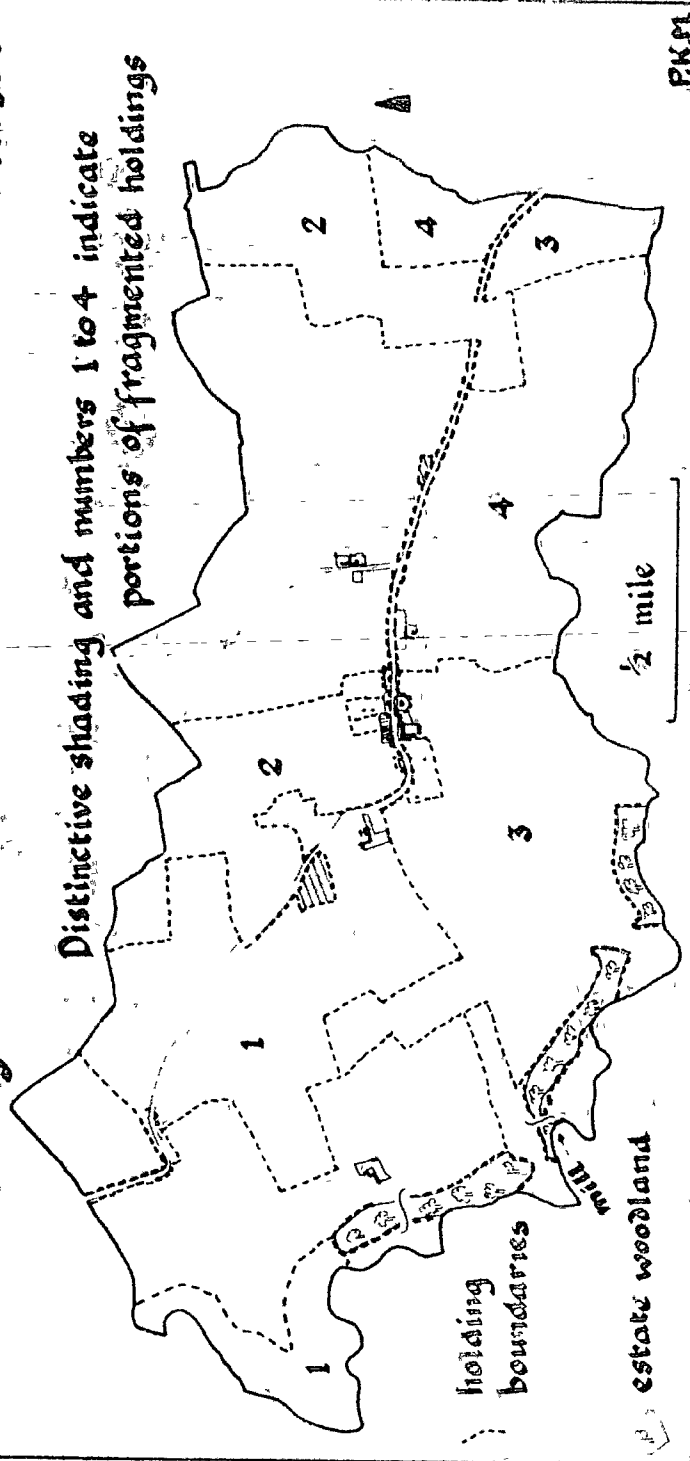
PKM

the dominant category of land use over most of the area, but its distribution pattern was one of great intricacy (Fig.99). On the eastern and southern borders, the pattern was clearly influenced by relief factors. The salients of arable cultivation thrusting along the valleys of Kildale and Scugdale are very noticeable (Fig.119a). Where the escarpment is unbroken (as between Busby and Broughton) two zones of arable ran more or less continuously parallel to the hillside, separated by the belt of scarp-foot settlement (Fig.122). The largest continuous tracts of arable lay on the northern slopes of the Cleveland moraine, particularly between Hilton and Hemlington, and again on the northern boulder clay plateau in Low Worsall, Picton and Kirkleavington. A secondary belt of arable lay parallel and to the north of this, between the line of settlements along Ladgate Lane from Yarm to Normanby and the grassy (and increasingly urbanized) riverside lands. This belt was discontinuous, and broken especially at Acklam and also in lower Marton township. To the east it swung northward to occupy the estuary's margins in Normanby. In central areas, particularly in the mouth of the Guisborough valley at Newton and Pinchinthorpe and on the southern clay plateau in Hutton Rudby, an even mosaic of arable and other uses was found. These textural variations appear to be related to contrasts of settlement pattern, dispersed homesteads were associated with a mosaic pattern (Fig.121), whilst continuous tracts tended to be associated with the dominance of a nucleated central settlement. Hilton gives perhaps the best example of the latter type. At this date, the township was a single

Landholdings in Hilton in 1840

FIG. 100

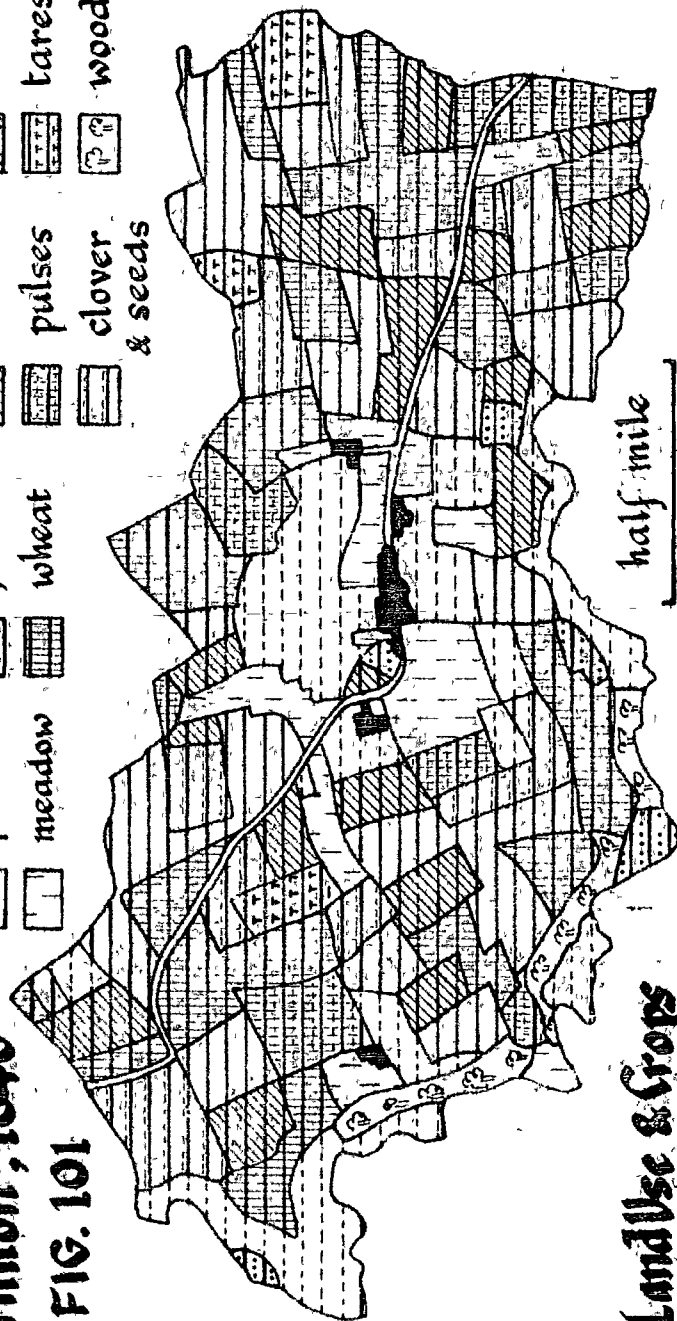
Distinctive shading and numbers 1 to 4 indicate portions of fragmented holdings



Hilton, 1840

FIG. 101

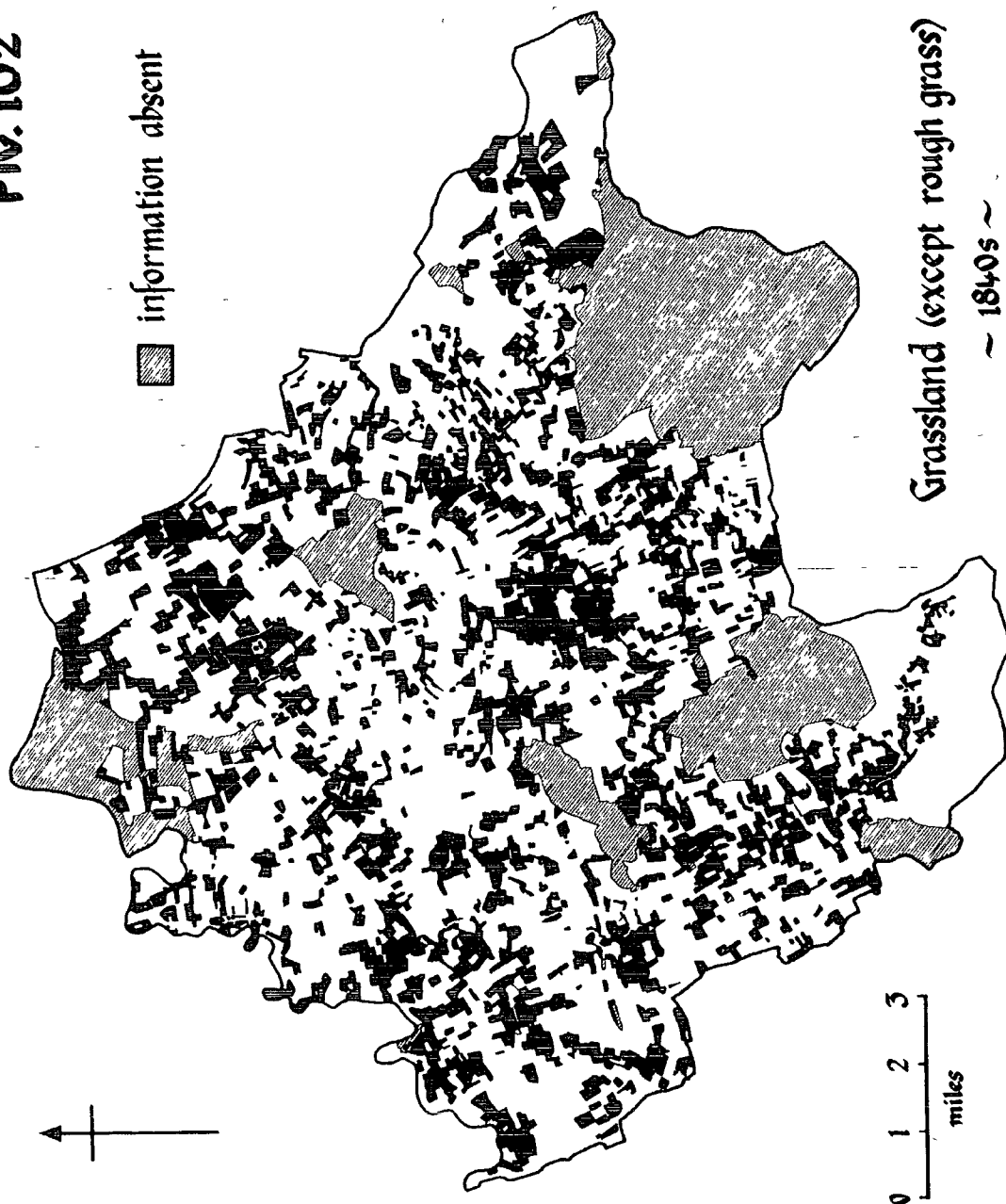
	pasture		fallow		oats		roots
	meadow		wheat		pulses		tares
					clover & seeds		woodland



Land Use & Crops

PK. 2

FIG. 102



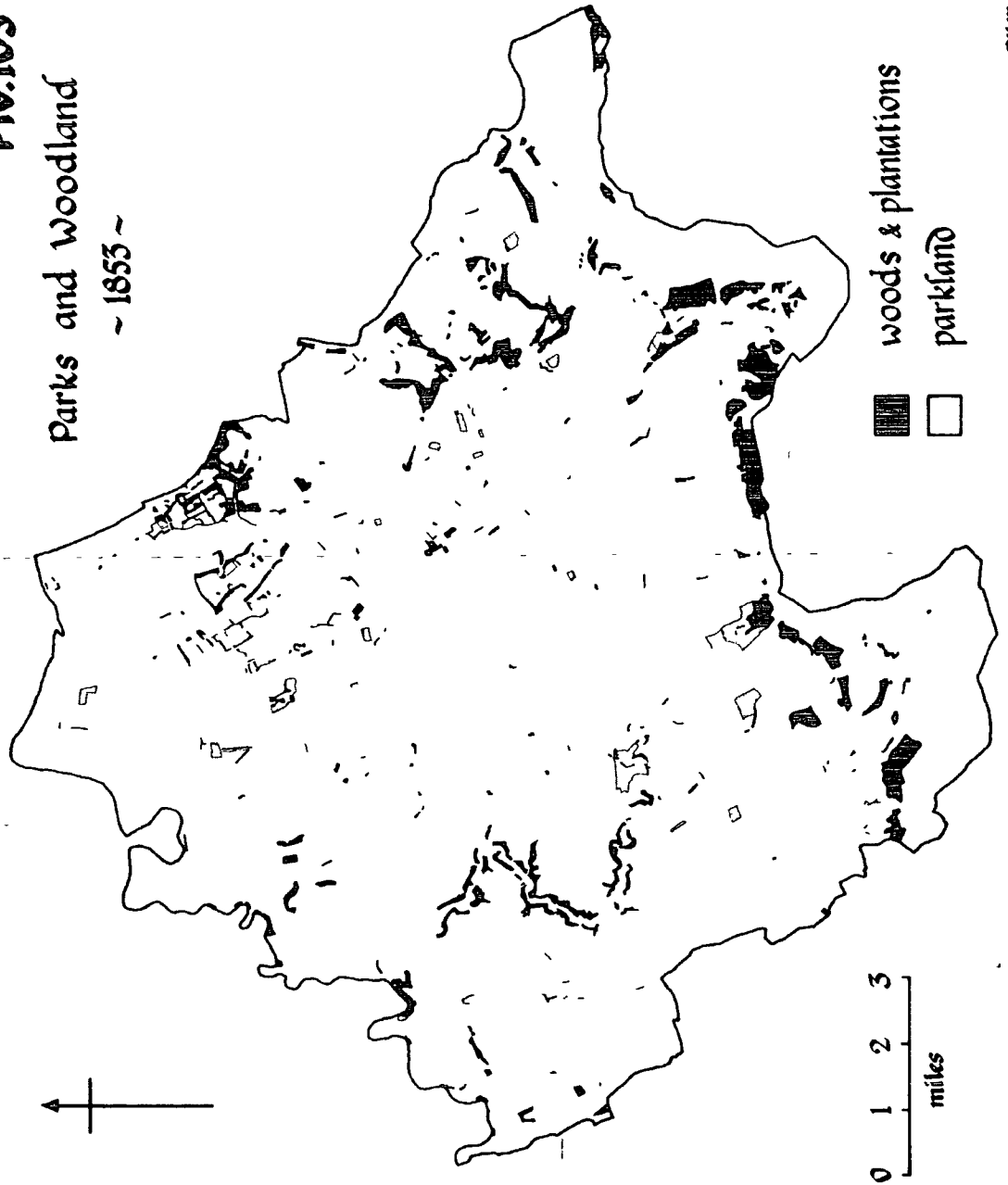
estate and all but two of its farmsteads stood within 400 yards of the village nucleus; one of the exceptions (the village mill) was of very secondary importance (Fig.100). These two homesteads, with their associated pastures, caused the only disruption of the continuity of an outer girdle of arable land, except along the southwestern boundary, where topographic factors intervened (Fig.101). The operative factor was the existence of secondary dispersal, irrespective of whether or not a nucleated central settlement had survived.

This important element of the pattern was, so far as arable utilization was concerned, clearly negative. At a time when arable was dominant, such negative factors would be highly critical and analysis of the distribution of competitor uses becomes significant. Grassland was the principal competitor (Fig.102). There were few continuous tracts of improved grass at this date. The main foci of the distribution were the nucleated settlements, particularly the market town of Stokesley, the larger villages such as Hutton Rudby, Great Ayton and Crathorne, but also small settlements like Low Worsall. In the north-east were conspicuous grassland areas associated with parkland (Fig.103) on the late-glacial beach sand zone. Riverain grasslands appear to have been less common than earlier, but a large tract still occupied the low damp lands immediately to the east of Middlesbrough. A few areas of grass lay on the upland margins, but some of these were mapped as rough grass in 1853 (Fig.104), and it is doubtful whether all were in an "improved" state in the 1840s.

FIG. 103

Parks and Woodland

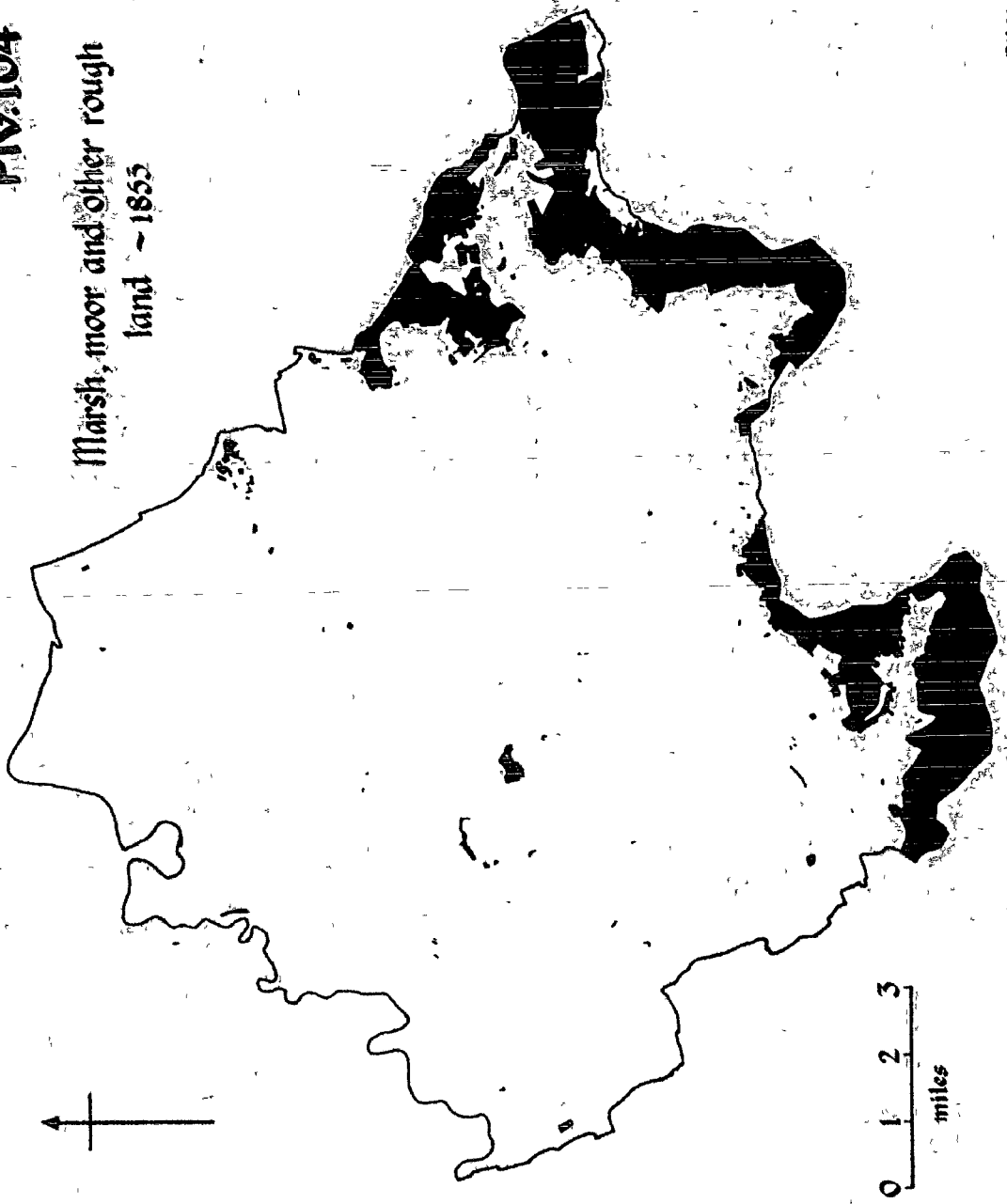
~ 1853 ~



P.K.M.

FIG. 104

Marsh, moor and other rough
land ~ 1855



P.M.M.

Many of the smaller patches of grassland represent the home pastures of isolated farmsteads.

Woodland (Fig.103) fell into three categories:

- (1) Semi-ornamental woodland, forming coppices and spinneys, and usually associated with parklands near mansion houses or more modest country houses and farmsteads.
- (2) Woodland occupying steeper slopes or high-altitude ground, which was less suitable for crop-farming or improved grassland (note the concentration on the escarpment and the intrenched portion of the Leven valley).
- (3) Other marginal land, either difficult of drainage or inconvenient of access, upon which, at a time of depression, timber had looked a crop as likely to prove profitable as any other. The latter is particularly well represented in the Thornaby/Stainsby and Low Worsall areas.

Poor grasslands, whether marsh, moor or otherwise, tended to occupy the same kinds of ecological niche as the last two categories of woodland. The upland emphasis was outstanding (Fig.104). Here, moorland continued to clothe the least hospitable Cleveland environment - that of the summit plateau. A few steep slopes in the Leven's gorge, isolated undrained hollows in the moraine or drift plateau (note especially the extensive "Seamer Carrs") and one or two untended village greens account for the lowland elements of the pattern.

Statistical analysis of these distributions, based on the point sampling technique, indicates that ecological forces continued to be

potent determinants of land use.

TABLE LIX - Relationship between land use
and altitude, circa 1845

Ft. O.D.	Percentage frequency by altitude class				
	Arable	Grassland	Rough grass	Wood	All
0 - 199	41.02	41.81	0.64	31.67	36.75
200 - 399	49.80	42.18	-	10.00	40.40
400 - 599	5.64	8.85	3.21	23.34	7.22
600 - 799	2.88	4.33	23.72	18.33	6.16
800 & above	0.66	2.82	72.43	16.67	9.47

Chi squared = 720

As regards altitude (Tab. LIX) it is noteworthy that arable was under-represented above the 400 feet contour, but appears to have been favoured between 200 and 400 ft. O.D. Improved grassland was relatively important at greater heights, but the more elevated lands were the domain of rough grazings, and intermediate altitudes, of woodland. The rather high incidence of woodland at low levels shows that other factors were also operative.

One such factor is slope (Tab. LX). All land with slopes steeper than 5.4 degrees carried more woodland than would be expected from a random distribution. The same is true, to a lesser degree, of rough grass, which, however, being dominant on the high plateau, also showed high incidence on the lesser slopes. Improved land, whether grass or arable, avoided the steepest slopes.

