AGRICULTURAL CHANGE IN THE LOWLANDS OF SOUTH YORKSHIRE WITH SPECIAL REFERENCE TO THE MANOR OF HATFIELD 1600 – c.1875

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CHAPTER VI

CONTINUITY AND CHANGE IN CROPS AND ANIMALS IN THE DONCASTER REGION IN THE SEVENTEENTH AND EIGHTEENTH CENTURIES

The parishes of the Manor of Hatfield which are the special concern of this study form part of a larger region which centres on Doncaster. This region provides sources of information and points of contrast and similarity which widen and deepen the understanding of agricultural change in general and of Hatfield Manor in particular. This is especially true of the Peculiar of Snaith with its wide geographical spread and its variety of soil types which has the long run of inventories the Deanery of Doncaster so unfortunately lacks. In chapter II the early seventeenth century Peculiar of Snaith inventories were used to illustrate the farming of the period before Vermuyden began his operations in the area and, inevitably as the only part the study area with inventories before c. 1685, they must be used again to give some indications of continuity and change in the seventeenth and eighteenth centuries.

The drainage work in the 1620s and 1630s in Hatfield and the Isle of Axholme only marginally touched the townships of the Peculiar of Snaith after the disastrous flooding which accompanied Vermuyden's initial errors. Several of the townships of the Peculiar had pasture land on the northern parts of Dykesmarsh through which the Dutch river was cut in the 1630s to relieve the flooding of Fishlake and Sykehouse in the Manor of Hatfield, and Snaith, Cowick and Rawcliffe in the Peculiar. Marshland was part of the area which the drainage was meant to improve but the inventory evidence for the townships of the Peculiar which shared it gives no indication that any change took place in the decades after the Dutch river was cut. Tables VI(1) and VI(2) were drawn up from the inventories to compare with the period before the drainage. The comparisons indicate that continuity in pastoral farming between the two periods is more evident than change. As is expected cattle continued to be the most important item of animal husbandry and table VI(1) shows that herd sizes had changed little over the century. Far more inventories are considered in this chapter than in chapter II but only eight inventories out of 132 carry no reference to

TABLE VI(1)
HERD SIZES IN THE TOWNSHIPS OF THE PECULIAR OF SNAITH, 1699-1726
Figures in brackets refer to 1599-1626

Number of inventory references to cattle	Townships	Small herds up to 10 head	Medium herds 11-20 head	Large herds 21-50 head	Very large herds over 51 head
45 (25)	western townships: Balne, Gowdall, Pollington, Hensall, Heck	31 (16)	7 (6)	7 (3)	0 (0)
45 (26)	central townships: Snaith, Rawcliffe, Cowick, Carleton	38 (14)	6 (9)	1 (2)	0 (1)
32 (25)	eastern townships: Goole, Hook, Airmyn, Whitgift, Reedness, Swinefleet (Ousefleet is not included as there were no inventories for 1599-1626)	18 (15)	8 (3)	5 (6)	1 (1)
Totals 124 (76)		87 (45)	21 (18)	13 (11)	1 (1)

TABLE VI(2)
ANIMAL HUSBANDRY IN THE TOWNSHIPS OF THE PECULIAR OF SNAITH (EXCLUDING CATTLE), 1699-1726
Figures in brackets refer to 1599-1626

Number of inventories	Number of inventories with references to animals	Total number of animals	Average number of animals per reference	Average number of animals in whole sample	Median average of animals per reference	Median average of animals in whole sample
HORSES						
132 (80)	116 (52)	625 (345)	5.4 (6.6)	4.8 (4.3)	4 (5)	4 (3)
SHEEP						
132 (80)	49 (20)	1,120 (475)	22.9 (23.75)	8.5 (5.9)	16/19 (19/20)	not calculable
SWINE						
132 (80)	69 (50)	214 (271)	3.1 (5.4)	1.6 (3.4)	2 (4)	not calculable (2)

ownership of cattle. Proportionately medium and large herds appear to have decreased especially in the central townships but these changes are probably more indicative of the inexact nature of the evidence than real change and overall there is little difference between the two periods. Very large herds continued to be rare: the bulk of herds, 87 out of 124, were under ten head. Table VI(2) shows a similar consistency in horses, sheep and swine. A rather larger proportion of the later inventories show horses and sheep and there is a fairly marked decline in the number of swine keepers but the mean and median figures are very similar and indicate little change in the pattern of pasture farming in the Peculiar.