TABLE LX - Relationship between land use
and slope, circa 1845

Degrees	Percentage frequency by slope category				
	Arable	Grassland	Rough grass	Wood	All
Less than 3	72.35	72.50	14.10	20.00	64.30
3 - 5.4	13.89	10.73	21.15	8.33	13.31
5.5 - 8.4	6.68	5.84	24.36	18.33	8.68
8.5 - 11	3.67	3.20	17.31	20.00	5.56
steeper than 11	3.41	7.72	23.08	33.33	8.15

Chi squared = 340

Soil factors, in so far as (Tab. LXI) these are determined by parent materials, were also of some importance. Lacustrine clays were favoured, and the Jurassic soils avoided, for crop-farming; the latter gave rise, also, to little improved grass, for which boulder clays, but not the lacustrine clays, were found suitable. Rough grass was the typical cover of the high level Jurassic soils, which also carried timber. Woodlands also occurred on alluvial and boulder clay soils, but only half as frequently as would be the case with a random distribution.

The values of "chi-squared" owe their magnitude principally to the inclusion of woodland and rough grass in the analyses. Exclusion of these categories would produce much lower values, because, as inspection of the tables indicate, the difference between the values for arable and improved grassland was rather small. This finding is in complete agreement with the mosaic characteristics of figures 99

TABLE LXI - Relationship between land use
and sub-soil type, circa 1845

	Percentage frequency by sub-soil category				
	Arable	Grassland	Rough grass	Wood	All
Alluvium	12.98	12.05	0.64	6.67	11.13
Lacustrine clay	8.26	2.07	-	1.67	4.97
Boulder clay	51.77	57.25	1.92	26.67	47.55
Sands	23.07	21.09	-	18.34	19.80
Jurassic	3.93	7.53	97.44	46.67	16.56

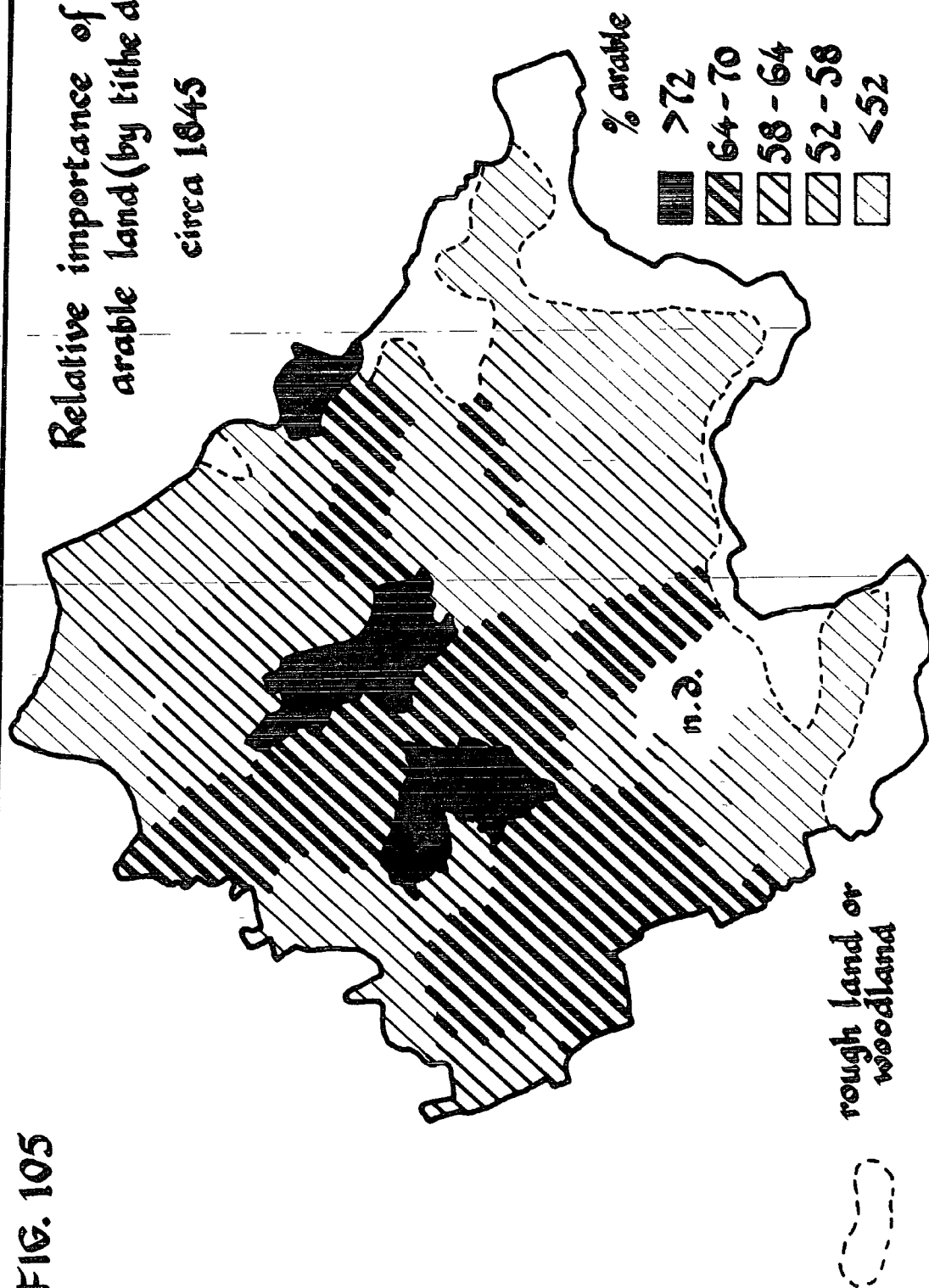
Chi squared = 917

and 102, and with the importance of the spatial relationship of site with controlling settlement, whether village or farmstead. Particularly with respect to the lowland area, the implication is clearly this. Under circumstances favouring the wide diffusion of arable cultivation, but in which grassland was highly valued, ecological desiderata yield primacy to other conditions in determining choice of land use. This seems certainly to be true on the long-term and broader view, but it is not to say that, on the individual farm, given the acceptance of say 70% as the arable quota, intimate knowledge of the characteristics of fields and of their current state would not be brought to bear.

Another element of the apparently limited correlation between land use and environmental factors lies in the increased complexity of rotational practice and the decreasing clarity of the distinction between arable and grass, resulting from the expanding use of sown

FIG. 105

Relative importance of
arable land (by tithe district)
circa 1845



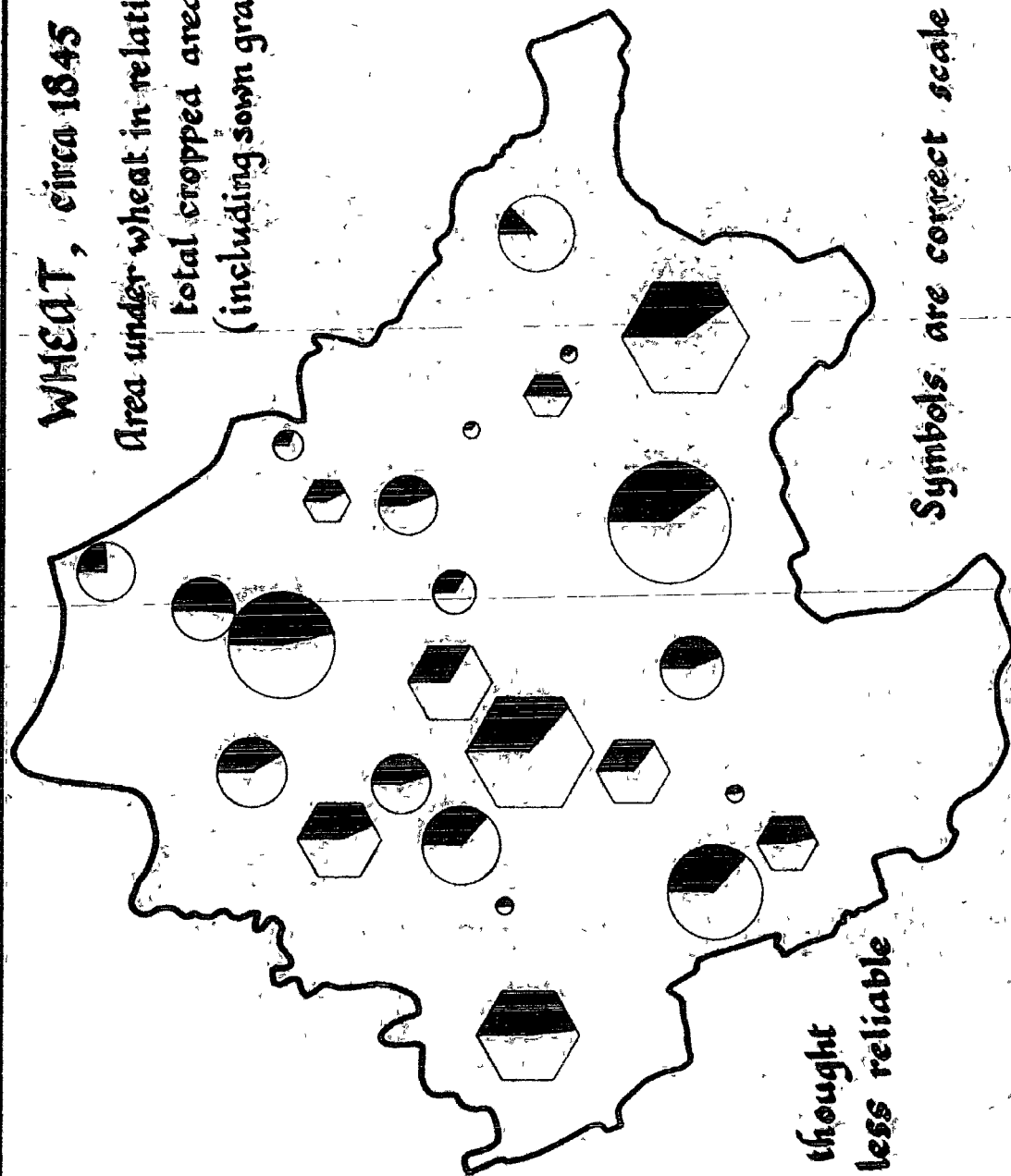
grass. Much remained to be done on both counts, but figure 92 shows clearly that some diversification of rotations had taken place. As regards sown grasses, problems of definition begin to occur. Thus, whilst the tithe Commissioners were quite clear in defining grassland as "land cultivated as meadow or pasture which had not been ploughed for three years before Christmas 1836," a collection of apportionments and estate surveys (for Ormesby and Busby, for instance) suggests that one or other source was not maintaining the distinction.

Although the terms "arable" and "grass" begin to lose their clarity, the arable ratio still proves the best single measure of land use contrasts. A choropleth map of this parameter, calculated on the basis of tithe districts (or areas of equivalent size) summarizes the general tendencies which - partly owing to the lacunae - are not readily discernible in the chorochromatic maps (Fig.105). The median tithe area of the later 1830s and 1840s had just under 65% of its farmed total under arable crops (including sown grass), but variation was wide (Fig.105). Stokesley had only 42% under the plough and Middlesbrough may have had less. The upland districts of Whorlton, Kildale and Upsall all had more than half their improved land under grass. On the other hand, Pinchinthorpe, Newby and Hilton had three-quarters or more under the plough. Arable land was of more than average importance about two axes. The first, running east-west from the clay plateau country of Picton and Hutton into the mouth of the Guisborough valley at Pinchinthorpe, repeated, in a general way, a pattern distinguishable as early as the 1680s (Fig.43), and remarked

FIG. 106

WHEAT, circa 1845

Area under wheat in relation to
total cropped area
(including sown grass)



Hexagon Data thought
to be less reliable

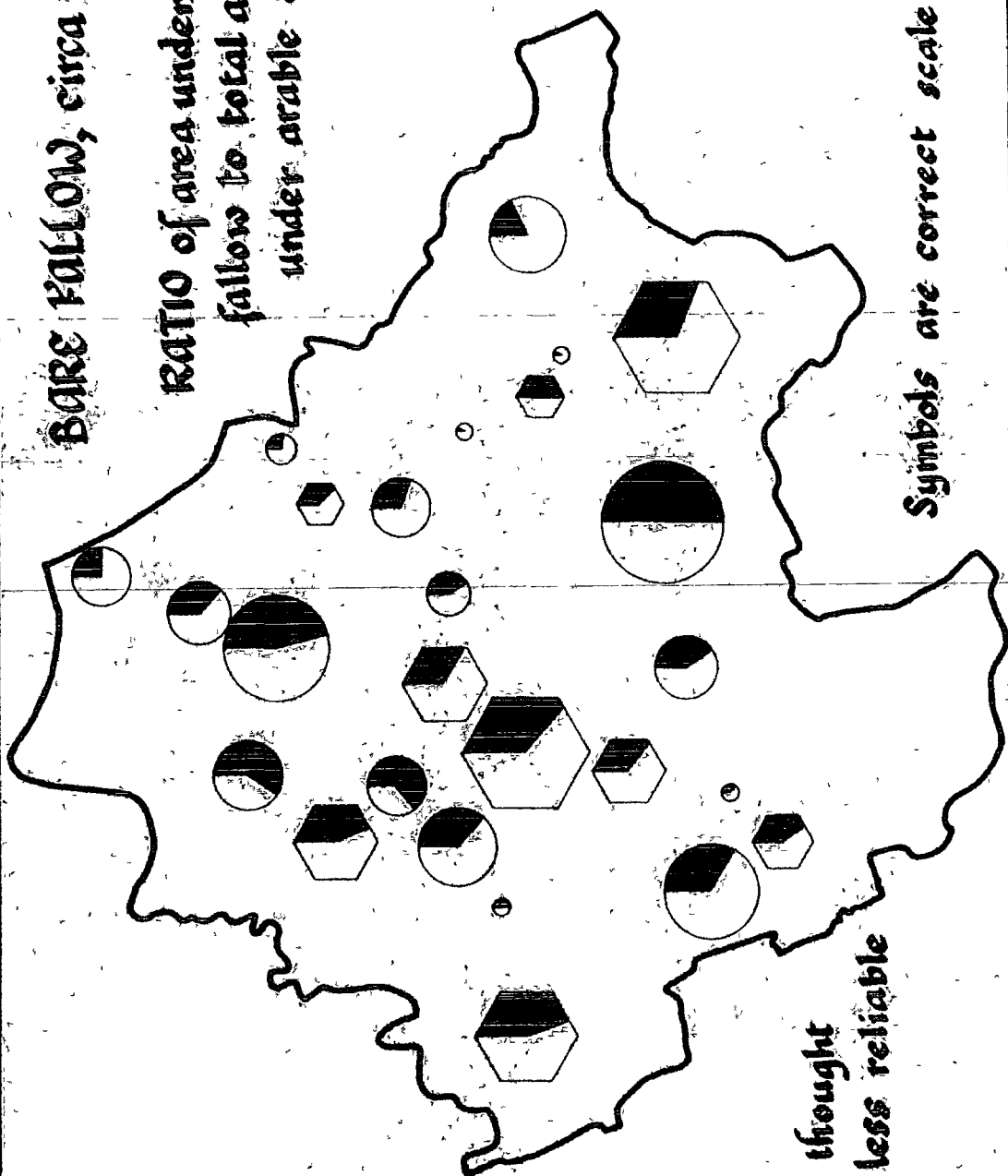
Symbols are correct scale

P.K.M.

FIG. 107

BARE FALLOW, circa 1845

**RATIO of area under bare
fallow to total area
under arable crops**



○ Data thought
to be less reliable

◐ Symbols are correct scale

P.K.M.

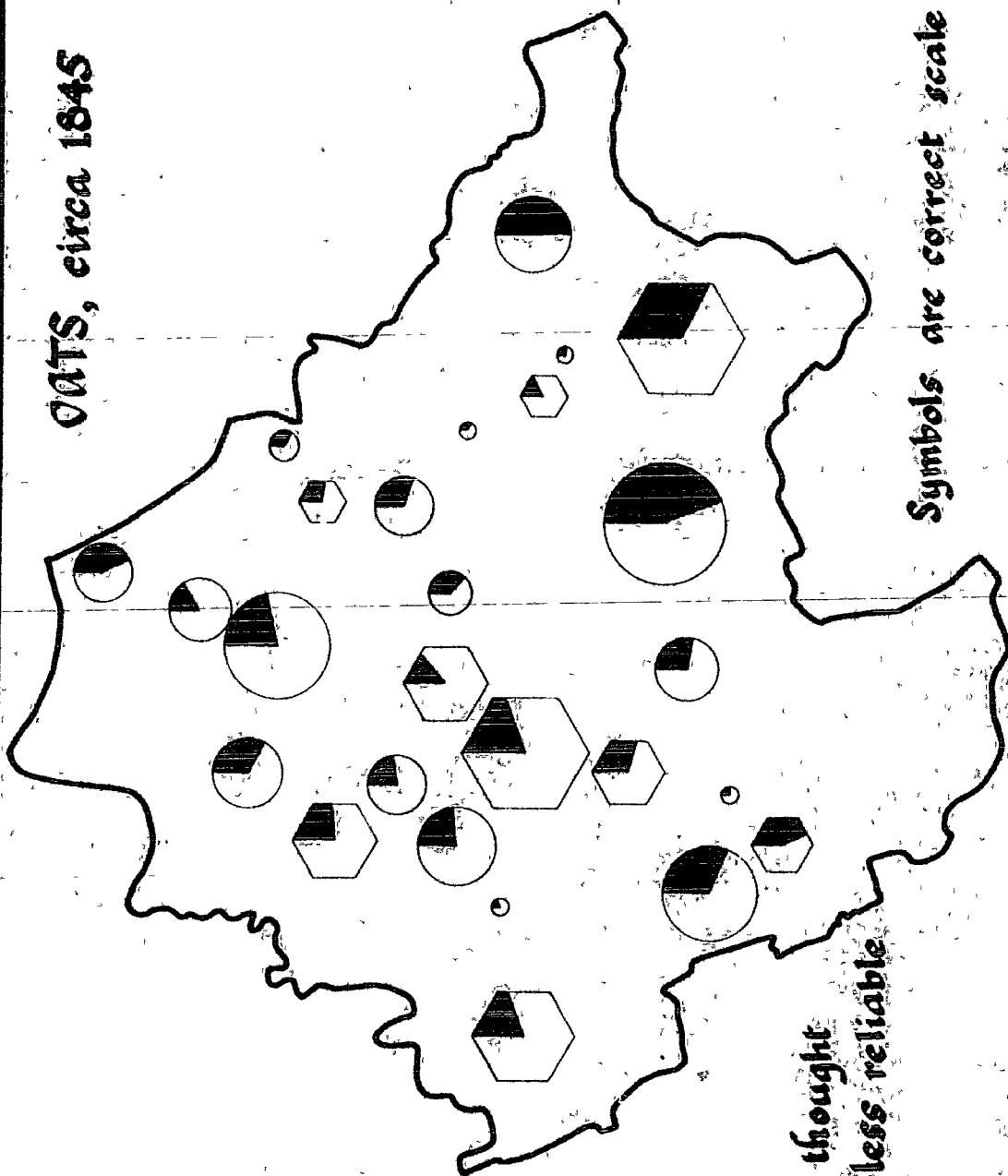
also circa 1800 (Fig.66). The other axis ran north-south from Thornaby to the Busbys. For Thornaby, the importance of tillage at this date represents a departure from earlier practice; a change partly associated with the special circumstances of urban growth.³ Busby farmers had tended to place great emphasis on crop-farming ever since the introduction of the "improved farming" in the later eighteenth century. Areas concentrating on pastoral activities, included the majority of the upland and scarp-foot townships and, with the exception of Thornaby, the townships of the north. Stokesley, as it had been in 1806, was "chiefly in grass."

Throughout most of Cleveland, wheat was still, at this date, the main crop (Fig.106).⁴ At Ormesby and in the lowland parts of Easby the crop covered slightly more, and at Kirkleavington slightly less, than half the total productive acreage. In most other localities it occupied between 33% and 45% of cropland, but in the east, in Kildale, Upsall and Normanby it was much less important. Wheat had never been a very successful crop on the light upland soils of Kildale and Upsall, high prices no longer provided the incentive to risk production there. The explanation of the Normanby figure is less obvious, but W. W. Jackson (who was interested in experiment) owned the whole township and was no doubt weaning his tenants from their dependence on wheat.

Since the three-course rotation continued to dominate, the fallow acreage was still high (Fig.107). The eastern fringe stood out, with its fallow ratios of one quarter or less: once more

FIG. 108

QATS, circa 1845



○ Data thought
to be less reliable

◻ Symbols are correct scale

P.K.M.

FIG. 109

PULSES, circa 1845

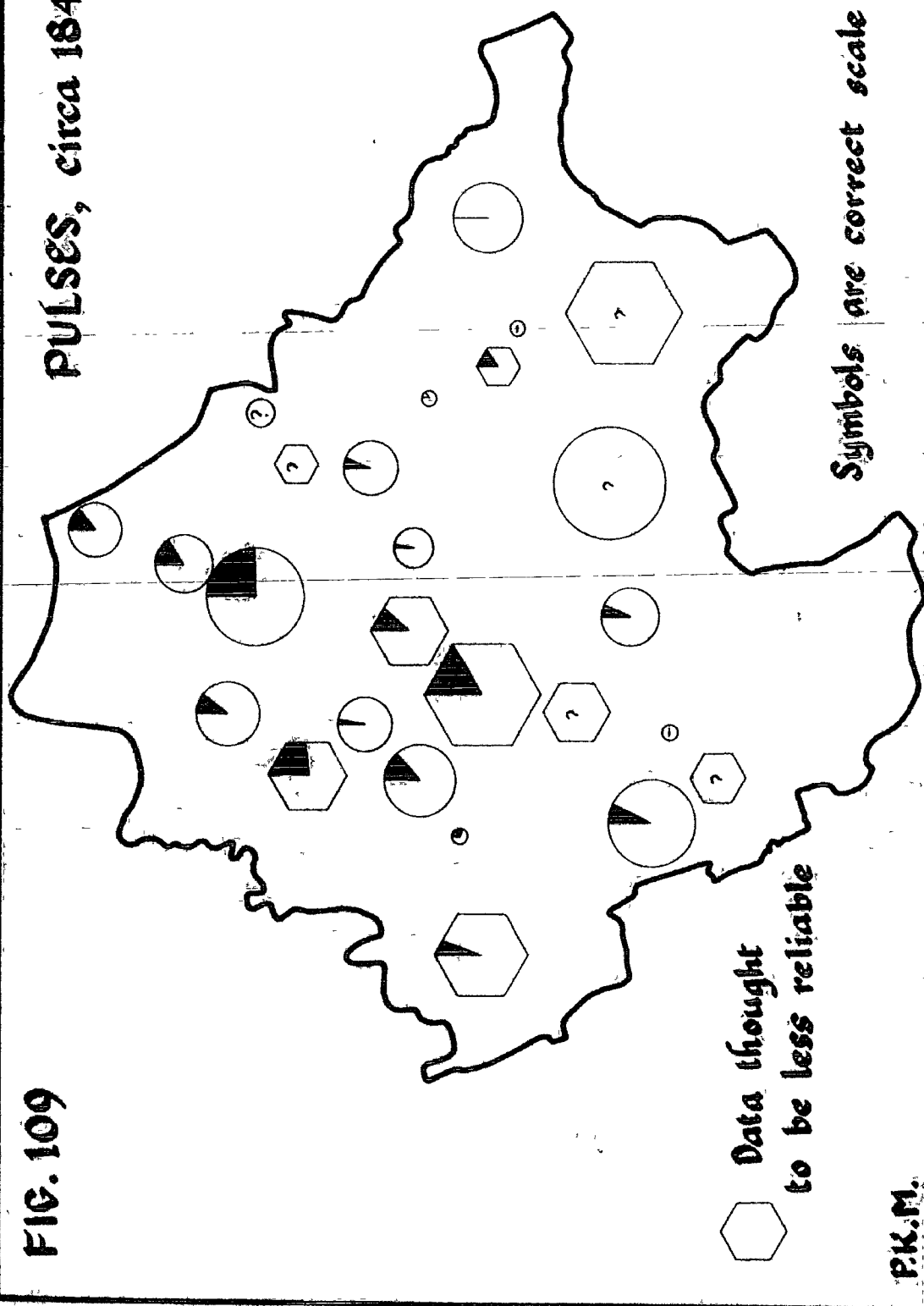
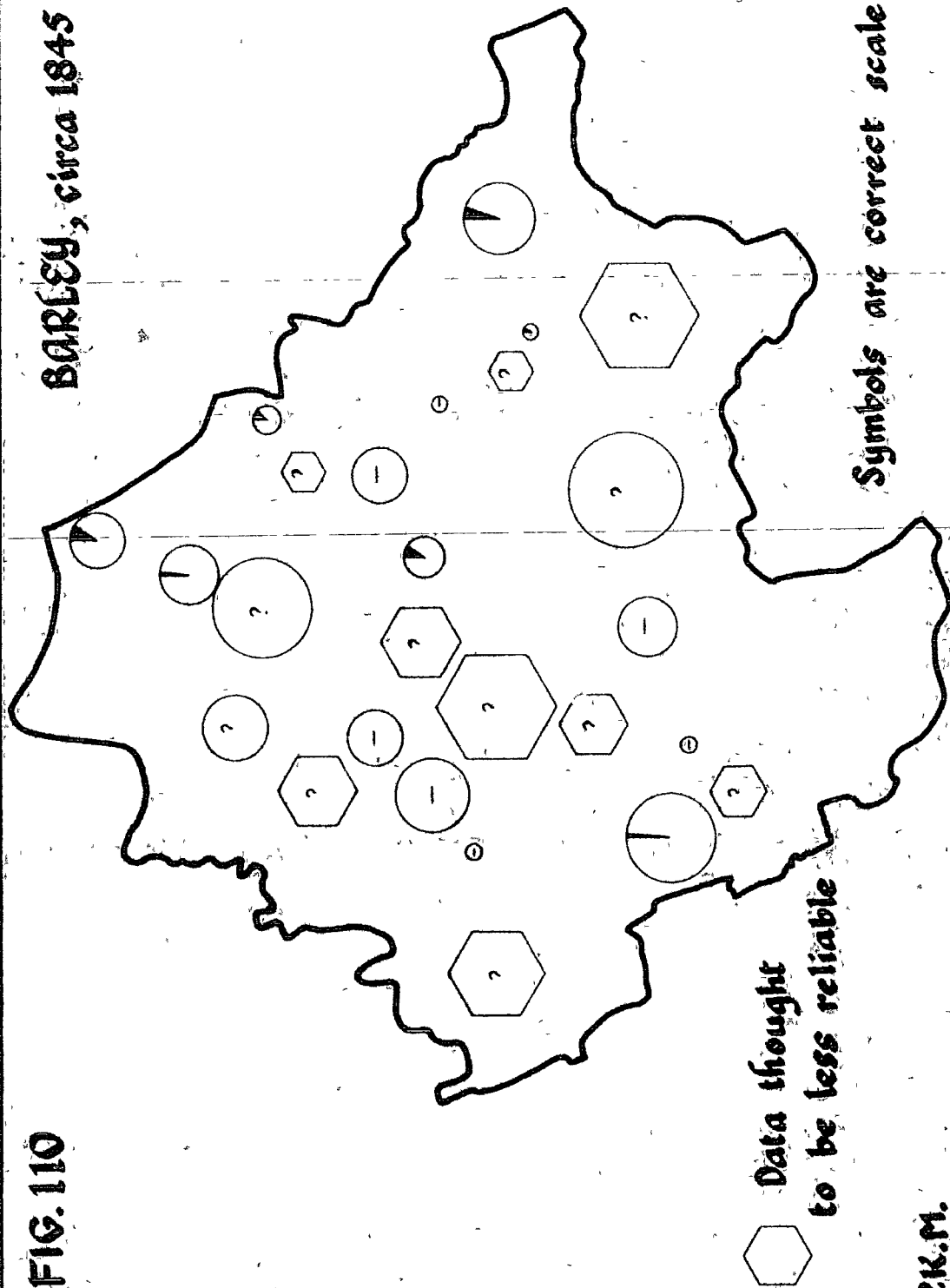


FIG. 110

BARLEY, circa 1845



PK.M.

demonstrating the strength of the wheat/fallow association. Whilst the majority of the sample localities display a rough parity between wheat and fallow acreages, some (Ingleby Greenhow, for example) show the influence of improved rotations. Others, especially Acklam, Thornton and Kirby, suggest by their high fallow acreages the degree of exhaustion reported by Milburn⁵ and Caird.⁶ Fallows were cross-ploughed in February or March and left till the autumn sowing.

Oats tended to be important where wheat was not, but the opposition was incomplete (Fig.108). The crop was dominant in Kildale, Kirby, Upsall and Normanby, but particularly small generally in the arable belt eastward from Kirkleavington. However, at Hutton Rudby, at Acklam and in one or two other lowland localities it was almost equally as extensive as wheat.

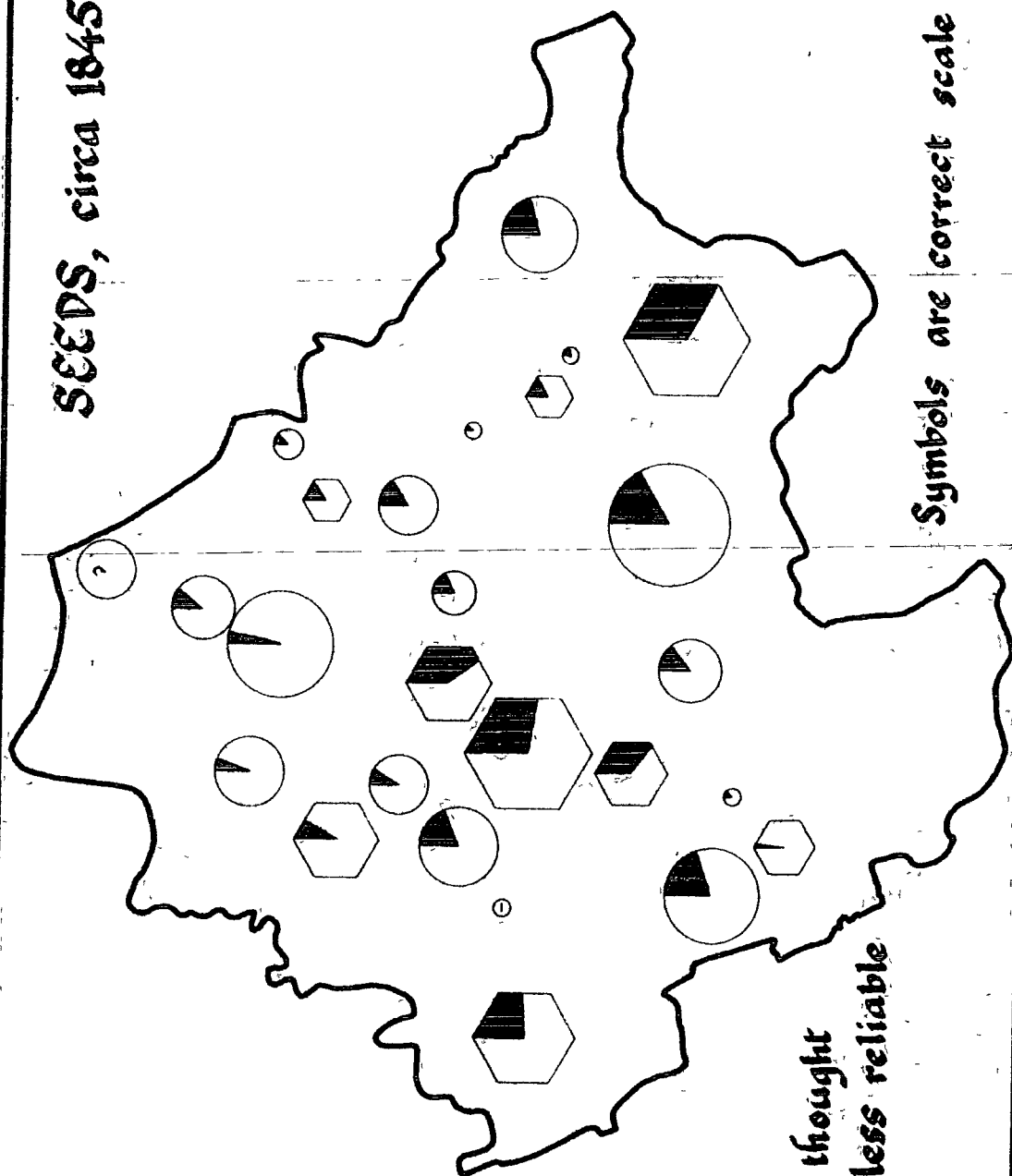
So far as the pulses are concerned, it is not possible to distinguish between beans and peas (Fig.109). Pulses were most important at Marton and at Stainton (approximately one quarter of cropland), and adjacent areas, but elsewhere generally contributed less than 10% of crops. In several southern and eastern localities, they may not have been grown at all: Kildale had one acre.

As had been the case fifty years earlier, barley was a negligible crop in many localities (Fig.110). In at least seven of the sample areas none was grown. Its main areas of significance lay in the east, and at Tunstall. In Upsall it amounted to 12% of total crops.

Seeds (including clover) showed the most significant increase

FIG. 111

SEEDS, circa 1845



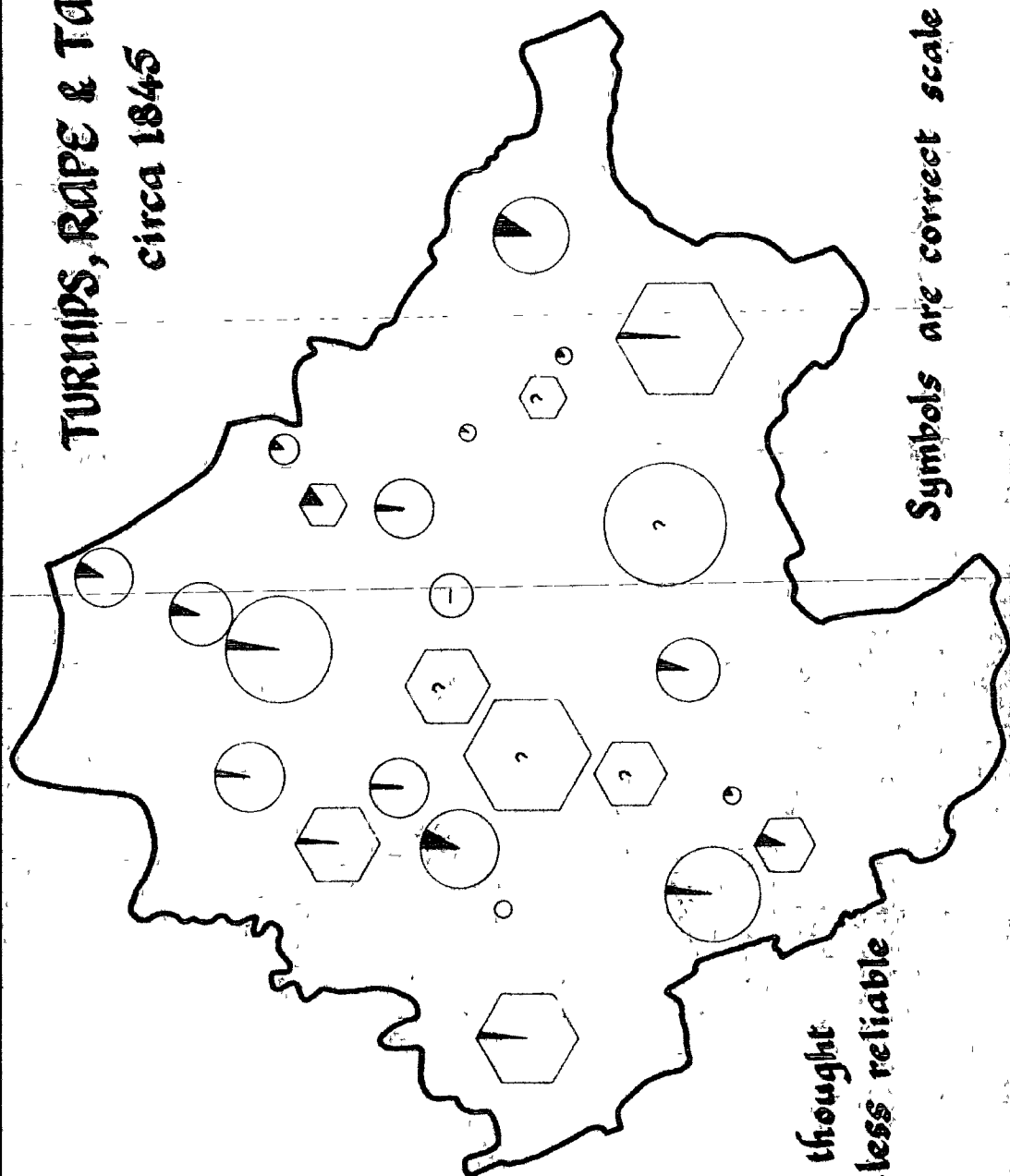
○ Data thought
to be less reliable

Symbols are correct scale

P.K.M.

FIG. 112

TURNIPS, RAPE & TARES,
circa 1845



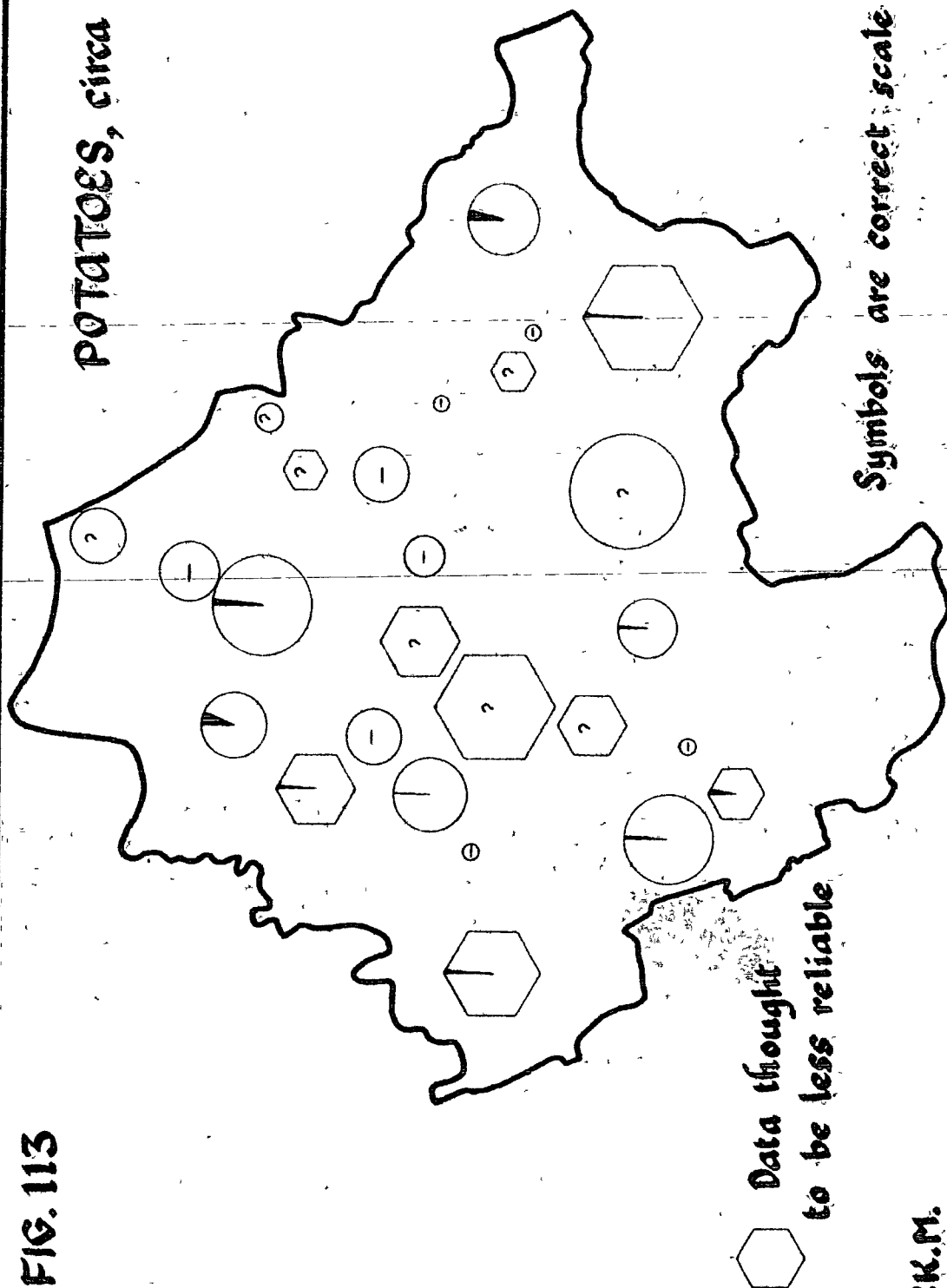
○ Data thought
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Symbols are correct scale

P.K.M.

FIG. 113

POTATOES, circa 1845



○ Data thought
to be less reliable

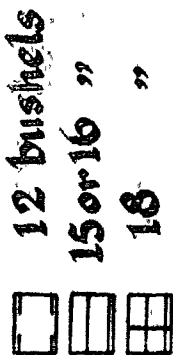
⬡ Symbols are correct scale

P.K.M.

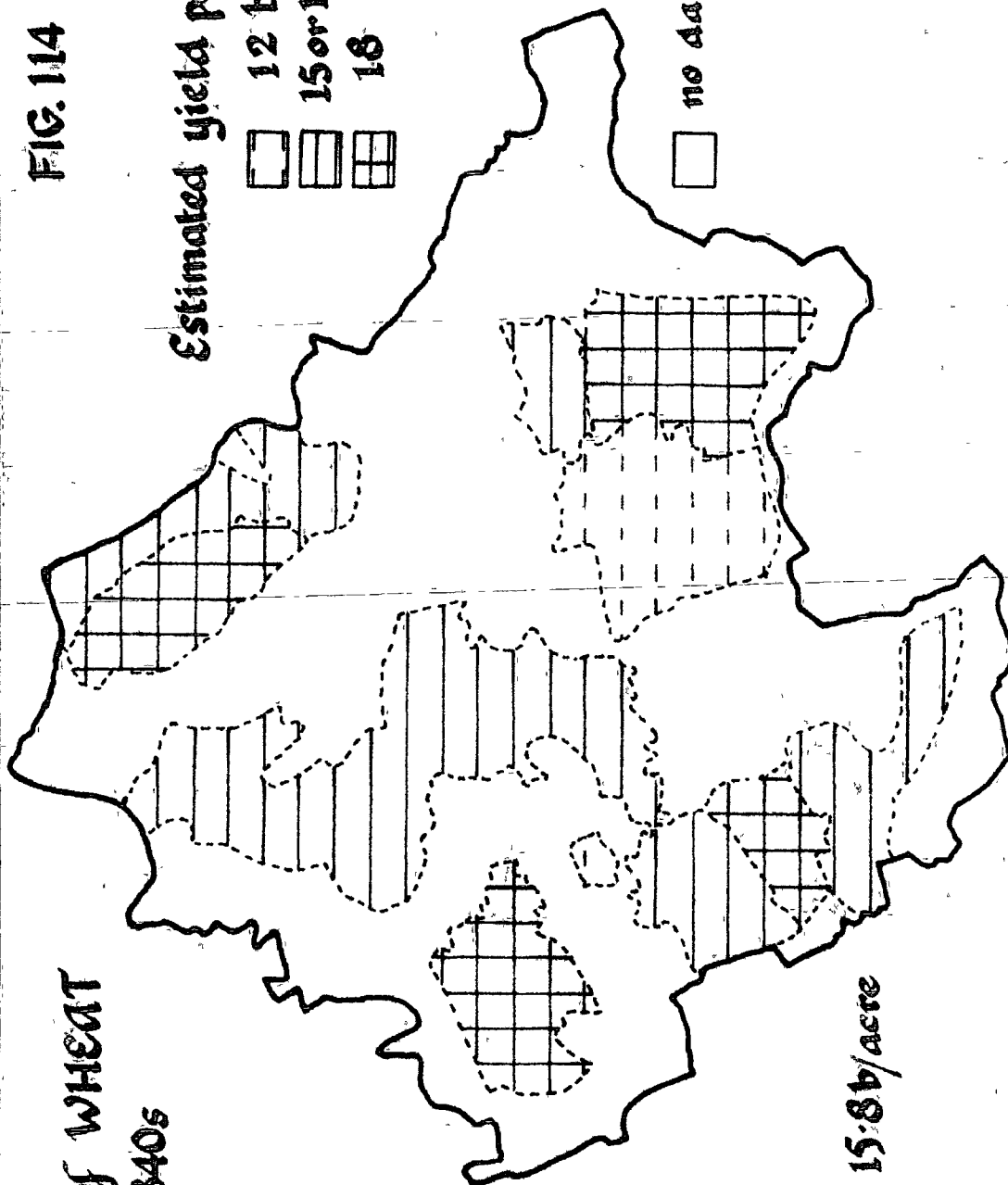
FIG. 114

Yields of WHEAT
1840s

Estimated yield per acre



 no data



Average: 15.8b/acre

over the preceding half century, and may have occupied one quarter of the cropped land in some localities (Fig. 111). Certainly at Kildale, Hutton and Hilton they represented 20% of crops, and exceeded 10% in many more. They were rather sparse in the group of localities extending north and east from Thornton, and may have been absent from Normanby.

As one might expect from the run-down condition of Cleveland, with its recurrent drainage problems, turnip acreages had not risen since circa 1800, and may have fallen in some localities. Values plotted in figure 112 include also rape (at Easby and Nunthorpe) and tares (at Hilton, Ormesby, Thornton and Busby): at Ormesby and Hilton these represent more than half the acreage mapped.

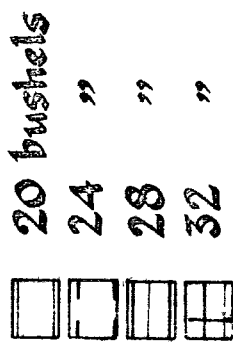
Reflecting the presence of freely-draining soils, Kildale and Acklam appear as the most important potato-growing areas (Fig. 113). No doubt the growing urban market nearby was also a contributory factor at Acklam and adjacent Marton: the crop was also expanding in Thornaby. Generally, however, undrained clay soils were much too heavy and wet for the crop, which was also castigated as a "great scourge to the soil" by local opinion.⁷ Five acres of rye were grown on the thin sandy soils of Acklam.