The analysis of the long run of inventories in the Peculiar confirms the view stated on slighter evidence in chapter II that dairying was more important in the Peculiar than fattening. Table VI(3) makes this quite clear as out of 611 inventories which referred to ownership of cattle 553 referred to kine or cows amounting to a total of 2,060 animals. On the other hand only 32 inventories referred to beasts and the total of such references was only 217. The number of beasts described as fat or fatting is very small indeed. There were 105 references to steers with a total of 333 animals and another 105 references to young beasts totalling 217 animals which suggests that apart from dairying, raising store cattle, to be sold off elsewhere for fattening, was an important activity. This is less true of the most easterly townships of the Peculiar in the parish of Whitgift where fattening was of moderate importance, as it had been before 1626. Swinefleet, in particular, had fattening interests but even there only twelve graziers kept 108 beasts between them.

It was also claimed in chapter II that already in the early seventeenth century draught oxen were of little importance in the Peculiar. The use of oxen varied considerably in the townships over the next century and the inventories give some indication of their almost total disappearance. The farmers of the western sandland townships were the main users of oxen. In 67 inventories from these townships for the period 1627-1680 22 farmers kept 84 draught oxen. In the following period from 1681-1730 only nine farmers in 71 inventories kept 33 of them. The date of the last reference to oxen in these townships varied from 1687-1721. In the central and eastern townships of the Peculiar fewer oxen were kept and they appear to have disappeared earlier. Of the four central townships there were no references to oxen at all. Only 66 oxen were

TABLE VI(3)
TYPES OF CATTLE IN THE PECULIAR OF SNAITH, 1627-1760

Township	P.I.[1]	bulls	R[2]	kine or cows	R	calves	R	quies or heifers	R	steers	R	young beasts	R	beasts	R
Western Townships															
Balne	41	15	14	190	38	138	28	60	20	35	12	116	12	3	1
Gowdall	30	3	3	103	27	81	18	21	11	9	4	21	4	10	2
Heck	19	0	0	44	17	34	10	23	11	4	4	8	1	7	1
Hensall	21	2	2	66	19	63	16	18	9	23	9	21	3	0	0
Pollington	49	3	3	170	45	116	31	39	19	42	13	29	4	18	3
Total	160	23	22	573	146	442	103	161	50	113	42	195	24	38	7
Central Townships															
Snaith	36	3	3	96	35	40	15	20	8	32	10	11	2	11	2
Carleton	39	2	2	109	38	70	25	48	23	16	6	12	3	0	0
Cowick	105	6	6	289	94	198	63	100	48	25	9	53	19	26	5
Rawcliffe	72	8	8	235	68	121	40	69	31	16	6	63	10	21	2
Total	252	19	19	729	225	429	143	237	110	89	31	139	34	58	9

[1] P.I. refers to the number of inventories.
[2] R refers to the number of references.

TABLE VI(3), cont

Township	P.I.	bulls	R	kine or cows	R	calves	R	quies or heifers	R	steers	R	young beasts	R	beasts	R
Eastern Townships															
Airmyn	15	1	1	47	14	26	10	11	6	7	3	4	2	0	0
Goole	26	2	1	71	20	82	20	31	13	13	4	46	5	7	1
Hook	25	1	1	88	22	57	17	34	9	23	7	23	3	6	2
Total	66	4	3	206	56	165	47	76	28	43	14	73	10	13	3
Whitgift Parish															
Whitgift	23	3	3	102	21	101	16	12	8	25	4	0	0	25	3
Ousefleet	14	2	1	61	13	36	11	8	4	1	1	16	2	11	1
Swinefleet	43	2	2	191	40	211	30	24	12	8	2	44	8	50	5
Reedness	53	9	8	198	52	143	36	39	18	54	11	66	10	22	3
Total	133	16	14	552	126	491	93	83	42	88	18	126	20	108	12
Grand Total															
	611	**62**	**58**	**2060**	**553**	**1527**	**386**	**557**	**230**	**333**	**105**	**533**	**88**	**127**	**32**

mentioned in 77 inventories in Rawcliffe and 186 in the other three townships. The last reference to oxen in Cowick was in 1652 and in Carlton it was in 1660. One farmer had four oxen in Snaith in 1731 but the last previous reference was in 1659. In the eastern townships of the Peculiar six of the townships had no references to oxen, a Hook farmer had a pair in 1689 and one in Goole also had a pair in 1690. It is clear that oxen had ceased to be important draught animals, in most of the Peculiar by the Restoration, though they hung on in the western townships into the eighteenth century. Nowhere in the Peculiar were oxen as common as they were in the Hatfield township of Stainforth. Oxen were not exceptional outside the Peculiar where they hung on well into the eighteenth century. Why they did so is not clear. Soil conditions were not the explanation as they were most popular, as they were in the Peculiar of Snaith, in the sandlands where 14 farmers out of 64 inventories kept them. On the heavier, wetter soils of the lowlands where oxen, with their greater pulling power, might have been valuable, 19 farmers out of 120 inventories kept them. The average per keeper of oxen was 4.3 in the heavy soil area compared with 4.4 in the sandland but the former figure is boosted by the number of oxen kept by one man, William Fretwell of Thorpe in Balne. Thorpe was a marshy outlier of the sandland parish of Barnby Dun and had some of the stiffest clays in the region but the stiffness of the clay is not the explanation of Fretwell's enthusiasm for oxen. Fretwell's inventory dated 6 June 1695 listed them as, 'The pare of largest oxen £13, ffeather and his marrow 11-15-0, Stonyer and his marrow 10-10-0, The white faced ox and his marrow 11-10-0, The old black oxen £11, The two young draught oxen £9'. Fretwell also had sixteen horses, altogether a very considerable draught force, but although his inventory described him as 'yeoman' and he had some farming interests his main activity was in timber.[1] His ox power was needed for the heavy work of moving trees and his farming was incidental. At the end of the eighteenth century William Marshall noted that 'the timber carriers continued to use' oxen in the Vale of Pickering and also that they were 'considered as essentially necessary in an awkward hilly country',[2] a description which could not be applied to this flat area of south-east Yorkshire.

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[1] G. Jackson, (ed), 'Diary of James Fretwell', *Yorkshire Diaries I*, (1875). James was William's grandson

[2] Cited by D. Hey, *Packmen*, p97

Despite the flatness of the area the inventories show that in the parishes of Bentley with Arksey and Armthorpe oxen were still an important source of power. To a lesser extent they were still important in Cantley parish and the townships of Trumfleet. The soil conditions of these areas were very different, Bentley with Arksey and Trumfleet are heavy soil areas and Armthorpe and Cantley are on the lightest of the sands. The magnesian limestone parishes on the extreme west of the lowlands had few oxen and the low lying parish of Adlingfleet on the extreme east of the county adjacent to Whitgift and the Peculiar of Snaith townships had none at all. There seems to be no economic or topographical reason for their continued use in some townships and it seems that, as with Stainforth, it is necessary to fall back on fashion as the explanation. That this might be so is supported by the suggestion in the inventories that on the whole it was the better off farmers who continued to use oxen as a means of traction.[3] Nevertheless the main impression is of declining use. The overwhelming number of farmers only had horses and all the ox owners, apart from George Winter of Barnby Dun who died in November 1700, had horses also. Winter's son, another George, died in 1727 and his inventory included seven horses but no oxen. Many farmers still had ox-harrows among their farming equipment which implies that the use of oxen had only recently ceased. Young found that Axholme farmers used 'what they call an ox harrow, with a batten set an [on] edge under it' in preparing grass land for flax.[4] Oxen, it seems, declined rapidly in the early eighteenth century and those that were left were for special purposes, though the argument between the supporters of oxen and horses still continued at the end of the century.[5]

Horse breeding was an important activity in the newly drained lands of Hatfield and it was suggested in chapter II that it was widespread before the drainage in the Peculiar of Snaith. The post-1626 inventories confirm this and show that its importance varied from township to township. All the townships had large numbers of horse owners and most of them kept mares and a foal or a follower. The two

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[3] R. Brown, op cit. App. p40, 'Very few oxen are wrought, and those only by gentlemen in the neighbourhood of Ferrybridge'