The estimation of yields was an important part of the valuation stage of the tithe commutation process.⁸ Average wheat yields (Fig. 114) varied between 12 bushels for the degraded arable soils of Foxton and in Kirby, to over 18 under improved rotations in Ingleby Greenhow and Ormesby and at Kirkleavington. Under the traditional three-course

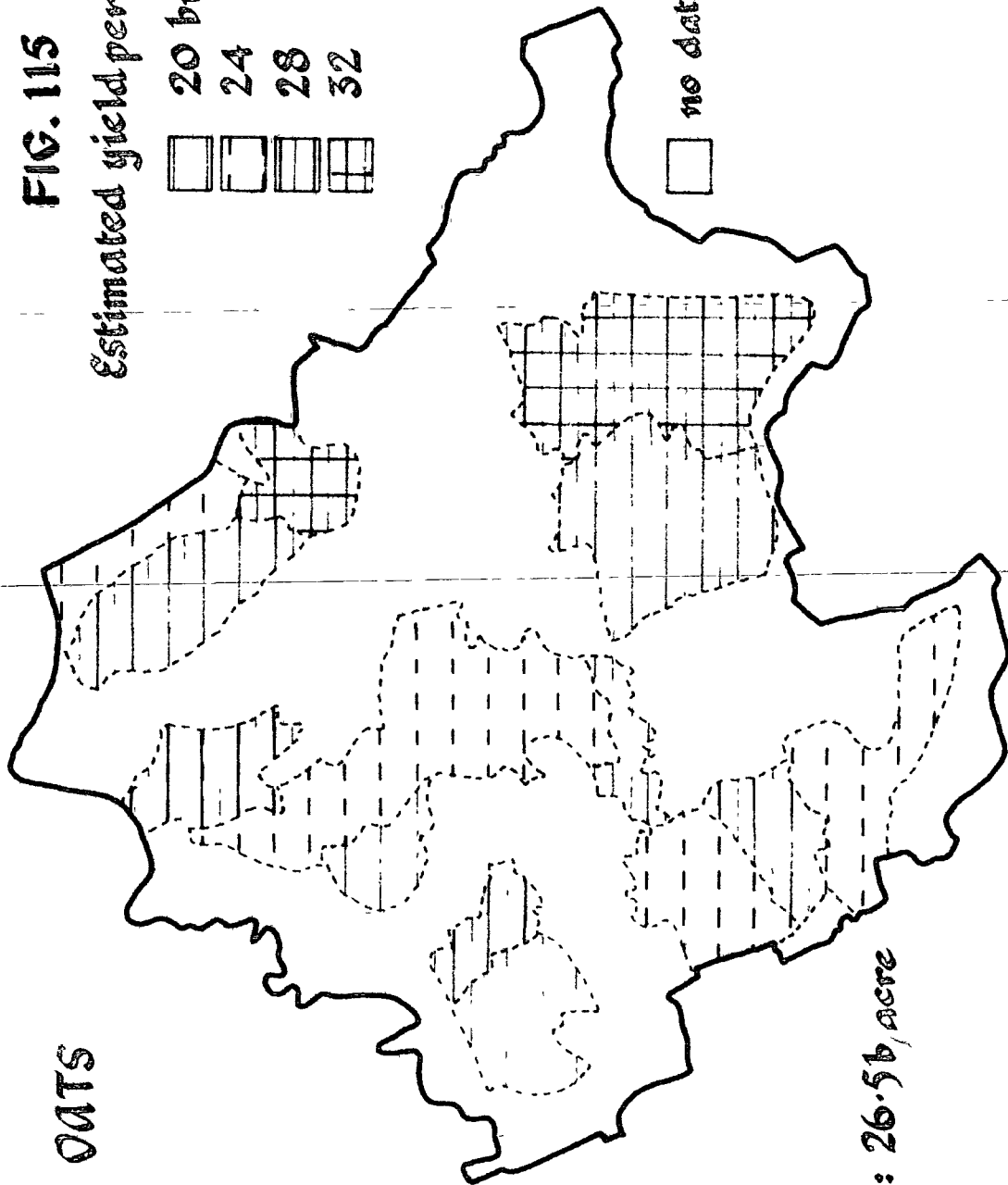
FIG. 115

Yields of OATS

Estimated yield per acre



 no data



Average: 26.5 bushels per acre

P.K.M.

rotation, wheat usually received no manure, this being saved for the following oats or beans, though its quality, in any case, was poor.⁹ With under-draining and heavy application of manures, an average of 19.5 bushels was obtained on a Little Ayton farm, rather more than was achieved at Linthorpe and Ayrsome (Tab. LXII). Here, yields are computed field-by-field.¹⁰ The amount of variation is a notable

TABLE LXII - Wheat yields at Linthorpe
and Ayrsome

Year	1833	1839	1840	1841
Acreage	31.6	41.2	40.6	61.0
Maximum yield (bushels)	22.4	28.0	16.2	24.0
Minimum yield (bushels)	11.0	14.7	10.0	7.5
Mean yield (bushels)	18.0	19.7	11.2	18.4

feature; the disparity between the best fields and the worst being greater in the better seasons, least in the bad harvest of 1840. The very low yield of 7.5 bushels in 1841 was the result of taking wheat in two consecutive years. Cultivation techniques were still primitive, seed (at rates of $1\frac{1}{2}$ to 2 bushels per acre) being broadcast into the furrow. Harvesting was by sickle - a tall straw being left on the land.¹¹

For oats, the best yields (of 32 bushels per acre) were obtained at Ingleby Greenhow and at Marton/Upsall (Fig. 115). Both areas had adopted improved rotational practices, but seeds had also been introduced into the Kirkleavington rotations, and here the yield of oats was poor. A comparison of figures 105 and 115 suggests that yields

were higher in areas where there was less pressure on the arable land. Note, for instance, the sequence of change through Kirkleavington, Castle Leavington, Maltby, Acklam, Ormesby and Upsall. A district average of 26.5 bushels is suggested, but under good management this might be greatly improved upon - an average of 33.7 bushels applied on two Little Ayton farms.¹² Perhaps more typical were the results at Linthorpe and Ayrsome (Tab. LXIII).

TABLE LXIII - Oat yields at Linthorpe and Ayrsome

Year	1833	1839	1840	1841
Acreage	19.6	50.7	41.7	26.3
Maximum yield (bushels)	29.4	50.0	25.0	27.0
Minimum yield (bushels)	22.7	12.2	12.0	14.0
Mean yield (bushels)	25.4	29.0	21.1	19.5

As with wheat yields, the great disparity between the best and worst fields is most noticeable. Inspection of the details suggests that the better yields of the later years were obtained on land fairly recently put to the plough. There is also the effect of the individual farmer's skill. These data arise from adjacent farms, and, although the yields of one averaged 32 bushels and of the other 26.1 bushels, there is no reason to suspect such wide differences in the inherent quality of the land. That the land of the poorer farmer had become weaker as a result of conservative farming methods is suggested by his rotational practice, in which beans played an important role. His more successful neighbour used clover and seeds instead. Such

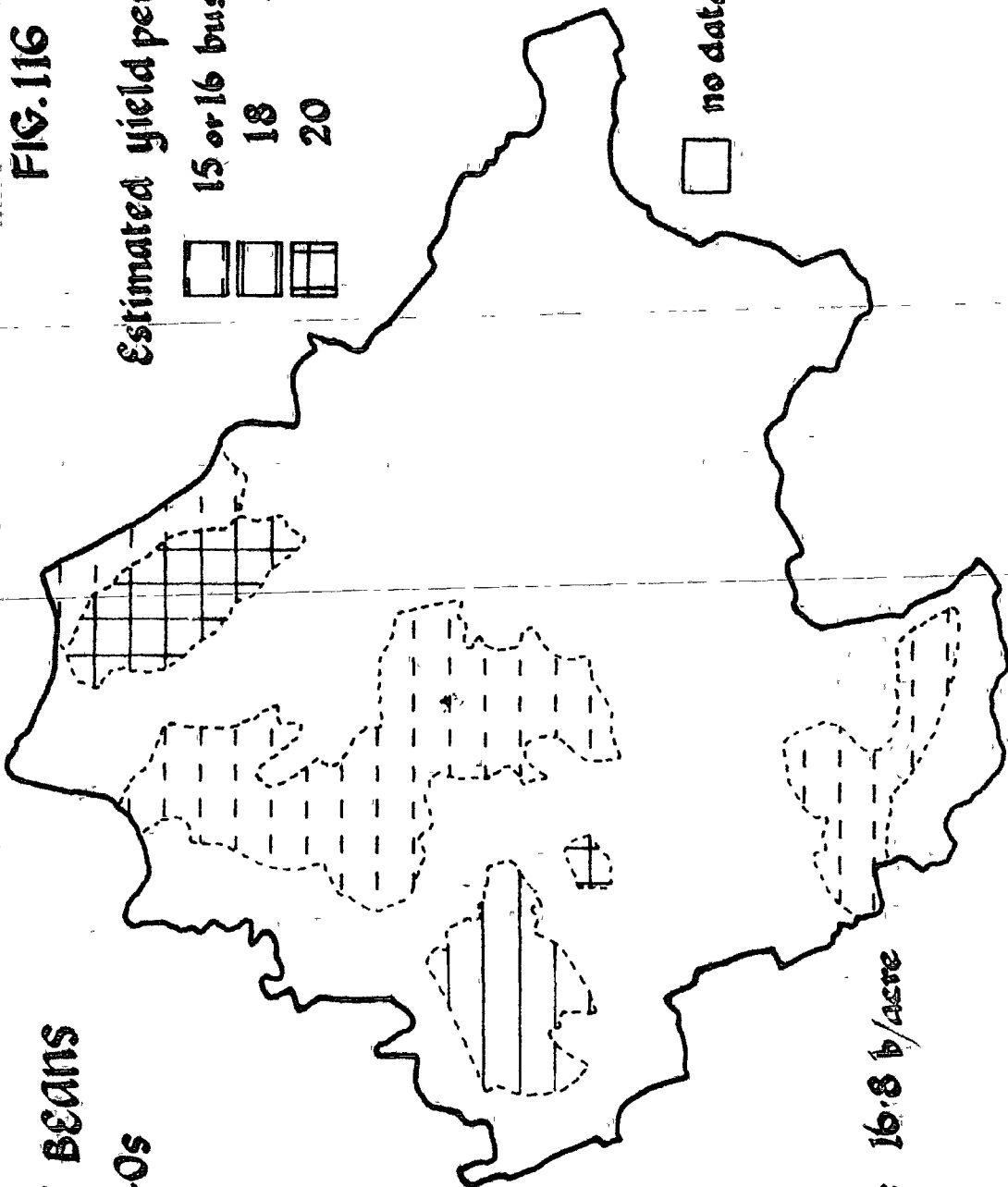
Yields of BEANS 1840s

FIG. 116

Estimated yield per acre

	15 or 16 bushels
	18 "
	20 "

 no data



Average: 16.8 b/acre

P.K.M.

contrasts in management and wide fluctuations in results must have made yield estimation particularly difficult. All oats were spring-sown, usually in March, at about $3\frac{1}{2}$ bushels per acre.¹³

Yields of beans appear to have averaged 16.8 bushels (Fig.116). This crop alone was successful on the weak clays of Foxton. It also grew well on the heavier parts of Ormesby, where it grew as the third crop of a three-fold course. At Kirkleavington, it averaged 18 bushels, but in most areas, whether it was widely grown (as in Stainton) or rather rare (as in Whorlton), yields were low. Yields at Ayrsome varied from 10.9 bushels in 1841, 12.0 in 1833, 14.0 in 1839 to 18.0 in 1840.

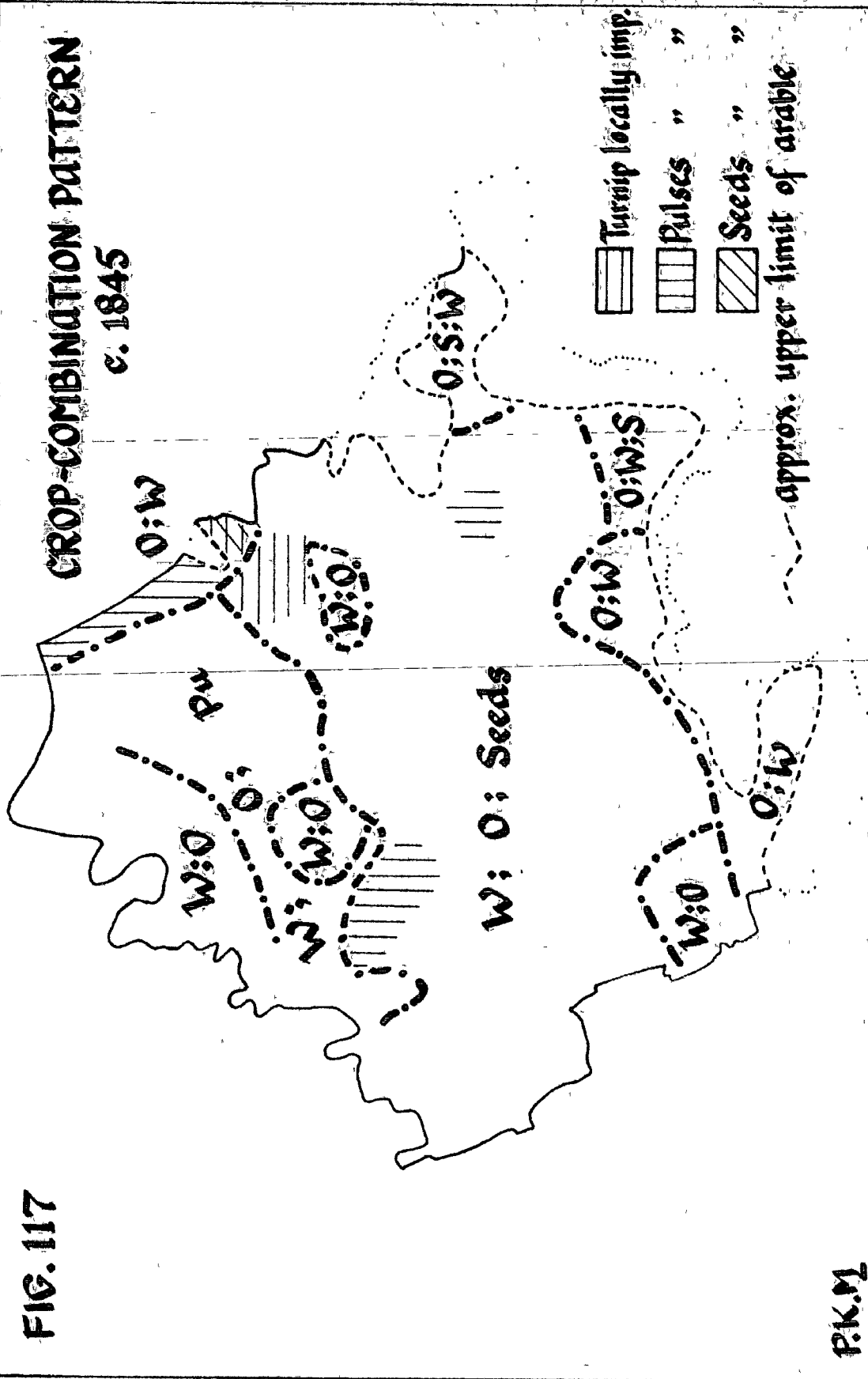
Yield data for other crops are scarce. Barley was estimated to yield 24 bushels at Upsall and Ormesby, 20 bushels at Normanby. Rye (cut green) and tares were worth a mere 8s. and 6s. per acre at Acklam. Turnips and potatoes, where these were grown, were worth 40s. to 50s. the acre. Clover and seeds, yielded a ton of hay per acre, which would be variously valued at between £2 and £3. At Kirby, however, the crop was unproductive and worth only 30s., but the permanent meadows of that township averaged 50s. worth of hay per acre. A ton of hay was the normal yield of meadow ground, but at Kirkleavington, this fell to 15 cwt. A ton of the better meadow hay fetched 60s. and average quality brought 40s.

A crop-combination analysis has been carried out for the middle 1840s (Fig.117). The standard combination for West Cleveland was W;O;S and this combination prevailed in the central parts of the area.

FIG. 117

CROP-COMBINATION PATTERN

c. 1845



P.K.M.

In the uplands, and at Normanby, oats were dominant. It was grown in association with seeds and wheat at Kildale, Upsall and Greenhow; alone with wheat at Kirby and in Scugdale. The ancient elementary combination of wheat and oats was found at Nunthorpe, at Thornton, in the northern parts of Stainton parish, and at Potto. In the northern areas generally, W;O;Pu was a dominant combination: in Normanby, the order of the cereals was reversed, and pulses were not quite sufficiently extensive to figure in the combination. Hilton occupied a marginal position between the W;O;Pu belt and the W: O; S region and might belong to either. In Upsall and Morton, turnips appear as of local importance, but the data are uncertain, especially for Morton, where soil conditions are not favourable to the crop.

Comparison with the situation fifty years earlier is instructive. Two main changes had taken place (Fig.86). First, there was a recession of pulses, which may have had two causes: the reduction in the numbers of livestock; and the increasing problem of surface drainage as cultivation standards fell. As important perhaps, was the competition offered by clover and sown grasses, but this cannot explain the widespread reversion to a two-cereal combination (as at Acklam, Thornton, Potto and Whorlton). The growing importance of seeds was the other major change apparent by the 1840s, and they were to spread further by 1853 when they were added to the dominant crops in Thornton and had ousted pulses in Ormesby. It will be recalled, however, that data were insufficient for the inclusion of clover in the earlier analysis and that the increase in seeds, though real enough, was per-

haps not as dramatic as the maps suggest.

One has argued that the large arable acreages of this period were part consequence of a scarcity of livestock. However, the significant proportion of arable land devoted to fodder crops of various kinds, together with the evidence for buying-in of store cattle (chapter fourteen), would indicate that the old interest in livestock had not been extinguished. Something of a recovery of the livestock population may even be suggested on the basis of incomplete data, mainly for northern townships (Tab. LXIV). The average overall density

TABLE LXIV - Livestock in certain townships,

circa 1845¹⁴

	Acklam	Hem- lington	I. Barwick	Maltby	Marton	Potto	Thornaby	Whorlton
Milk cows	71	30	30	32	100	65	76	..
Calves & yearlings	41	15	23	16)	150	40	24	..
Other cattle	52	62	132	58)		160	69	..
Ewes	134	} 70	130	90	300	180	..	800
Other sheep	62							
Lambs	173	45	45	35	..	120	..	310
Horses	40	31	32	32	120	..	..	..
Young horses	10	4	4	5	..	..	..	..

.. indicates that values are not available

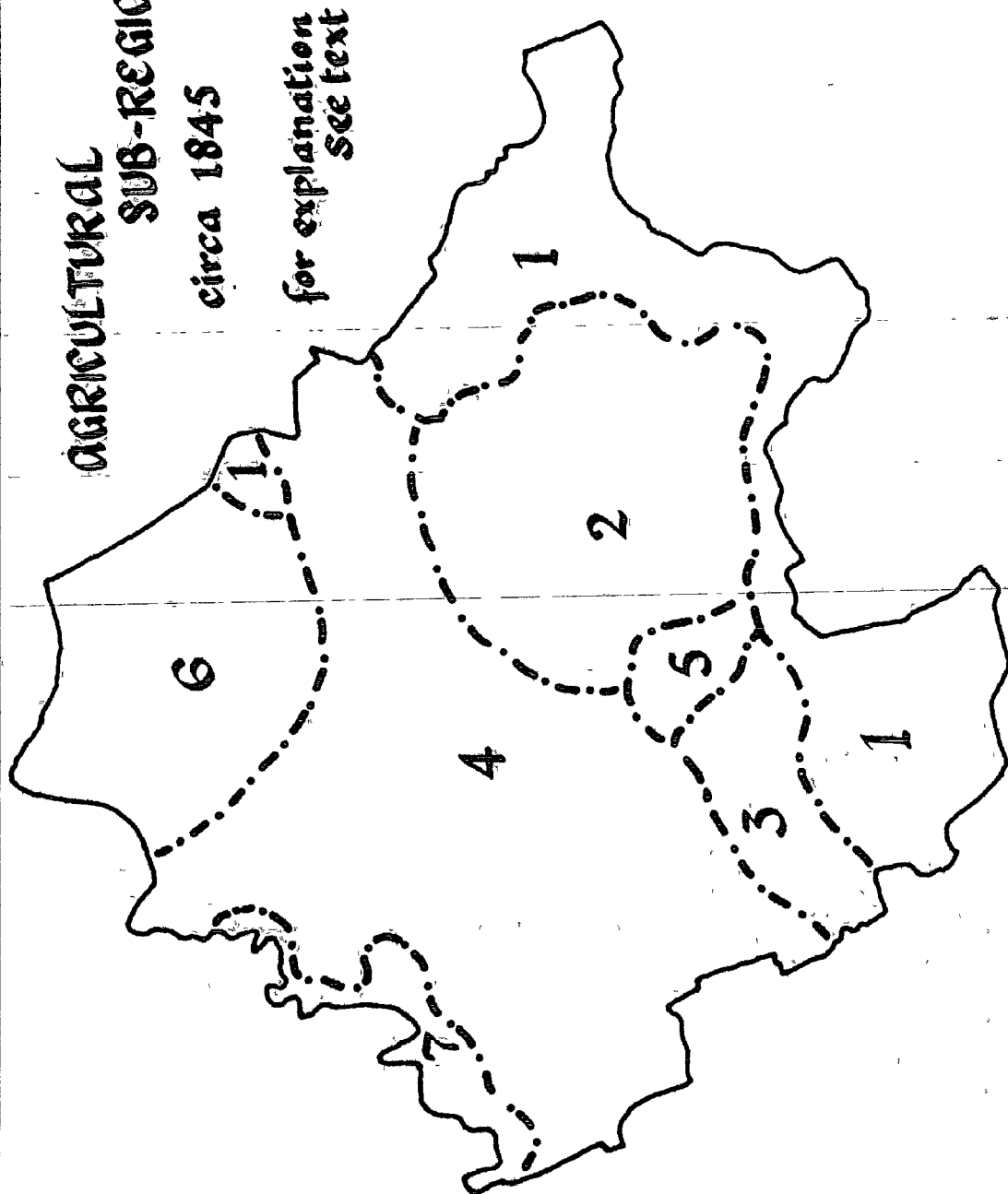
would appear to have been about 6.0 acres per livestock unit, rather better than what may have prevailed earlier, but still inadequate. At Potto alone, may the density have been greater than 5.0 acres per unit,¹⁵

and this was in a township with no more than 57.0% arable. Elsewhere, a general correlation between stock densities and grassland acreage was shown. At Hemlington, however, stock figures are high in relation to the small grass area (28.7%). However, the township was small and highly sensitive to the activities of one man, who chose to keep one hundred of his 131 acres as grazing for 30-odd Scotch or Irish beef cattle.¹⁶

Horse-breeding was by this time virtually defunct in this part of the region, the ratio of young to mature animals having fallen to 0.18:1. At Acklam, however, some rearing appears to have been maintained. This decline of the native breed may also be reflected in the increased efficiency of the horse - no more than five were now needed per hundred acres of ploughland, where earlier the requirement was eight. This trend would be consistent with the further introduction of Clydesdales or other Shire breeds.

Work beasts aside, table LXIV indicates considerable diversity of approach to animal husbandry. The large sheep population in Whorlton reflects the traditional pattern of use for marginal and hill land. Sheep were also relatively important at Acklam and Marton - each had some turnip land and the former also had marshland pastures. Elsewhere, sheep represented some 10% or less of the total livestock units. The density of milk cows was especially high in Acklam and Thornaby, close to the urban markets. Here, there was a cow to every 20 acres of farmland or 8 acres of grass. Dairying was especially important at Thornaby where the proportion of calves and year-

FIG. 118



lings was low (0.32 per cow), but in nearby Ingleby Barwick, another supplier of milk to the towns, rearing was also carried on (0.77 per cow). The category of "other cattle" includes both older replacements for the dairy herd, bullocks being reared and bought-in grazing stock. Feeding was noted especially at Hemlington and Maltby; rearing was dominant at Potto. At Ingleby Barwick, home-bred stock grazed alongside Scotch and Irish on the riverside pastures.

The broad patterns of West Cleveland land use at mid-nineteenth century can now be determined in terms of the distributions discussed so far, and a division into agricultural sub-regions suggested. It will then be possible, for certain of these sub-divisions, to bring forward detailed samples of land use and crop distribution patterns.

As earlier, seven such sub-divisions are evident (Fig.118), having the following characteristics:

1. Plateau, valleys and scarp-foot

Moorland and wooded areas occupied a large proportion of the higher and more steeply sloping portions of the surface. Production on the improved land showed a slight bias towards pasture and hay, but some 45% was arable upon which oats was the dominant crop. Especially in the east, sown grass was of increasing importance, whilst the growing of wheat and the practice of bare fallowing had receded. Some barley was grown. Sheep and stock-rearing were important.

2. Vale of Leven

This is an area of limited relief, mixed alluvial, sandy and

clay soils, whose land use patterns were dominated by the extensive grass areas surrounding the large settlements of Stokesley, Great Ayton and Great Broughton. This characteristic was especially marked at Stokesley, and resulted from the many small farms of dairymen, graziers and butchers supplying the market there. Wheat, oats and seeds were the main crops, with the fallow acreage up to a full one third of the arable.

3. Potto

This small area, lying in the lowland beyond the scarp foot, had wheat and oats as its main arable crops. Among the few other crops, turnips and potatoes were important. In arable ratio, as in other respects, it was intermediate between the scarp-foot zone and the arable areas to the north. Despite the emphasis on cereal production, the fallow area was not extensive. Cattle rearing was important.

4. Plateau-moraine arable axis

This was an area of almost continuous arable, broken only by the garths and paddocks adjacent to villages and farmsteads. It might perhaps be divided into eastern and western parts along the belt of grazings and woodland which mark the incised portion of the Leven valley. In the core of this sub-region, some farms, and even whole townships, had very high arable ratios of the order of 70% to 80%. W;O;S was the dominant crop combination, but in the northern salient, seeds decreased and pulses increased in importance. In this same area, fallow acreages tended to be

high. In parts of the centre and north-west, oats yielded second place to the sown grasses, but they were clearly the second crop throughout the east. Neither potatoes nor turnips are likely to have exceeded 5% of cropland anywhere in this belt and many farms grew none. For the period, the amount of barley grown at Tunstall represents a local anomaly - very little was grown elsewhere in this sub-region.

5. Busby

This small area was, in effect, a southward extension of the arable zone, although, apart from its high arable ratio, it had much in common with the area to the east.

6. The north-east

This area owed its distinctive character to two almost unrelated factors: the development of a line of large country houses on the light loams of the late-glacial beach line; and the recent growth of the Tees-side towns. About one half to two thirds of farmland was arable, there was much park, woodland, recreation areas and market gardens. Oats and pulses were important crops, and the barley acreage was significant, partly in response to the urban demand for fodders. Green fallow and root crops shared the same incentive, and there was also encouragement from the spreads of light soils which permitted use of the celebrated Norfolk rotation. Except in Normanby, however, wheat was the dominant crop.

**KILDARE,
1847**

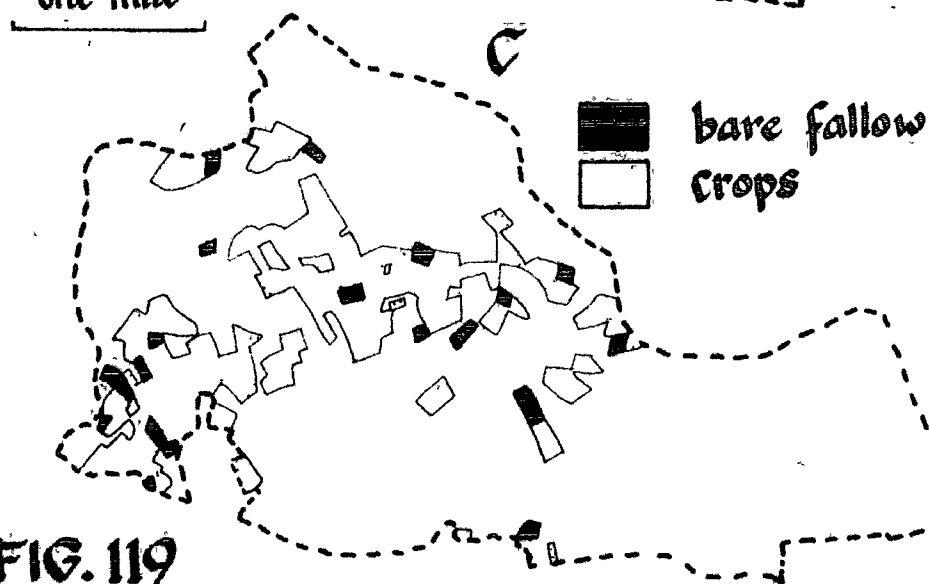
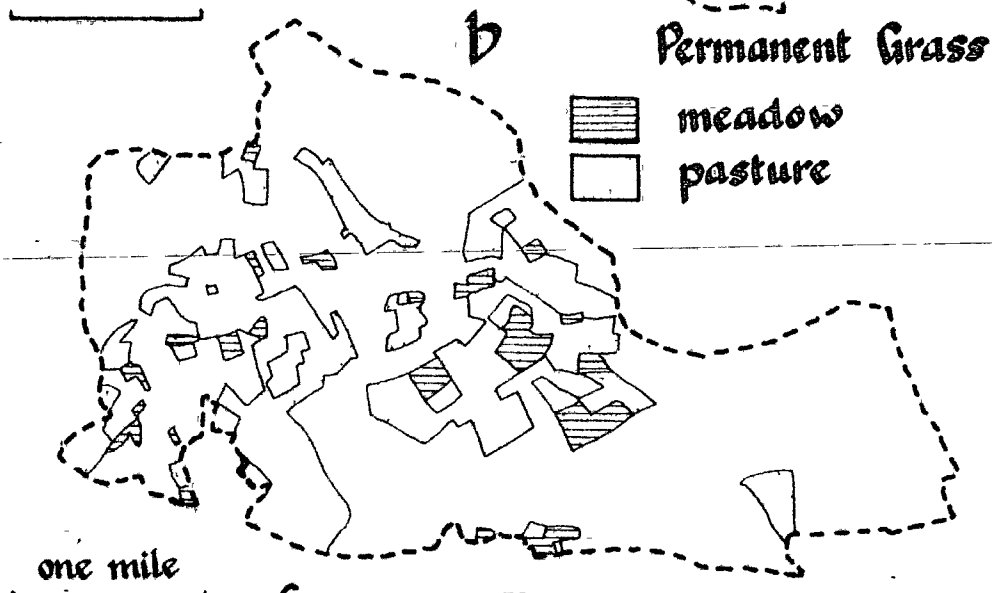
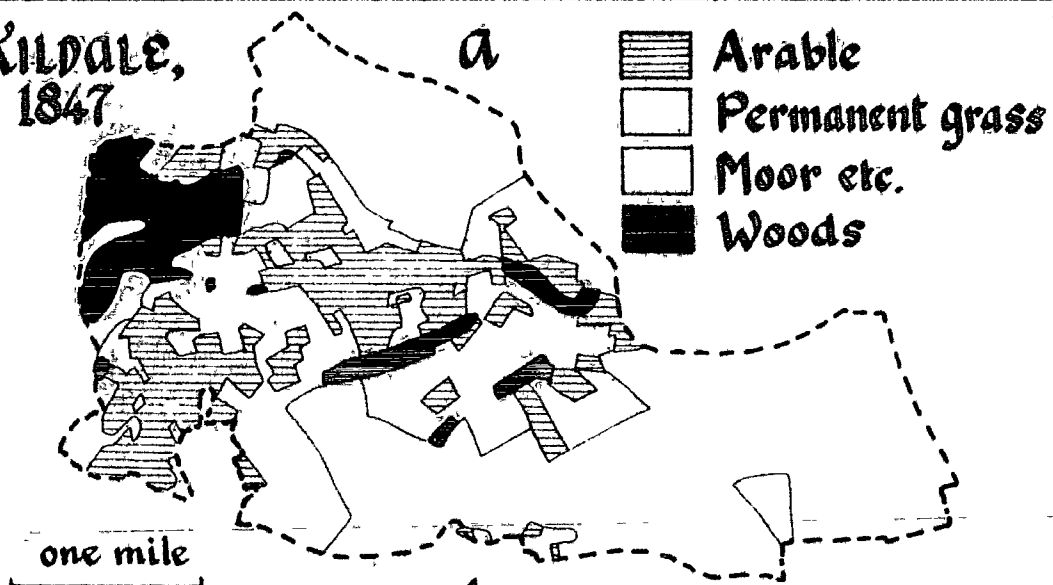
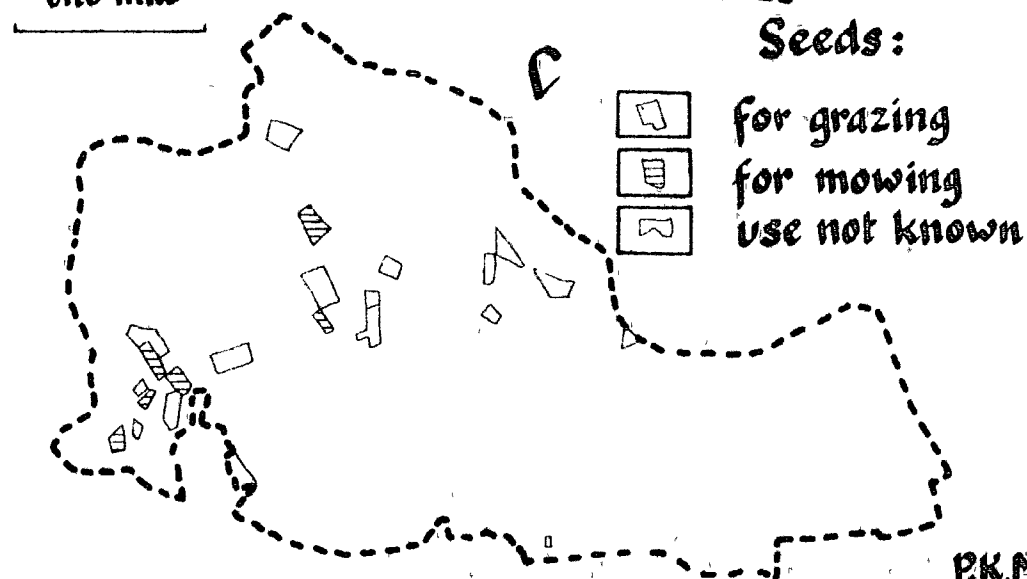
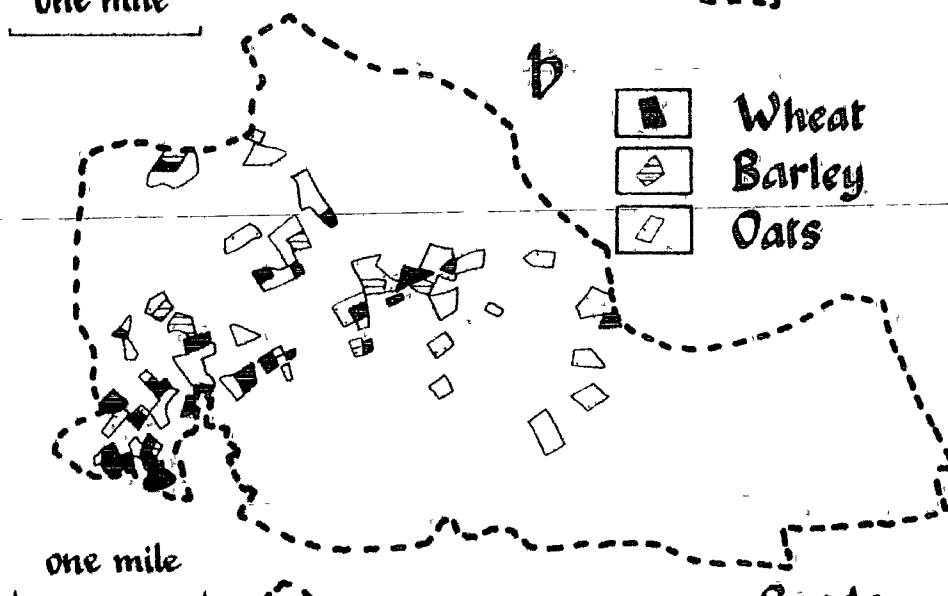
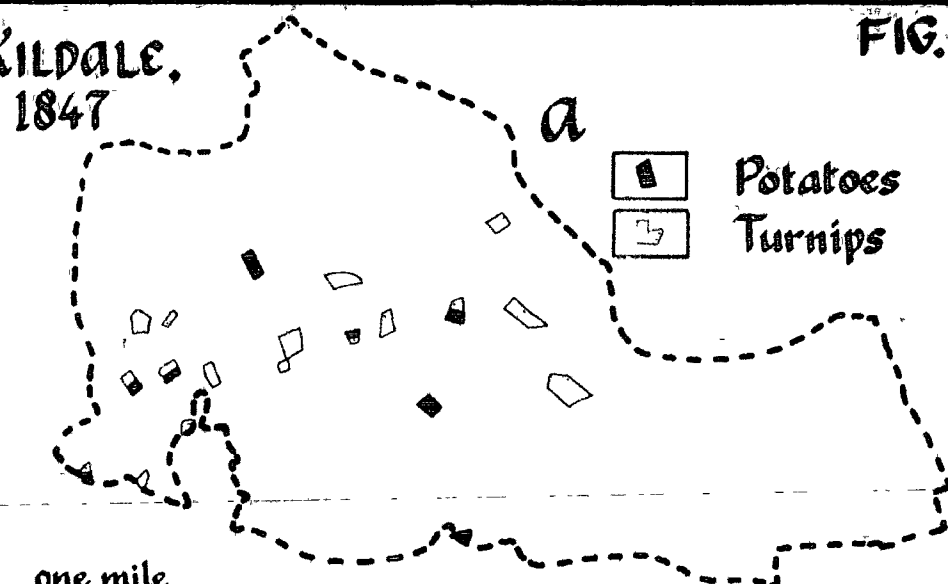


FIG. 119

P.K.M

KILDALÉ,
1847

FIG.120



P.K.M.

7. Yarm

As at the beginning of the century, the smallholdings of Yarm, and the riverside lands both up and down-river were mainly in grass.

Kildale is the better documented of the areas in sub-region 1 (Figs. 119 and 120). The general distribution of land use types follows the patterns of earlier years. The indicated margin of improvement (the boundary between "moor" and "permanent grass") is based on the classification of the contemporary surveyor, but appears to be ambiguous only in the south-west, where a large tract of "permanent grass" ascends the face of the escarpment. This tract (part of the mediaeval park) is unlikely to have been of equal quality with the other land so classified - as is suggested by the figures for Park Farm, from which it was managed (Tab.LXV). Large tracts of

TABLE LXV - Land use at Kildale, 1847

Farm	Tenant	Acreage	Rough	% improved land		Ratio of Rough grass
				Arable	Grass	
Park Farm	J.Hugill	212	-	19.0	81.0	-
	N.Harrison	68	-	66.8	33.2	-
E.Green Beck	Tyrsman	90	-	56.4	43.6	-
Warren Farm	W.Webster	591	323	12.9	87.1	125.1
W.House Fm.	M.Rudsdale	501	249	33.2	66.8	103.0
Viewly Hill	E.Barr	538	352	32.3	67.7	189.0
Lounsedale	H.Sherwood	398	306	61.8	38.2	339.0
Wood End	J.Martin	218	64	61.8	38.2	41.6
Bank Side	J.Maugham	233	50	58.6	41.4	27.7
Hall Garth	W.Wilkinson	240	88	51.6	48.4	57.6
Walk Mill	R. Hewison	62	15	63.0	37.0	32.0
Dundale	T.Chapman	115	9	45.2	54.8	8.5
$\bar{x}$		272	121	43.9	53.1	76.9
σ		188	141	25.1	18.2	100.8
S.E. $\bar{x}$		53.8	40.4	7.2	5.2	28.8

arable were limited to the valley floor, but several smaller plots were

found at height, though seldom on the steeper slopes. On several of the true upland farms, arable land borders the moor, but, in general, there was a transitional zone of permanent grass. Many of these upper areas of lighter soils are, in fact, more suited to arable than to permanent grass, despite the climatic limitations. When such land ceased to be ploughed, it frequently reverted, not to permanent grass, but to rough grazings. This was true of much of the marginal land of West Cleveland, as the comparison of the source material for figures 99 and 104 makes clear.

No clear pattern emerges from the mapping of permanent meadows and pastures, (Fig.119b) except that meadowland appears rather deficient in the lower areas; consideration of the arable sown grasses (Fig.120c) restores some of this imbalance.

Bare fallows were spread throughout the ploughland, but their incidence was significantly higher on soils derived from boulder clays or shales (Fig.119c). Such distinctions of soil texture largely explain the contrasts in the "fallow ratio" column of table LXVI, light land (which would otherwise have been fallowed) carried roots. The farms of Webster, Rudsdale and Martin happened to have many of their heavier fields at this stage of the rotation: in other years, the appropriate fallow ratios would be lower and the acreage in roots correspondingly higher. On the other hand, the heavy-soiled Park and Dundale Farms would regularly have fairly large bare fallow acreages. Roots were grown almost exclusively on the freely-draining soils, either those with a sandy texture, or on clays with moderate

surface slopes (Fig.120a). In the economy of livestock rearing and moorland sheep-breeding which prevailed at Kildale, root-crops provided a valuable supplementary feed-stuff.

TABLE LXVI - Cropping patterns on

Kildale farms, 1847

Farm	Percentage of total crops							Fallow Ratio
	Wheat	Oats	Seeds	Turnips	Pots	Barley	Beans	
Park Farm	13.5	17.3	61.2	8.0	-	-	-	22.6
?	12.7	48.2	16.9	8.9	8.9	4.3	-	-
E.Greenbeck	24.5	40.8	16.1	9.1	5.0	4.5	-	8.4
Warren Fm.	-	65.1	16.5	-	18.5	-	-	30.1
W.House Fm.	3.6	65.9	3.7	26.8	-	-	-	30.9
Viewly Hill	-	32.3	55.1	12.5	-	-	-	12.8
Lounsedale	6.0	65.0	23.0	-	-	6.0	-	10.6
Wood End	16.3	55.3	12.7	8.2	-	7.6	-	29.6
Bank Side	13.0	65.6	11.1	-	5.6	4.7	-	13.9
Hall Garth	12.9	34.5	17.6	16.5	-	18.5	-	7.2
Walk Mill	28.0	31.6	25.8	7.3	7.3	-	-	11.1
Dundale	33.6	42.8	12.9	3.7	3.7	9.6	3.7	49.7
$\bar{x}$	13.7	47.0	22.7	8.4	4.1	4.8	0.3	18.9
σ	10.6	16.3	16.2	7.7	5.6	5.5	1.0	13.9
S.E. $\bar{x}$	3.0	4.7	4.6	2.2	1.6	1.6	0.3	4.0

The distribution of the various grain crops (Fig.119b), clearly illustrates the control exerted by edaphic and climatic factors. The small acreage of barley was concentrated on low-altitude light loams. Wheat, grown mainly on the lower land or on favoured slopes of southerly aspect, shared the loams with barley, but was dominant on clays. Oats, whilst fulfilling its rotational role on the low land, monopolized the upper arable lands, where sown grasses were rare. A single small plot of beans (unmapped) lay, appropriately, on the heavy wheat soils of Dundale Farm.

At Kildale in 1847, there were four fairly distinct types of

farm:

1. The large moor farm, spread over 500 acres or more, but including a preponderance of rough grazing. On the improved land, less than one third was arable, wheat was insignificant, bare fallow limited and oats, seeds and roots were the main crops. Overwhelmingly oriented towards livestock production, such farms would each have a flock of "Blackface" ewes.

2. Lounsedale Farm was unique in that the improved land area was very small and had to be intensively worked (two-thirds arable, mainly oats and seeds) to provide fodder for the moor sheep in the worst of winter weather and at lambing and tupping.

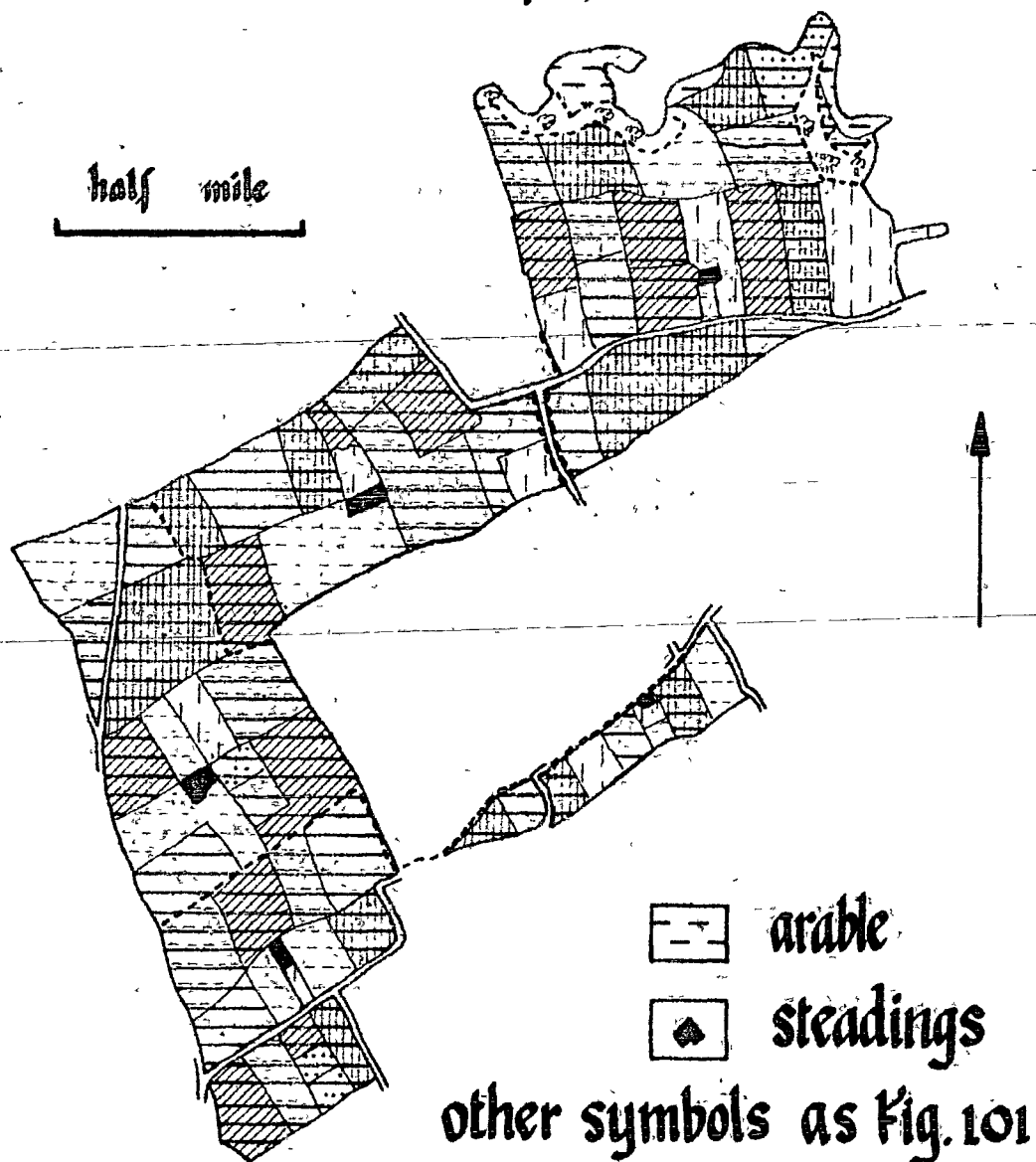
3. Farms of about 200 acres, with a considerable valley nucleus, rough land amounting to less than one third of the total acreage. The better land was between one half and two-thirds arable, growing a variety of crops.