[4] A. Young, *General View of the Agriculture of... Lincolnshire* (1813), p187

[5] R. Brown, *op cit*, pp 194 and App. p 57

townships which the inventories show to have the greatest interest in horse breeding were Cowick and Swinefleet. In Swinefleet 34 farmers kept 166 horses, mares, horses, nags and galloways, and 80 immature animals, an average of 2.35 animals per farmer. In the other eastern townships the average of immature animals was just over one except in Hook where it was two. In Cowick, in the central area of the Peculiar, 75 of 106 inventories refer to horses and of these 40 show an interest in breeding. Fourteen indicate considerable interest of whom the earliest was William Booth. Booth, who died in May 1637, had 'three Norfolk mares' as well as three other mares, two naggs, two colts (one stoned), two foals and three fillies. His interest in breeding horses is quite clear and the description of three of his mares as 'Norfolk mares' seems to imply some special quality that perhaps indicated his desire to improve his stock, though there is nothing to suggest that Norfolk horses had any special qualities at this period.[6] Another Cowick breeder on some scale was Jarvis Thornborrow who died in February 1658/9. He owned eight mares, five horses (one stoned), seven foals and four young ones. The dates of the inventories with horse breeding interest is possibly significant. There was nothing to suggest much interest in this activity in Cowick in the inventories used for chapter II; only 16 of the 40 inventories with a clear interest occur before 1680 which suggests that this activity was growing after 1680 as the use of oxen declined.

A surprising feature of the agriculture of the Manor of Hatfield discussed in the previous chapter was the unimportance of sheep revealed by the study of the inventories. The inventories for the peculiar of Snaith reveal a similar situation for all the townships except the ones on the western sandlands. The inventories for the period after 1626 confirm the pre-1626 results. In the western townships of Pollington and Hensall 40 farmers kept sheep out of a total of 75 inventories. Flock sizes averaged 30 in Pollington and 28.4 in Hensall. The lowest average in the west was in Gowdall where the average was 19, and 16 out of 32 farmers kept sheep. The farmers of the western sands, of course, folded their sheep on the arable but even so the inventories of the majority did not include them. In the township of Snaith only

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[6] N. Riches, The Agricultural Revolution in Norfolk (1937), Revised edition 1967, p106 'Norfolk had no distinctive breed of horses such as the Suffolk punch' Obviously Booth's appraisers thought that they were worthy of special note in the early seventeenth century

eight out of 46 farmers were recorded as sheep owners. Seven of them averaged 21.4 but the eighth, John Norfolk, had a large flock. Norfolk's flock was kept partly on Dykesmarsh where he had 260 sheep and partly in Snaith Hall grounds. In Rawcliffe 15 farmers out of 77 averaged 34 sheep each, 16 farmers out of 106 averaged 27.2 in Cowick and in Carlton eight out of 44 averaged slightly more. The small number of flock owners in Carlton is surprising in view of some evidence that sheep folding was practised in the township. Some of the farmers in these central townships had quite large flocks but the majority kept no sheep at all. This is true of the eastern townships also although the situation is exaggerated with even fewer farmers keeping sheep but with those who did keeping them on quite a large scale. In Hook, for example, only three farmers out of 30 kept sheep but averaged over 80. Two Swinefleet farmers out of 46 kept sheep. In Goole, Airmyn and Whitgift the inventories show sheep to have been of little significance and in Reedness there were no flocks at all. The only references to sheep in 65 inventories were '£3 for sheep' and 'sheep £1'. In Ousefleet, on the other hand, 11 of the 16 inventories record sheep and the average flock per head was 37.

Swine and poultry keeping were also of minor importance in the economy of the Peculiar though they were important to the livelihood of the individual small farmer. The majority of inventories value swine at only a few shillings and often this included the value of poultry also. Of the whole number of Peculiar inventories the largest swine-keeper was George Hopkinson of Snaith whose inventory dated August 1719 included 28 swine valued at £5-10-0. Robert Maryson of Airmyn in November 1668 and Alexander Sherlock of Swinefleet in October 1660 both had 23 swine valued at £10 and two inventories in Balne record a similar value but apart from these the larger values recorded were between £2-10-0 and £4 and there were very few of these. Nevertheless these few examples of larger values are more than can be found in the other townships of the research area. The value of poultry was also very small although many inventories recorded 'pullan' worth only a shilling or two. The large marshland pastures of much of the area could be expected to be the feeding ground for large numbers of geese but the inventory evidence does not suggest that this was the case. In the central and eastern townships of the Peculiar only about 20% of the farmers appear to have kept them. Rather surprisingly over 40% kept geese in the west where marshland grazing was less abundant or non-existent.

The survey of pastoral farming in the Peculiar after 1626 gives an impression of considerable diversity between the regions of the area in spite of the major importance of dairy cattle in all of them. Evidence of change over time is considerable as far as the decline in the keeping of oxen for draught and the increasing importance of horse-breeding is concerned but little else comes out of the analysis of the inventories of the period 1627-1760.

For arable farming, inventory evidence for this period shows its diversity but also there is ample evidence of the way in which arable farming changed over the century and a half which the evidence covers. Table VI(4) shows that over the period as a whole the order of importance of the main cereals, in terms of the number of farmers growing them, was: rye, barley, wheat and oats. Among the fodder crops beans were more important than peas, and hemp was a more important industrial crop than flax. Table VI(5), however, shows that the order of crops in terms of value was quite different. Barley was the most important cereal by value, as it was in Hatfield, followed by wheat and rye, and in spite of being grown by most farmers, rye was of little more value than oats which were the least grown of the major cereals. The calculation of value shows how much greater the importance of the culture of beans was than peas and that, although the number of hemp growers was larger than the number of flax growers, the value of flax grown was five times as great as the value of hemp. It seems that hemp which was traditionally the small man's crop grown on a small rented close continued to be so whereas flax was being grown on a larger scale by farmers with a larger arable interest.

In terms of agricultural change, however, it is more interesting to consider the figures which show how the relative importance of the crops changed over time. Until 1680 the order of importance of the major cereal crops in terms of value was barley, rye, wheat and oats. From 1681 to 1730 wheat took over from rye as the second crop and after 1731 rye dropped into fourth place below oats, and wheat had become the most important crop. Rye, which had been the major food crop in the area, had become the food of the few by this time and the preference for white, wheaten bread, long established in the south of England, was spreading north. The probate inventories show that the speed and type of change varied in the soil regions of the Peculiar of Snaith. In the central townships, around the market town of Snaith, the number of

references to crops was much the same as in the eastern and western townships but the value of crops grown was much less and although wheat emerges as the most important crop after 1731 the values of the major cereals remain very similar throughout the whole period from 1627-1760. This was not so in the east and west townships. These areas, despite the great contrast between the marshlands of the east and the poor sands of the west, were similar in that both had great arable interests and in them changes over time were marked. In the east the domination of barley was great before 1680. It declined in importance rapidly between 1681 and 1730 and after 1731 the expansion of wheat at the expense of all the other cereals was marked. In the west from a situation of relatively similar values of cereals before 1680 wheat emerged as the leading crop during the intermediate period and retained this position after 1731 when oats too grew significantly in importance. There was little interest in the minor cereals in the Peculiar as a whole. Maslin had few references and little value. The old cereals disappeared almost completely with only three inventory references to bigg and nine to skeg and with no references to either after 1731 although, according to the Board of Agriculture's surveyor for Nottinghamshire, skeg was making a comeback there in the late eighteenth century.[7]

As probate inventories decline as a source of information on cropping, evidence of the changes that were taking place must be sought in the returns requested by the government in 1801 to help in its assessment of the wartime food situation.[8] Unfortunately, the government only requested information on a few crops, and even more unfortunately many of the parochial clergy of the area, who were responsible for making the returns, failed to do so. A further difficulty is that the 1801 Returns were based on acreages whereas the earlier calculations based on probate inventories were in cash values except for a small proportion of inventories where there was evidence of crop acreages. Nevertheless, there is enough evidence to provide a basis for a rough comparison with the tables VI(5) to VI(11) although in the Peculiar of Snaith comparison presents special difficulties. The incumbent of Snaith had the difficult task of collecting information from 11 separate townships each one with its

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[7] R. Lowe, *General View of the Agriculture of the County of Nottinghamshire* (1798), p.33 'Skegs are remarkably good for horses, in the straw or threshed, and in the straw remarkably so for cows'
[8] P.R.O., HO/67

TABLE VI(4)
REFERENCES TO CROPS ON PROBATE INVENTORIES IN THE PECULIAR OF SNAITH, 1627-1760

	wheat	rye	barley	skeg	big	maslin	corn	liquorice	mustard	hops	oats	peas	beans	vetch	rape	turnips	clover	hemp	line
western townships inventories 170 references 155	72	95	85	7	2	7	68	0	0	0	63	68	26	0	1	7	10	27	28
central townships inventories 264 references 236	68	125	92	1	0	6	92	2	0	0	68	23	27	2	2	0	4	69	49
eastern townships inventories 220 references 205	87	62	92	1	1	8	94	0	3	2	89	4	104	0	0	0	1	90	89
TOTALS inventories 654 references 596	227	282	269	9	3	21	254	2	3	2	220	95	157	2	3	7	15	186	166