4. Smaller intensive farms of the valleys with, in general, little rough land. Small size and a high level of application of (family) labour meant that fallow was a luxury and kept to a minimum, except on the heavy clays of Dundale - the size factor encouraged concentration on wheat growing as a cash-crop.

At Hutton Rudby and Foxton, in sub-region 4, the disposition of onstead and land was unchanged from 1816, apart from the amalgamation of the small isolated Hutton holding with a larger neighbour (Figs. 121 and 71). The contrast with Kildale is great - this is real arable clayland farming with very high arable ratios, a good deal of

Estate at Hutton Rudby ~
Land Use & Crops, 1840

FIG. 121



P.K. 12

fallow, few roots (but also few beans) and almost one third of the cropland under sown grasses. As the statistical assessment (Tab.LXVII) shows, there was an almost precise balance between wheat, oats, seeds and fallow. The holdings with least arable had rather less of it devoted to seeds. A striking unity of aim of these farmers comes out well. Spatial considerations dominate the major choices, since the very worst grazings of 1816 were by this time planted. Beans occupied a plot of very old arable, roots occur on the silty lands of river-side holms or near the steading, where adequate organic manure was available and the land had recently been ploughed out.

TABLE LXVII - Land use and crop patterns

at Hutton Rudby and Foxton, 1840

Tenant	Acres	Land use %		% Total Crops						Fallow Ratio
		Arable	Grass	Wheat	Oats	Beans	Seeds	Pots.	Turnips	
Appleton	187	81.0	19.0	32.7	28.2	-	33.8	2.7	2.7	38.0
Harland	184	69.8	30.2	32.7	35.1	-	28.2	4.1	-	28.3
Lincoln	171	76.8	23.2	29.6	34.1	-	36.3	-	-	37.7
Harrison	285	75.3	24.7	35.5	30.0	8.2	21.1	-	5.1	21.6
Foxton Fm	198	75.4	24.6	..	..	..	..	..	..	..
$\bar{x}$	205	75.7	24.3	32.6	31.8	2.1	29.9	1.7	2.0	31.4
σ	45.4	4.0	4.0	2.3	3.5	9.1	6.7	5.3	2.4	7.9
S.E. $\bar{x}$	20.3	1.7	1.7	1.1	1.7	4.3	3.3	2.6	1.1	3.5

The consolidated farms with centrally-placed steadings of Hutton contrast with the mildly fragmented holdings of Hilton, where the integrity of the nucleated settlement was largely maintained (Fig.100).

Each farm, including two of the four smallholdings, was in two parts, although in the south-west the interruption was only by estate woodland on steeply-sloping valley sides. The effect of continued nucleation was a startlingly regular pattern, with pastures about the village and a broad outer girdle of arable (Fig.101). Bare fallow and pulses, together with tares, were widely scattered on the clay plateau surface in a distribution which mirrored that of wheat. Oats also shared this distribution to some extent, but was slightly favoured as a grain crop on the better-drained sloping sites: roots were again limited to well-drained slopes or river terraces. Clover and seeds were less important than at Hutton Rudby in the same sub-region. No distinction can be found between sites occupied by permanent pastures and those used as meadow.

TABLE LXVIII - Land use at Nunthorpe
and Newton, 1843 & 1837

Farm	Tenant	Acreage	% farmed total			Rent Valuation	
			Arable	Meadow	Pasture	Total £	per acre s.
East Field	W.Weatherill	248	61.6	38.4		291	23.5
E.Quarry Hill	W.Nightingale	178	78.8	5.7	15.4	229	25.7
W.Quarry Hill	W.Barr	138	76.0	9.7	14.3	164	23.8
Ryehill	W.Johnson	103	65.0	11.0	24.0	124	24.1
	(W.Bell	77	62.8	23.3	13.9	..	..
Newton	(R.Carlton	65	71.5	8.8	19.7	..	..
	(J.Foster	214	74.0	9.1	16.9	..	..
$\bar{x}$		146	70.0	30.0		202	24.3
σ		87	8.5	8.5		73	1.0
S.E. $\bar{x}$		33.0	3.2	3.2		36.6	0.5

At Newton (Fig.70) and Nunthorpe (Tab.LXVIII) the same broad patterns are observed. At Newton, the damp stell-side grasslands introduced a local peripheral emphasis to the grassland distribution. On the Nunthorpe farms, the acreage under wheat was as constant, but proportionally greater, than at Hutton and Foxton (Tab.LXIX). On the other hand, although the bare fallow was occasionally as extensive, there was much greater variation. This distinction reflects management contrasts rather than edaphic factors - farms of the sandy area had, if anything, more fallow than the heavyland farms and neither green nor root-crops. However, rather more of the lighter land was growing seeds.

TABLE LXIX - Crop proportions on
Nunthorpe Farms, 1843

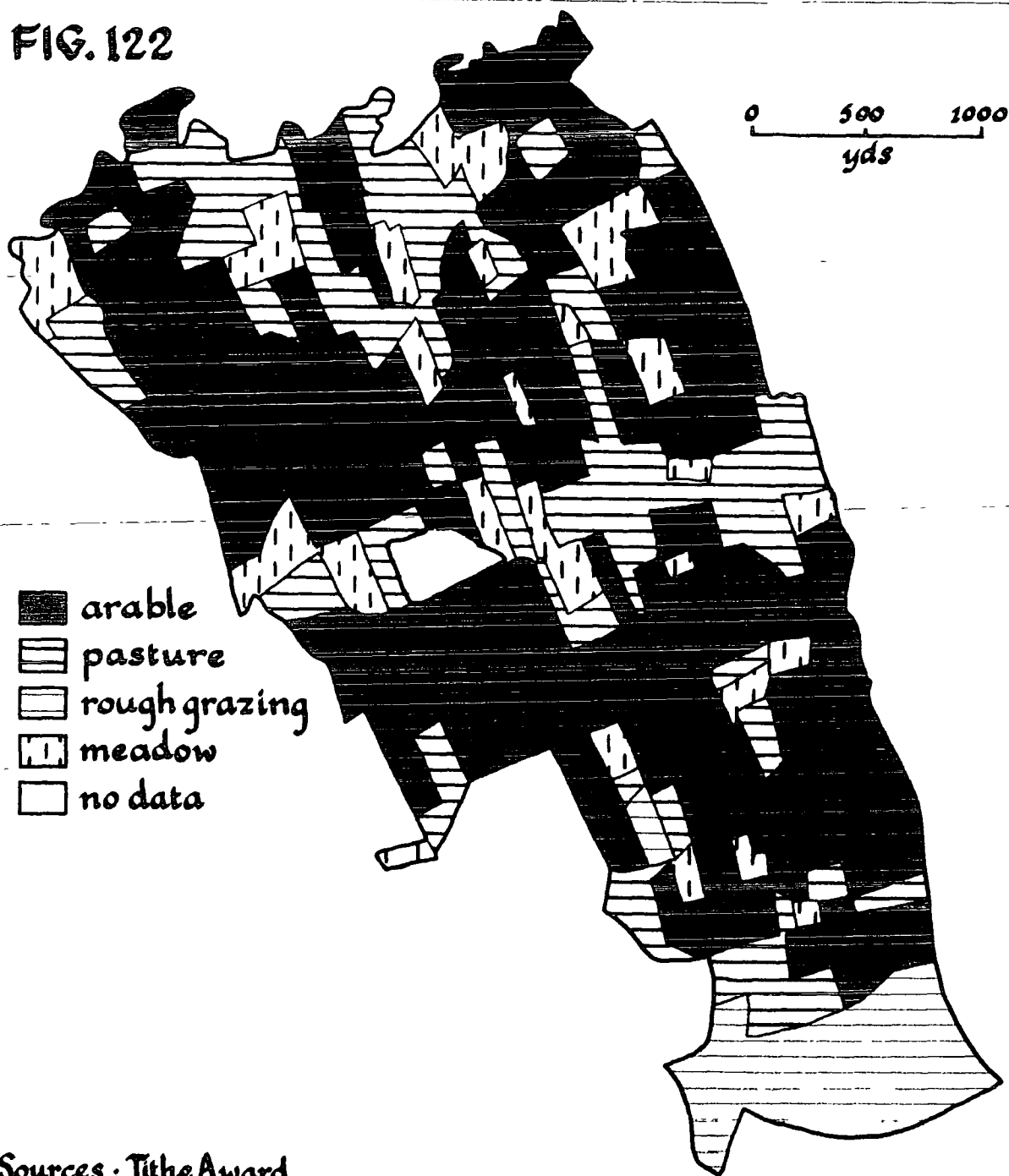
Farm	Percentage of total crops excl. permanent grass							Ratio of Fall: Crop
	Wheat	Oats	Pulses	Clover etc.	Turnips	Rape	Tares	
East Field	43.5	31.8	7.4	10.4		5.6	1.3	30.2
E.Quarry Hill	46.5	28.0	4.6	16.0	4.9	-	-	15.4
W.Quarry Hill	43.4	26.4	9.5	20.7	-	-	-	43.4
Ryehill	40.6	39.0	-	20.4	-	-	-	47.6
$\bar{x}$	43.5	31.3	5.4	16.9	1.2	1.4	0.3	34.2
σ	2.4	5.6	4.1	4.8	2.5	7.4	2.3	14.5
S.E. $\bar{x}$	1.2	2.8	2.1	2.4	1.3	3.7	1.2	7.3

Busby has been identified as a distinct sub-region. Physically it extends from the escarpment into the lowland, yet, as a whole,

GREAT AND LITTLE BUSBY : circa 1840

LAND USE

FIG. 122



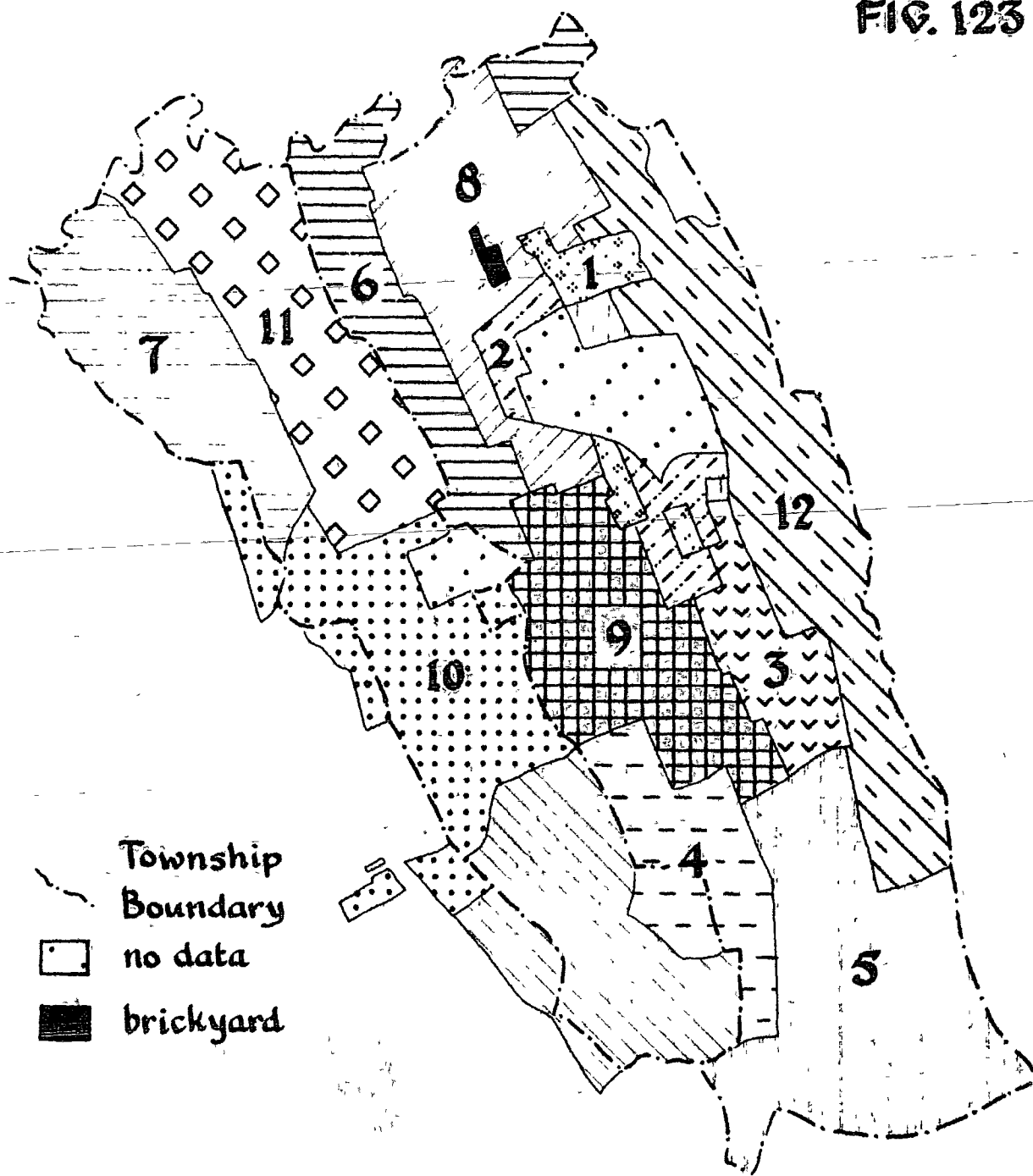
Sources : Tithe Award
Estate Survey

P.K.M

OCCUPATIONS

circa 1840

FIG. 123



Sources: Tithe Awards, Estate Surveys

P.K.M.

arable farming was very important there (Tab. LXX).

TABLE LXX - Land use at Great and
Little Busby, circa 1840

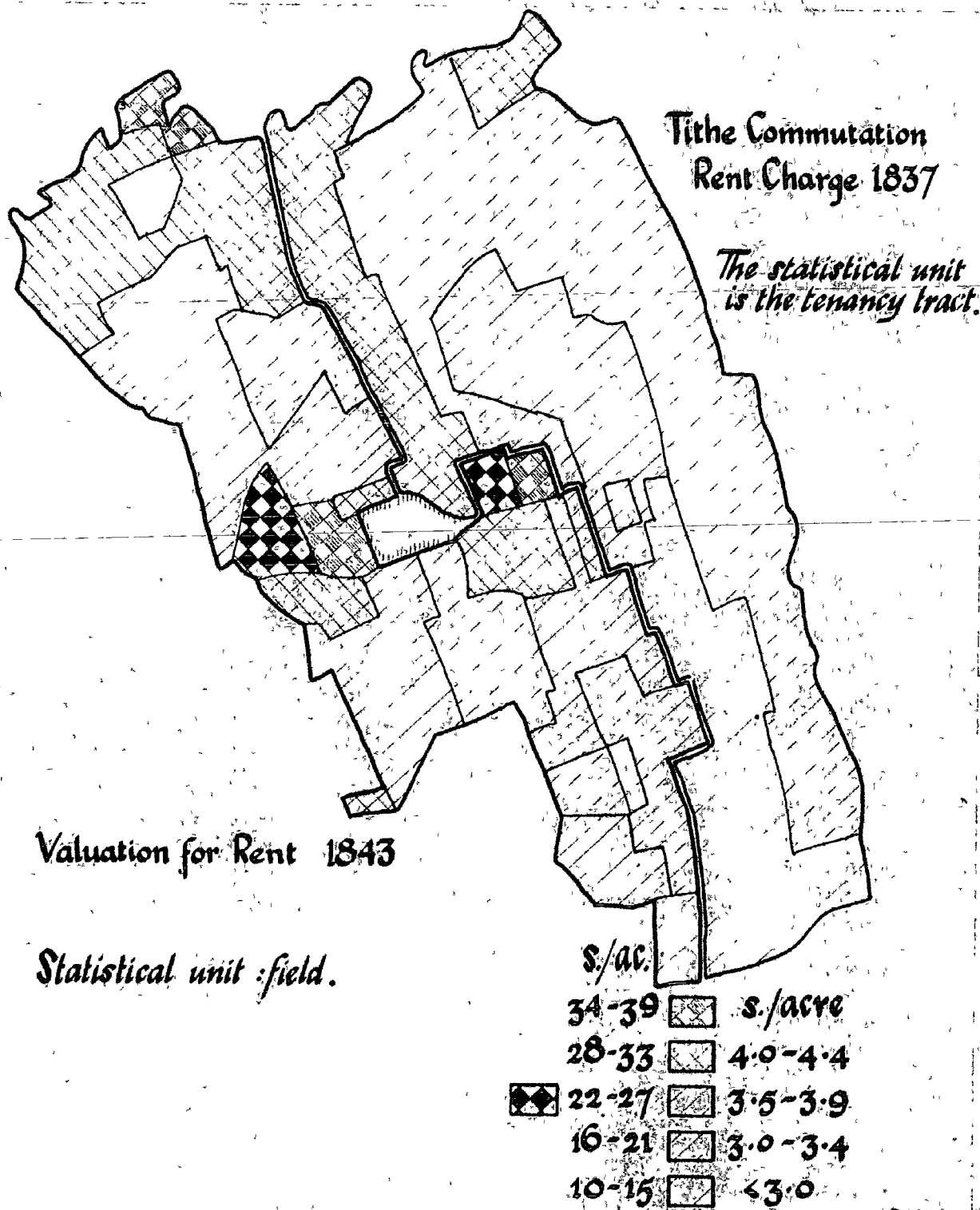
Farm	Occupier	Acreage	% farm total			Rent	Valuation
			Arable	Meadow	Pasture	Total £	per acre s.
1 ..	E.Hammond	35	33.3	26.1	40.6	..	..
2 ..	M.Weatherill	52	59.8	18.2	22.0	..	..
3 Cote House	R.Wise	73	63.5	18.4	18.1	..	..
4 Bagdale Ho.	T.Dixon	104	51.5	10.2	38.3	106	20.4
5 Manor House	W.Wise	130*	63.5	6.1	30.4	..	..
6 Busby House	T.Weatherill	150	55.8	11.4	32.8	..	..
7 Crabtree Hill	T.Appleton	154	75.3	7.2	17.5	200	26.0
8 Thorntree	J.Braithwaite	162	51.8	17.7	30.5	..	..
9 Viewly Hill	R.Johnson	172	72.5	9.4	18.1	221	25.7
10 Carlton Fm.	J.Calvert	192	60.3	39.7		266	27.7
11 Parish Crake	W.Baxter	203	68.4	8.4	23.2	266	26.2
12 Busby Grange	W.Coates	251	73.5	6.2	20.3	..	..
$\bar{x}$		137	60.8	12.6	26.5	212	25.2
σ		63	11.8	6.3	8.0	65	2.7
S.E. $\bar{x}$		17.4	3.4	1.9	2.5	29.1	1.2

* includes an additional 140 acres of rough grazings

As the mapped land use patterns indicated (Fig.122), there was no clear differentiation between upland and lowland portions of the two townships, except above 600 ft. O.D. where utilization was restricted to rough grazings. Both above and below a central belt of grassland, which included Great Busby village and a number of smallholdings, were large arable tracts. These were broken by grassland surrounding isolated farmsteads and on some of the wetter grounds. In the far north, there was the suggestion of a second grassland zone. Whilst the land use patterns were orientated across the prevailing slope, farms (Fig.123) either extended considerable distances up and down-slope - Busby Grange Farm being the supreme example - or were markedly fragmented

FIG. 124

VALUATION circa 1840



P.K.M.

(Hammonds, for example). As a result, the arable proportions of individual farms, although showing more variation than was general within the arable axis, were more uniform than at Kildale. Similar considerations meant that farm rents were fairly uniform, but the more detailed map of land values (Fig.124) shows the high regard in which both old grassland and riverside holms were held. Lowest values were accorded to land at the scarp foot.

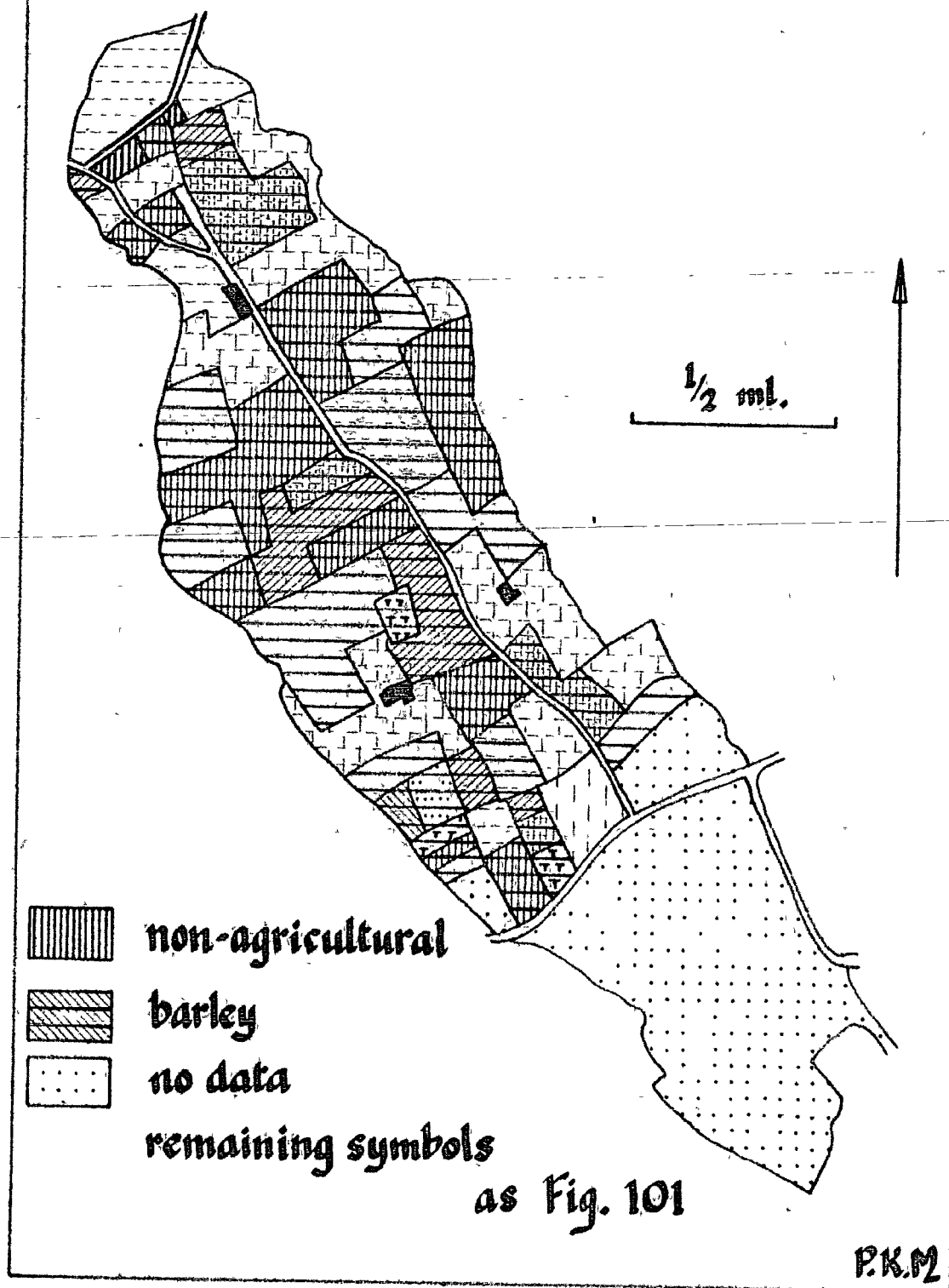
TABLE LXXI - Crop proportions on some Busby farms, 1843.

Occupier	Percentage total crops excl. old grass								Fallo Ratio		
	Wheat	Oats	Mixed	Corn	Peas	Beans	Clover	Turnips		Pots	Tares
4 Dixon	48.1	19.0	..		25.2				7.8		38.0
7 Appleton	46.4	18.4				6.1	20.0	9.1			39.0
9 Johnson	39.2	32.5				4.2	19.3	4.7			41.2
11 Baxter	45.7	28.0			6.0		9.8	4.4		6.0	35.0
10 Calvert	41.8	20.1		16.4			16.6	5.2			42.9
$\bar{x}$	44.2	23.6		3.3		8.3	13.1	4.7	1.6	1.2	39.2

On each of the five farms for which cropping figures are available (Tab.LXXI), wheat was dominant and the area under bare fallow only slightly less extensive, despite the widespread use of seeds and roots. Dixon appears to have been farming his small area of rather heavy land on the traditional "wheat and beans" style, but a small lighter patch was put to potatoes. Others, having less grass, preferred turnips or tares. Low permanent meadow acreages were offset by significant stands of clover and seeds. Appleton, like Dixon, grew relatively little oats,

FIG. 125

Ormesby Hall Estate, 1853



Examples of land drainage in the early 1850s

FIG. 126

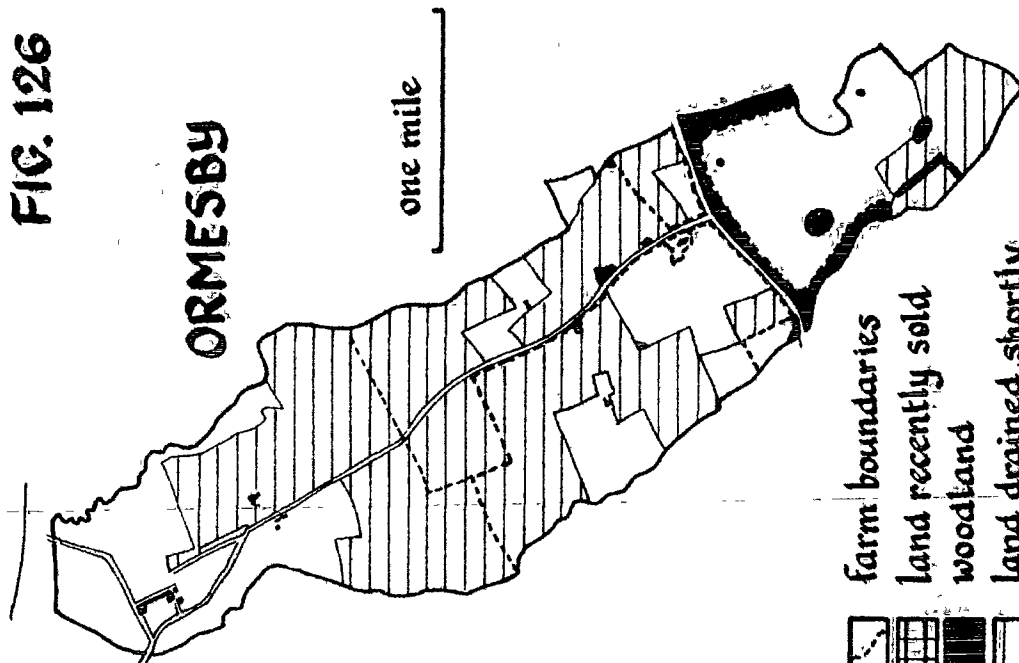
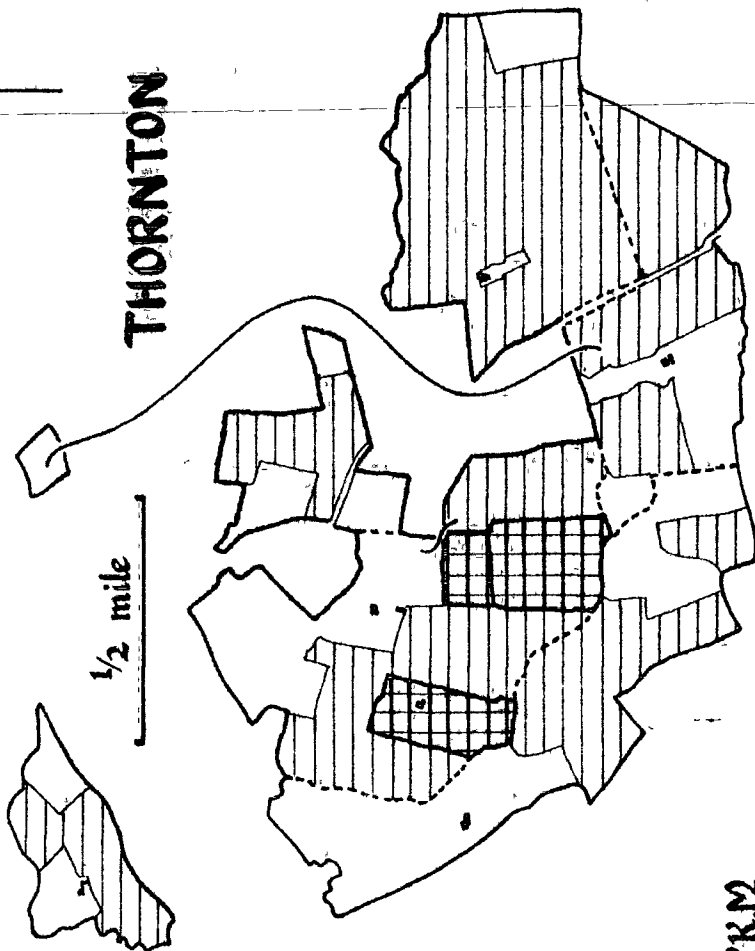
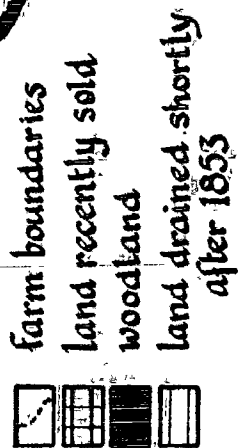


THORNTON

1/2 mile

ORMESBY

one mile



P.R.M

but others had just slightly less than one third of their cropland under it - Calvert's was in mixture with pulses.

The Ormesby Hall Estate was typical of the north-eastern sub-region (Fig.125), Most of the southern area for which no details are available was parkland and estate woodland, though some was farmed. Industrial and housing developments were beginning in the north, although much marshy pasture remained there. Drainage problems and the heavy lacustrine clay soils had helped to maintain high grassland acreages (39.0%), and an overwhelming dominance of wheat (61.5% of crops) and beans (18.7%) on the large White House Farm in the north. The extent of the drainage problem is indicated by the area drained shortly after 1853 especially in the lower two-thirds of the estate (Fig.126).¹⁷ No roots, but a few oats (11.2%) and seeds (8.5%), were grown; and yet the bare fallow acreage, 54 acres on a 400-acre farm, was appreciably lower than on the lighter soils of the loam belt to the south, where a fallow ratio of over 40% prevailed. On the loams, cropping was more varied, with turnips, and even barley, entering the rotation. Permanent grass occupied less than one third of the area, but was supplemented by sown grasses amounting to almost one eighth of the cropland.

Each of these case-studies indicates features well in accord with the sub-regional patterns derived from more generalized data. Also, it is noteworthy that very few individual farms diverge far enough from the local norm as to conform to the pattern of another sub-region. No doubt a partial cause of this conformity is the fact

that most of the farms in each group belonged to a single estate, the manager of which might dictate acreages to be ploughed and rotations to be adopted. However, there is also the influence of an inter-related, conforming group, whose members sought along parallel paths to derive a livelihood under difficult economic circumstances.

Sharing common experiences and technical skills, the individual farmer, even when free to plan his own land use, tended to react to local conditions in a more or less standard way. In this, West Cleveland was in no wise peculiar, since herein lies the whole basis of regional farming types.

The land use and cropping patterns of West Cleveland at mid-century could not last. Over-ploughing and under-stocking had produced an instability bordering on ruin. That the inevitable changes which came after 1850 were less than disastrous owed something to legislative action in the form of drainage loans, but perhaps as much to developments on the River Tees and in the iron-ore field of eastern Cleveland.

¹ Taken at face value, the summaries contained in Tithe Agreements or Apportionments would appear to provide data for a swift reconnaissance survey of a broader zone. Unfortunately, the Tithe Acts did not require that the summaries should be anything other than crude estimates. On the other hand, the apportionments were accurate, but there is no internal totalling of acreage within land use categories - these have to be summed field-by-field. This has been done for West Cleveland apportionments. A comparison of arable ratios, calculated respectively from the apportionments and the summaries indicated that the summaries are accurate to within

5% for fewer than half the tithe areas. Some are grossly discrepant. For example, for Pinchinthorpe, a calculation based on the summary yields an arable ratio of 49.6%, whereas 76.5% would be correct. H. C. Prince ("The tithe surveys of the mid-nineteenth century", Ag.Hist.Rev., IX - 1948 -, pp.496-521) in his otherwise excellent review of this material appears to have missed this point.

- 2 The main sources are the various tithe apportionments. Some lacunae can be made good from comparable estate records:
GET-KH/ Field book of Kildale, 1847.
WLC/ Emerson Papers, Field book and map, "The Swainby division of the Yorkshire estates," 1842.
CRO/ Marwood Papers, Field book, 1843, especially for parts of Little Busby and Nunthorpe.
 For certain distributions, e.g. of woodland and rough grass, the First Edition Ordnance Survey Six-Inch Map sheets (1853) have been preferred on account of their completeness.
- 3 But note (Fig.99) that the arable is concentrated especially in the southern parts of the township, adjacent to areas long noted for their high arable acreages.
- 4 The analysis of crop distributions (Figs. 106-113) is based on data from the survey materials listed above, upon the tithe files (TRC) of many West Cleveland tithe districts, and upon the following:
TRC/ Tithe apportionments for Hutton Rudby and Hilton.
JBP-OH/ Field book, 1853.
FJ-E/ Easby Estate sale catalogue, 1841.
- 5 M. M. Milburn, "On the farming of the North Riding of Yorkshire", JRAS, IX (1848), 496-521.
- 6 J. Caird, English agriculture in 1850-51, (Longmans, 1852), 326-8.
- 7 J. W. Ord, The history and antiquities of Cleveland, (London, 1846), p.237.
- 8 Relevant data are given in the majority of tithe files (TRC).
- 9 Milburn, op.cit., p.513.
- 10 TBL/ Hustler Papers, tithe records for Linthorpe and Ayrsome.
- 11 Milburn, loc.cit.

- 12 TRC/TF 11841.
- 13 Milburn, loc.cit.
- 14 TRC/TF 11810, _____12012, _____12043, _____ 12088,
_____12093, _____12170, _____12251.
- 15 An assumed value, based on the arable acreage, is interpolated for the horse population.
- 16 TRC/TF 12012.
- 17 JBP-OH/ Field book, 1853, near-contemporary additions indicate fields which were drained.

PART THREE - THESIS

CHAPTER XVI

LAND USE PATTERNS IN A NORTHERN CLAY VALE

- ELEMENTS OF CHANGE AND CONTINUITY

In this final chapter, the various pieces of evidence presented in part two are drawn upon for a general statement of the land use situation in West Cleveland during the three centuries from 1550 to 1850. A detailed re-iteration of the sequence of changes would be superfluous, in view of the full digest incorporated in chapter one and the lead paragraphs heading each subsequent chapter. Below, one attempts to provide answers to a number of questions of a general character which have arisen during the course of the investigation. They include:
Can the land use patterns of these periods be reconstructed in meaningful detail?

What factors appear to have controlled these distributions, and how far may they be assessed?

How far can general conclusions concerning land use study or the land use of this area be based on such historical material?

Have past agricultural patterns had any significant impact on the present day landscape?

Do the results of the investigation support the initial assumption as to West Cleveland's integrity as a region?

The very existence of this document implies that the first problem posed by the topic - whether past land use patterns were capable of reconstruction - has been satisfactorily dealt with. However, much of the reconstruction is generalized in character or based upon material whose typicality cannot be tested. Data for the major part of the period falls regrettably short of the ideal plat-by-plat chorochromatic mapping which was established as a major aim in chapter four. Further, the supplementary detail needed for a full

Land use changes on certain farms and estates

FIG. 127

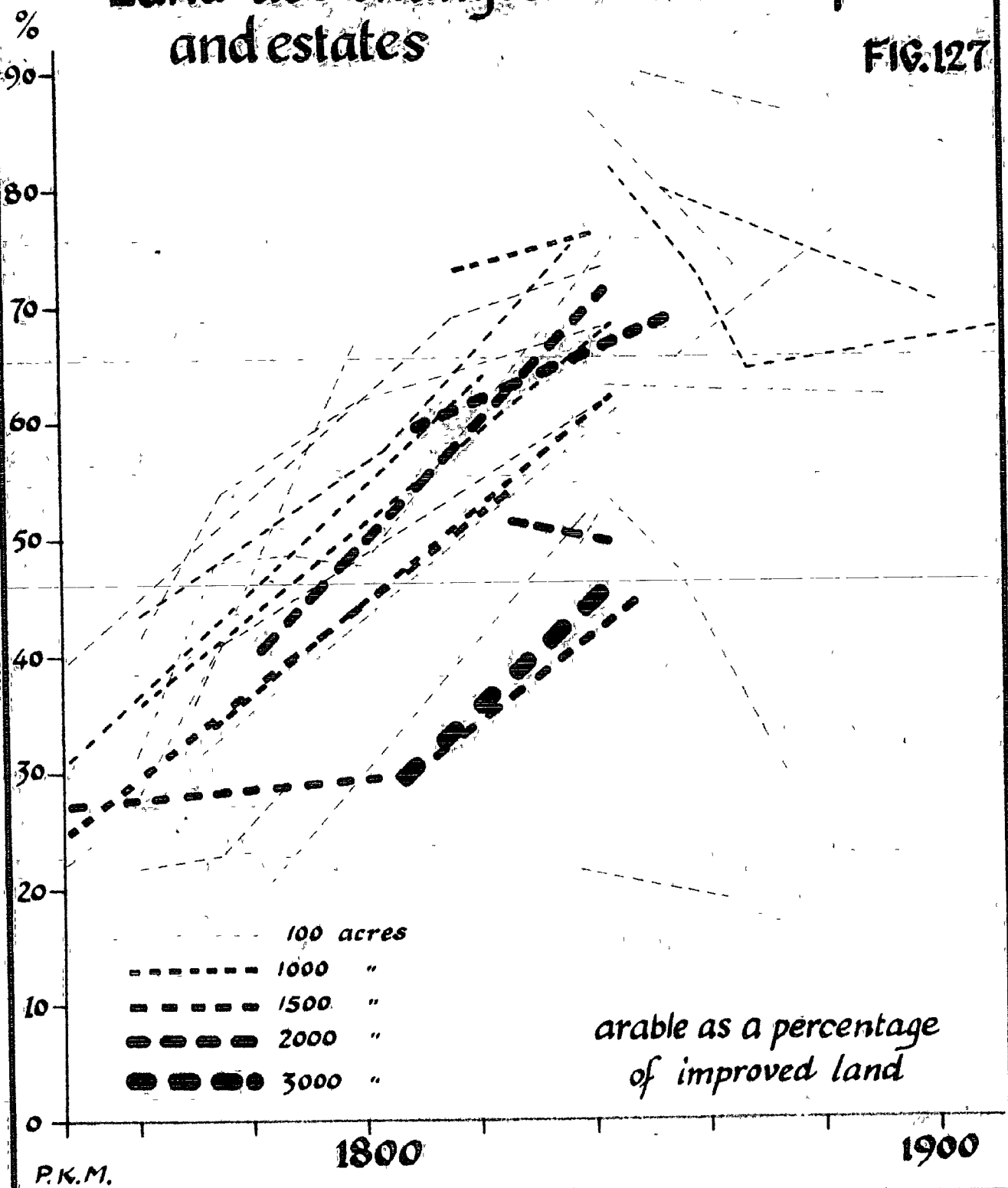


FIG. 128

Arable as a percentage of total farmland

— upper quartile
 ≡ median
 — lower quartile

80
 70
 60
 50
 40
 30
 20
 10

Changes in land use by tithe
 area and parish

1830 1850 1870 1890 1910

P.K.M.

analysis of controlling factors and an ultimate statement of causation is inadequate, fragmentary and uneven. The existing presentation depends to a considerable, though varying, extent upon indirect evidence of different kinds, but sufficient firm data survive to buttress the structure. In certain areas of the study more positive evidence probably exists than one has utilized. For example, considerable detail might be added to the discussion of enclosure, on the basis of exhaustive investigation of land record and probate material.

Justification of the vast labour which this would involve would need to be produced. While fully aware, therefore, of certain inadequacies of this statement, one is reasonably confident that the main outline of the picture is correct. The period began with a 'midland' open-field economy; enclosure was achieved in the seventeenth century; there followed a prosperous period of grassland farming; arable acreages subsequently increased (Fig.127¹) to a peak about the end of the period (Fig.128²).

Quantification in terms of a simple arable ratio facilitates comparisons later in the period. Before 1750, however, the situation is less secure. In the first place, data are more scarce (though there is good evidence that the ratio stood at between 25% and 30% in the later seventeenth century - chapters seven and nine - and perhaps as low as 15% to 25% - chapter ten - in the earlier eighteenth century). Secondly, there are doubts as to the direct comparability of earlier with later data. It has been suggested (chapter six) that before enclosure perhaps 42.0% of the land was devoted to 'arable'

open-fields, but this area was not directly comparable with a tract of modern arable land. Quite apart from the scattered lands which might be left as 'leys' or "swayths", there were significant grassy patches in the access baulks and odd "sikes" of rough ground or steeply-sloping margins of the open-field, which were not ploughed. Again, any ploughland which depended on the surface drainage from high-backed ridges, whether open or enclosed, was reduced, in effective area by the meagre productivity of the intervening furrows and trenches needed to carry off water in wet weather.

Similar qualitative distinctions apply to grassland. Except where appropriate rent valuations are available, it is difficult to compare upland enclosed "pasture" with lowland "pasture" - the herbage might be ecologically and nutritionally quite distinct, or exactly comparable. Greater contrasts were likely before enclosure. It is known that the moor summits were heather-covered throughout the period (chapter two), but the commons on the escarpment face, being grazed by a more varied and hungrier stock population than in later years, were probably then in better shape. In particular, grazing by bovines probably kept bracken (Pteridium aquilinum) in check. Again, how might one make quantitative comparison between lowland and upland common "moors", or between either and the permanent grassland of the eighteenth century? Virtually nothing is known of the vegetation and quality of the lowland moors, except that their propensity to develop a podzolic "moorish" soil and the existence until recently of flourishing hedge-row communities of bracken, broom (Cytisus scoparius) and

furze (Ulex spp.) on their former sites are suggestive of poverty.

As regards hay-growing land, a differentiation between the high bulk yields from the damp meadow bottomlands of pre-enclosure and early post-enclosure days (which included much nutritionally valueless material) and the sweeter hays less plentifully growing on drier sites is apparent. Early, the bulk of the former raised the premium on such land, later its relative value was diminished. How to effect comparison? The historical geographer longs for contemporary field evidence and would (in this instance) echo Marshall's dictum that "An accurate valuation is much more estimable than a handsome plan."⁴

The question of the meadow "Ings", brings out an important element of the whole study - the changing evaluation of resources by Cleveland's farmers and landowners. At Kildale, for example, there are very noticeable contrasts in the pattern of distribution of meadow as between 1612 (Fig.36b), 1806 (Fig.67b) and 1847 (Fig.119b). In part, these arise as a result of enclosure, consolidation and the economic pressures for corn-production, but equally they are affected by changes in the precise meaning of "meadowland" and of the implied change in resource appraisal. Such modification arose with the development of meadow/pasture convertability in the nineteenth century, as earlier with the 'alternate husbandry' of the eighteenth. A further smoothing over of the boundaries of land use categories was initiated with the introduction of clover and sown grasses into the arable rotations from circa 1800 onward, and finally, with the widespread adoption in recent years of ley-farming systems. Changed resource

evaluation is perhaps still more clearly evident in the adoption, during the second half of our period, of timber (a commodity desperately scarce earlier) as a legitimate product of some kinds of West Cleveland land.

Such factors have played their part in determining the elements of change in land use patterns. Organizational modifications have been more potent. Patterns such as those at open-field Great Ayton (Fig.26) and Kirkleavington (Fig.24) were a direct reflection of the social and agrarian system. For stock needing close attention, the peasant had his home garth, but other stock ranged freely (or under the care of a village cowherd or shepherd) in the remote pastures. Much of the husbandman's time was spent on, or moving between, his arable strips which might not therefore be too remote. In townships where land quality contrasts were great, and where more land might be needed for pastoral activity, the patterns differed, as in openfield Faceby (Fig.19) and Battersby (Fig.23) and in sixteenth century Kildale (Fig.34c). In each case, direct access of stock to the village garths was desirable, even at the expense of the remoteness of some arable strips.

A new set of desiderata became applicable with the grass-oriented economy of the late-seventeenth and early eighteenth centuries. With the farmland enclosed, and an increasing number of homesteads newly-built at some distance from the village, broad tracts of grassland divided by hedges dominated the landscape (Fig.44). Isolated, and often peripheral, plots of arable added some diversity. Emphasis

changed once more with the arable revival from the 1780s on. In detail, the pattern was one of small tracts of jealously guarded old grassland close to the farmstead, where a reduced livestock population of improved quality might be supervised. Occasional portions of distant grassland were to be found, but arable tracts extended over all but the least suitable land. The broader impact of this pattern depended on the structure of farmholding and the existence of dispersed farmsteads. Where these were normal, an arable-dominated mosaic was common, (Fig.121) but in townships farmed from the old village nucleus a more interesting pattern had developed (Fig.101). Around the village, comprising the garths and often one or two fields beyond, was an almost unbroken grassland tract. Beyond, and extending to the township limits was a virtually continuous tract of arable interspersed with occasional meadows. The reversal of a characteristic open-field pattern is most striking.

Such contrasts are most clearly marked where, as on the eastern clay plateau and parts of the moraine, there is broad uniformity of environmental factors. Each of these characteristic patterns was liable to disruption where sudden topographic or edaphic changes occurred, as for example, at Crathorne (Fig.58) and Hilton (Fig.101) where the Leven gorge intruded a distinctive element. The broad patterns were also less mutable above the 400 feet contour, as is clear from the series of sketch maps of Kildale (Figs.36, 62, 67 and 119). But the continuity at Kildale should neither be overstressed, nor the probable contrasts with the open-field pattern there be forgotten.

As regards the texture of the land use pattern, two factors were operative. The quasi-communal pre-enclosure systems encouraged a bold texture of uniform land use (Fig.27). The individualism of several farmholds, especially when associated with dispersed settlement, has led to patterns of some intricacy at times (or in areas) of approximate balance between competitive land use categories (Figs.51 and 58). Overwhelming dominance of a single type of land use has, however, naturally imposed a bolder pattern, even in areas of scattered farmsteads (Figs.44 and 99).

Considerable elements of continuity are equally apparent. The most striking, but entirely expected, stability is to be found along the upland margins, especially where the transition from lowland to upland is swift (as at Newton). In other townships of the scarp-foot, the upper limit for arable cultivation was raised from circa 350 ft. O.D. to some 500 ft. O.D. (higher in some areas) following enclosure, but rarely onto really steep slopes or off the drift-derived soils. The one major exception is the Middle Lias bench which, at Easby, Kildale, Airyholme (Great Ayton) and elsewhere has presented a limited foothold for improvement. Such exceptions notwithstanding, the relevant sections of figures 27 and 104 testify to the continuing significance of this restrictive frontier.

Less predictable was the discovery of appreciable continuity of farming aim in certain sections of the lowland. Despite considerable fluctuation in the fortunes of arable agriculture, core zones stand out within which, in the post enclosure years, plough-farming has

always been relatively important. These are clearly apparent in figures 43, 66 and 105, and evidence has been produced of their existence at other times also. Considerable uncertainty surrounds the question of causation. The pattern is partly negative, in that the areas towards the scarp-foot (mainly for ecological reasons) and the northern borders (partly for these and partly for economic reasons) have been favoured for grass-based production. Also, the arable tract includes some cropland (Fig.8) with a higher potential than any other in the area. However, as the discussion of early nineteenth century Foxton has made evident (chapter fifteen), even the better land has not always seemed favourable and tracts such as Newton would often have been better under grass. Edaphic factors offer scarcely sufficient explanation; yet no other circumstance - patterns of tenure, location with respect to markets, conservatism or what-you-will - seems adequate either. It is possible that a variety of local factors contribute to the continued arable emphasis of this limited zone within a broader lowland tract which has been, as a whole, marginal for crop-oriented farming.

The continuity in time and space of what one has called "sub-regions" (Figs.87 and 118) may call in question the attitude, often taken for granted in the literature (chapter one), that Cleveland is a truly regional entity. Without intensive study of adjacent lowland areas, one would not care to be dogmatic on this point. However, one might hazard that its links are likely to be closest, not with the Vale of York of which it forms an "appendage", but with the north bank

of Tees, with which it has shared the important asset of a navigable outlet to wider markets.

The marginal character of lowland West Cleveland has been stressed by many commentators, and is self-evident from the amplitude of the local farmers' response to fluctuating economic forces. Except for the darker years of the early nineteenth century, some crop/stock balance has prevailed, demonstrating the area's capacity as a mixed farming region. Adjusting to short-term climatic and longer-term economic changes, so the balance has been struck with greater or lesser emphasis on livestock - but these have been persistently important. It is possible that the low mean annual rainfall would always preclude an all-grass economy, such as has sometimes been suggested as a wise rationalization in the face of the heavy boulder clay soils. Yet it may be significant that West Cleveland farming seems to have been better adjusted during the early eighteenth century than at any other time. These years, when butter production and stock-breeding were the chief aims, were prosperous both on the farms and in the larger villages and small towns. The Cleveland farmer was then ahead of many in his attention to the breeding of stock and the care of grassland, but later, as an arable farmer, he was shown to be conservative and inept. To the years of pastoral dominance, above all others, are due the main characteristics of the modern rural landscape. This was the area's 'golden age.'

- 1 The figure is based on material cited earlier. In each case, the pecked line links values of the arable ratio applicable to identical tracts of ground at two or more dates. Any effect of changing farm or estate boundaries are therefore eliminated. The density of the line is proportional to the acreage of the relevant tract. This material may not always indicate either the full amplitude or the precise timing of changes, but the general trend is clearly evident.
- 2 Values for the 1830s and 1840s come from tithe apportionment schedules or comparable private surveys. Material for later nineteenth century years is calculated from the parish summaries of the Ministry of Agriculture. They relate, in the main, to ecclesiastical parishes - many of which included more than one tithe district. Hence the reduction in number and decreased dispersion. Figures for 1915 (also from Ministry records) are included because these relate to the new civil parishes (many of which were coterminous with tithe districts) and are therefore more nearly comparable.
- 3 Some of the discrepancy between estimated yields (which may have been based on the 'look' or handling of a crop) and actual recorded yield may result from this practice, since the effective area of an enclosure would be less than its measured area.
- 4 W. Marshall, The rural economy of Yorkshire, (1st ed; London: 1788), I, 35.

APPENDIX A

ALPHABETICAL LIST OF ABBREVIATIONS USED IN FOOTNOTE

CITATION OF PUBLISHED AND MANUSCRIPT

SOURCE MATERIAL

<u>Adv.Sci.</u>	The Advancement of Science.
<u>Ag.Hist.</u>	Agricultural History (published in the U.S.A.).
<u>Ag.Hist.Rev.</u>	Agricultural History Review.
<u>AWW</u>	A. W. Watts & Co. of Northallerton.
<u>BI</u>	The Borthwick Institute for Historical Research, St. Anthony's Hall, York.
<u>BM</u>	British Museum, Department of Manuscripts.
<u>BM-SPR</u>	The State Paper Room at the British Museum.
<u>CRO</u>	County Record Office, Northallerton.
<u>Ec.Hist.Rev.</u>	Economic History Review.
<u>Engl.Hist.Rev.</u>	English History Review.
<u>FJ-E</u>	Mr. F. Jackson of Eaglescliffe.
<u>Geog.Rev.</u>	Geographical Review.
<u>Geog.Stud.</u>	Geographical Studies.
<u>GET-KH</u>	Mr. G. E. Turton of Kildale Hall and Oxford.
<u>I.B.G.Trans.</u>	Transactions of the Institute of British Geographers.
<u>JBP-OH</u>	Lt.Col. J. B. Pennyman of Ormesby Hall.

<u>JRAS</u>	Journal of the Royal Agricultural Society of England.
<u>KBY-CH</u>	Records held by the Vicar of Kirby-in-Cleveland.
<u>LD-CH</u>	Lord Thomas Dugdale of Crathorne Hall.
<u>MPL</u>	Middlesbrough Public Library.
<u>NRR</u>	'Quarter Sessions Records', Vols I to IX of the North Riding Record Society (1884-1892).
<u>NRRD</u>	The North Riding Registry of Deeds, Northallerton.
<u>PRO</u>	Public Record Office, London.
<u>Proc.Yorks.Geol.Soc.</u>	Proceedings of the Yorkshire Geological Society.
<u>Q.J.Geol.Soc.</u>	Quarterly Journal of the Geological Society.
<u>SPCh</u>	Records held by the Rector of Stokesley.
<u>SS</u>	Publications of the Surtees Society.
<u>TBL</u>	Trotter, Bruce & Loft & Co. of Bishop Auckland.
<u>Trans.R.Hist.Soc.</u>	Transactions of the Royal Historical Society.
<u>TRC</u>	Inland Revenue (formerly Tithe Redemption Commission), 33-37, Finsbury Square, London, E.C.2.
<u>VCH-NRY</u>	"A history of Yorkshire, North Riding", <u>The Victoria History of the Counties of England</u> , (Constable & Co.; London: Vol I, 1915: Vol II & Index - St. Catherine Press - 1923 & 1925).
<u>VCH-Y</u>	"A history of Yorkshire", <u>The Victoria History of the Counties of England</u> , (Archibald Constable & Co. Ltd.; London: Vol I, 1907: Vol II, 1912: Vol III, 1913: Index - St. Catherine Press - 1925).
<u>WLC</u>	W. Lowther Carrick & Co. of Stokesley.
<u>YAJ</u>	Journal of the Yorkshire Archaeological Society.
<u>YAS/DD</u> <u>YAS/MD</u>	Manuscript collections of the Yorkshire Archaeological Society, Leeds.
<u>YAS-RS</u>	'Records Series' publications of the Yorkshire Archaeological Society.

APPENDIX B

STANDARD NOTATION FOR EXPRESSING
CROP COMBINATIONS AND ROTATIONS

To avoid unnecessary repetition, the individual crops of a crop-combination pattern or the terms of a rotation, are indicated by initial letters according to the list given below. Items are separated by semi-colons. Thus, for a given locality, the crop-combination notation W; O; Pu would indicate that wheat occupied more cropland than any other single crop, with oats and the pulses (beans and peas, whether singly or together) following in order. Furthermore, these three crops in combination came closer than any of the other possible combinations (whether drawn from these three only or incorporating other crops grown in the locality) to dominance in the competition for the use of land. On the other hand, F; W; O or Pu, when used to indicate rotational practice, shows that a piece of arable would normally be bare-fallowed in the first year, sown with wheat for the second, and grow either oats or pulses in the third: in the fourth year, the land would once more be fallowed.

Individual crops are identified as follows:

Ba	Barley (& bigg)	O	Oats
Be	Beans	Pe	Peas
Cl	Clover	Pu	Pulses (beans and/or peas)
Ca	Cabbage, kale etc.	Pt	Potatoes
F	Bare fallow	R	Rye
L	Linseed	Ra	Rape
Ma	Mangolds	S	Seeds (mainly sown grasses)
Mc	Mixed corn	T	Turnips (& sweeds)
Mu	Mustard	Ta	Tares (& vetches)
Mx	Maslin (wheat & rye)	W	Wheat

APPENDIX C

DATA ON THE ENCLOSURE OF WEST CLEVELAND

TOWNSHIPS - A CHECKLIST

Name of township or locality	Dates of:			Sources
	Mention of open-field	Enclosure	Reference to enclosed land	
ACKLAM	1670	-	1716	<u>NRRS</u> / VI, 149-50 <u>MPL</u> /Map
Quarter Sessions Records, Oct 4 1670 describe re-alignment of highway "in the east feild of Acklam".				
AYRSOME	-	-	1716	<u>MPL</u> /Map
Ayrsome may not have been an independent township.				
BARWICK	-	-	1658	<u>CRO</u> /ZK 16 H
BATTERSBY	1577	-	-	<u>BI</u> /R VIII G 1850
BRAWORTH	-	-	-	
Territorial status doubtful. Shown as separate unit in Rudby parish on 1st Edn. 6" O.S. Map.				
CARLTON	1548 1570	-	1760	<u>SS</u> / XCII p 490 <u>PRO</u> /E 164 38 f207 <u>CRO</u> /ZDU Leases
CASTLE LEAVINGTON	-	-	1631	<u>BI</u> /R VIII H 1858 H 1905

Beresford lists a lost village here. In 1630/31 witness identified "a house within Castle Leventon where Schollers doe or lately did learne that have beene and is some parte and pcell or the said windowes and walls of the same Church or Chappell" as lying in "Chappel garth."

Dates of:

Name of township or locality	Mention of open-field	Enclosure	Reference to enclosed land	Sources
COULBY	-	1517	-	<u>BM/Lansdown</u> 1 ff167-172

Enquiry of 1517 reported 100 acres arable converted to pasture. Beresford (YAJ/ XXXVII p 360) suggests open-field survival into 17th C. but this results from a confusion with Cowesby, to which the reference he cites related.

CRATHORNE	1555	c,1720?	1662 1685	<u>BI/R</u> As 22/18 <u>BI/R</u> VI A26 <u>BI/R</u> III MI VIII 1 <u>Graves/Hist. of</u> <u>Cleveland</u> p 114

Glebe terrier of 1685 (earliest extant) shows large, iragmented, but enclosed, glebe estate. Failure to perambulate in 1662 suggests enclosure complete by that date. However, Graves (1808) states that "A part of the parish was open fields about 80 years ago."

DROMONBY			1633	<u>BI/R</u> VI B 4 f400

A Beresford "lost village". May have been two townships.

EASBY	-	-	1593 1700	<u>PRO/E</u> 178 772 <u>YAS/MD</u> 23

FACEBY	-	1749	-	<u>NRRD/Enclosure</u> Award

An earlier attempt to enclose is discussed in text. (Chap.VIII).

FOXTON	-	-	1670	<u>CRO/ZK</u> 14

Territorial status uncertain.

GOULTON	-	-	1583	<u>BI/R</u> VIII G 2144

Territorial status uncertain.

GREAT AYTON	-	1658	1570	<u>PRO/E</u> 164 37 f421 <u>BI/R</u> Bp 5/77 <u>WLC/Kitching</u> Papers

Significant area enclosed from O.F. oxgangs before 1570, but over 1700 acres remained open until enclosure of 1658. Court rolls c. 1650 give good picture of O.F. operations.

GREAT BROUGHTON	1587	1638 1811	1587	WLC/Emerson Papers <u>PRO/E</u> 178 5756 <u>NRRD</u> /Enclosure Award

A portion of the township (formerly monastic land) was enclosed by 1587. Main enclosure completed 1638, leaving small portion of meadows and tract of common grazings to be enclosed by Act, 1811.

GREAT BUSBY	-	-	1758	<u>CRO</u> /ZDU Leases
GREENHOW	-	-	1552	<u>BI</u> /R VIII G 508, ___523

Reference is to enclosed demesne lands.

HEMLINGTON	-	-	1570	<u>PRO/E</u> 164 37 f424

Document lists "Five capital tenements," whilst in open-field townships document lists properties in terms of "bovates".

HILTON	-	-	-	

No documentation earlier than 19th C.

HUTHWAITE	-	-	-	

Territorial status uncertain.

HUTTON RUDBY	1628	-	1673	<u>BI</u> /Prob. VII 1629 <u>Wm.</u> <u>Tunstall</u>
			1642	<u>YAS</u> /RS XXXIX p 199 <u>CRO</u> /ZK 16 (c) 4
INGLEBY BARWICK	15.. 1678	-	-	<u>PRO/E</u> 178 2677

Reference to "Manor of Berwick ... and comons in fields of Engleby"

INGLEBY GREENHOW	1550	-	-	<u>PRO</u> /SC6 Hen VIII 4522
KILDALE	-	1775	1570 1612	<u>PRO/E</u> 164 37 f239 <u>GET</u> -K H/Map _____/Enclosure Act

The Survey of 1570 and map of 1612 indicate that all improved land was then enclosed. The Act of 1775 dealt with moorland common and wastes only.

KIRBY	1570 1578	- -	1633	<u>PRO/E</u> 164 38 f207 <u>YAS</u> /RS L p154 <u>BI</u> /R VI B4

At 1633 Visitation, churchwardens attested that whole parish was enclosed.

Dates of:

Name of township or locality	Mention of open-field	Enclosure	Reference to enclosed land	Sources
KIRKLEAVINGTON	1577 1631	1617	-	<u>BI/R VIII G 1871a</u> H 1905 <u>PRO/E 178 4886</u>
Enclosure of 1617 dealt only with 800 acres of common pastures. A perambulation account of 1631 includes references such as "harrycarr balke" with strong open-field flavour. 1617 document refers to "Townefeilde of Kirkleventon" and "field of the said Mannor," which were clearly excluded from the enclosure process.				
LINTHORPE	1570	-	1716	<u>PRO/E 164 38 f235</u> <u>MPL/Map</u>
LITTLE AYTON	1629 1653	1658	1615 1629	<u>BM/Lansdown lff.167-172</u> <u>YAS/MD 23.</u> <u>WLC/Kitching Papers</u>
Eight acres reported enclosed in 1517 enquiry. Early 17th C. docs. describe O.F. and also closes "being rigg and furr grounds". Enclosure completed 1658.				
LITTLE BROUGHTON	1477	-	1633	<u>SS/ XLVI, p65</u> <u>BI/R VI B4 f400</u>
In response to Archbishop's Visitation, 1633, the churchwardens claimed that the whole parish of Kirkby was then enclosed, but see Great Broughton. Listed by Beresford as lost village.				
LITTLE BUSBY	-	1596	-	<u>BI/R VIII H 1346</u>
Ref. dated 1618 includes deposition "that the Lordship of litle Busby was inclosed xxii ty yeres ago".				
LOW WORSALL	-	-	1590 1653	<u>PRO/ E 178 2716</u> <u>YAS/RS XX P 69</u>
MALTBY	1546	-	1727	<u>SS/ XCI p 120</u> <u>NRRS/ IX p 87</u>
MARTON	-	1635	-	<u>CRO/Marton Decree</u> <u>BI/R VIII H 2586</u>
At the time of the 1635 enclosure process, there were already a number of "Old inclosures".				
MIDDLESBROUGH	1618	-	1716	<u>PRO/MPE 524</u> <u>MPL/Map</u>

Excellent cartographic evidence of enclosure.

Name of township or locality	Dates of:			Sources
	Mention of open-field	Enclosure	Reference to enclosed land	
MIDDLETON	1570	-	-	<u>PRO/E 164 38 f32</u>
MORTON	-	-	-	
NEWBY	1628 1681	-	1715	<u>YAS/MD 35</u> <u>BI/Prob. Feb. 1681</u> <u>Hen. Eden</u>
NEWHAM	-	-	-	
Listed by Beresford as "minor case" of depopulation.				
NEWTON	-	1741/2	-	<u>NRRD/Enclosure Award</u>
NORMANBY	-	1811	1641	<u>NRRS/ IV p162</u>
Closes named in 1641 include "Lowfield" and "Thorne flats". The 1811 Act enclosed 119 acres of moorland common.				
NUNTHORPE		1634	1613 1637	<u>CRO/Lowther Collection</u> <u>BI/R VIII H 1208</u>
The enclosure of 1634 dealt with grounds intercommoned with Marton (q.v.). Remainder of locality apparently enclosed earlier. Territorial status somewhat uncertain.				
ORMESBY	-	-	1633	<u>BI/R VI B4 f405</u>
Churchwardens attested that parish was all enclosed.				
PICTON	-	-	1670	<u>BI/Prob Nov. 1670 R.</u> <u>Turner</u>
PINCHINTHORPE	-	-	1569 1597	<u>YAS/RS XXXIX pp 205,210</u>
An attempted enclosure of wastes on "the more of Pynchinthorpp" is recorded at <u>YAS/RS XLI p 63 et seq.</u> . Listed as "lost" by Beresford.				
POTTO	1570 1578	1630?	1570	<u>PRO/E 164 38 f31</u> <u>YAS/RS L p 153</u>

Partially enclosed by 1570, a Special Commission of Exchequer was obtained in 1630, but only a small portion of file remains, giving no clear indication of what, if anything, was achieved.

Name of township or locality	Date of:			Sources
	Mention of open-field	Enclosure	Reference to enclosed land	
RUDBY	-	-	-	
SEAMER	-	-	-	
Enclosure listed here by <u>VCH-NRY et.al.</u> is mis-identification.				
SEXHOW	-	-	-	
Possibly a lost village.				
SKUTTERSKELFE	-	-	1613	<u>NRR/</u> VI p 142
Named closes included "West Feild". Extent of territory uncertain.				
STAINSBY	1548?	-	1757	<u>S/</u> CVI p 280 <u>WAT/</u> Harewood Papers, Mar
Earlier reference is to stinted common pastures.				
STANTON	-	-	c.1660 1685	<u>BI/</u> R III MI XLVIII la d
STOKESLEY	1567	-	1631 1663	<u>CRO/</u> ZK Leases <u>BI/</u> Prob May 1631 <u>J.</u> <u>Tompson</u> <u>BI/</u> R III M I XLIX la
Beresford mistook the 1685 terrier for that of 1663 and mis-interpreted the contents. See chapter eight.				
SWAINBY	-	-	-	
Territorial status uncertain.				
THORALDBY	-	-	-	
Territorial status uncertain.				
THORNABY	1548	-	-	<u>SS/</u> XCII p 485
THORNTON	1630	-	1727	<u>NRRS/</u> IV p 160
TOLLESBY	-	-	-	
Territorial status uncertain.				
TRENHOLME	-	-	1613	<u>NRRS/</u> IV p 145

Name of township or locality	Date of:			Sources
	Mention of open-field	Enclosure	Reference to enclosed land	
TUNSTALL	-	-	15..	<u>PRO/SC</u> 6 Hen VII 4522
"Bovat terre ad clauso"				
UPSALL	-	1510?	1510	<u>BI/R</u> VIII G 2223
Witness deposed in 1584 that 80 years earlier part of Ormesby common had been "Inclosed and adioyned to the grounds belonging to the Mannor or capital messuage of West Upsall".				
WHORLITON	early	-	-	<u>YAS/RS</u> CII p 153
YARM	-	1658	-	<u>Wardell/History</u> <u>of Yarm.</u>

APPENDIX D

CONVERSION FACTORS FOR LIVESTOCK UNITS

A variety of different modern scales for the conversion of livestock population statistics to standardized "livestock units" are included in F.A.O's Technical conversion factors for agricultural commodities, (1960). The most valuable would appear to be that adopted in Denmark (p.97), and, representing European agriculture at perhaps a lower level of efficiency, the West German scheme (pp.121-5). The Danish is based on feed requirement, the German base is not quoted. It is certain that great morphological and other changes have taken place in stock populations since 1770, so that it would be inappropriate to adopt either modern scheme in its entirety. The scale given below was based on the contemporary farmers' estimates of the food consumption or cost of maintenance of certain classes of stock. Values were interpolated proportionally from the Danish or German schemes to make good any gaps.

Conversion factors for livestock

(Standard unit = 1 milch cow)

Animal	Livestock units per head	Animal	Livestock units per head
Dairy cow	1.00	Adult horse	1.60
Bull	1.00	Young horse	1.00
Fat ox	1.67	Foal	0.53
Steer	0.85	Sow or boar	0.40
Heifer	0.85	Fat pig	0.33
Calf	0.35	Suckling pig	0.03
Young bovine	0.50	Lowland sheep	0.20
Fowl	0.01	Upland sheep	0.14