TABLE VI(5)
VALUE* OF CROPS ON PROBATE INVENTORIES IN THE PECULIAR OF SNAITH, 1627-1760

	wheat	rye	barley	'corn' including maslin, skeg and other small crops	oats	peas	beans	turnips	clover	hemp	line
western townships	662.1.1	467.2.8	533.16.8	£724.7.6	379.16.11	148.11.8	136.19.2	62.5.6	80.11.1	9.3.0	123.12.8
central townships	281.3.4	325.2.1	314.16.10	£286.16.9	203.16.8	21.15.0	47.6.6	nil	7.12.6	48.19.7	115.14.0
eastern townships	674.5.9	331.2.4	927.19.2	£1,141.10.8	316.8.0	8.0.0	446.16.2	nil	2.0.0	93.10.0	494.6.11
TOTALS	1,617.11.2	1,123.7.1	1,776.12.8	£2,152.14.11	900.1.7	178.6.8	631.1.10	62.5.6	90.3.7	151.12.7	733.13.7

TABLE VI(6)
NUMBER OF PROBATE INVENTORY REFERENCES TO CROPS IN THE PECULIAR OF SNAITH, 1627-1680

	wheat	rye	barley	skeg	big	maslin	corn	liquorice	mustard	hops	oats	peas	beans	vetch	rape	turnips	clover	hemp	line
western townships inventories 67	24	46	37	4	2	5	23	0	0	0	24	29	7	0	0	0	0	23	12
central townships inventories 133	33	73	63	1	0	5	47	2	0	0	32	19	17	1	2	0	0	56	21
eastern townships inventories 116	42	28	56	0	0	8	39	0	3	1	59	2	65	0	0	9	0	66	40
TOTAL inventories 316	99	147	156	5	2	18	109	2	3	1	115	50	89	1	2	0	0	145	73

TABLE VI(7)
VALUE OF CROPS ON PROBATE INVENTORIES IN THE PECULIAR OF SNAITH, 1627-1680

	wheat	rye	barley	'corn' including skeg, big, maslin and other lesser crops	oats	peas	beans	turnips	clover	hemp	line
western townships	198.8.4	257.6.11	272.17.6	£264.0.4	131.8.2	72.13.0	27.13.0	nil	nil	7.13.0	7.13.4
central townships	131.8.2	202.13.10	179.5.0	£105.3.8	73.18.6	13.11.0	25.3.6	nil	nil	35.13.0	16.14.9
eastern townships	109.12.7	109.18.0	446.0.4	£373.9.4	199.14.6	6.0.0	239.14.6	nil	nil	14.14.4	69.10.8
TOTALS	439.9.1 (16.29)	596.18.9 (21.12)	898.2.10 (33.29)	£724.13.4	405.1.2 (15.03)	92.4.0 (3.41)	292.11.0 (11.9)	nil	nil	58.0.4	93.18.9

Figures in brackets are the percentage of the value of those crops included in the 1801 Crop Returns only.

TABLE VI(8)
NUMBER OF PROBATE INVENTORY REFERENCES TO CROPS IN THE PECULIAR OF SNAITH, 1681-1730

	wheat	rye	barley	skeg	big	maslin	corn	liquorice	mustard	hops	oats	peas	beans	vetch	rape	turnips	clover	hemp	line
western townships inventories 72	33	36	31	3	0	0	30	0	0	0	25	30	9	0	1	0	0	4	12
central townships inventories 75	19	34	18	0	0	1	34	0	0	0	19	2	7	0	0	0	1	11	15
eastern townships inventories 74	33	32	30	1	1	0	51	0	0	0	26	2	30	0	0	0	0	23	40
TOTAL inventories 216	85	102	79	4	1	1	115	0	0	0	70	34	46	0	1	0	1	38	67

TABLE VI(9)
VALUE OF CROPS ON PROBATE INVENTORIES IN THE PECULIAR OF SNAITH, 1681-1730

	wheat	rye	barley	'corn' including skeg, big, maslin and other lesser crops	oats	peas	beans	turnips	clover	hemp	line
western townships	259.8.3	149.12.3	145.12.3	£249.2.2	92.3.9	60.13.8	50.12.2	nil	nil	1.10.0	99.15.4
central townships	70.19.2	65.9.3	62.16.4	£129.7.1	72.6.2	2.10.2	11.13.0	nil	2.5.0	8.14.7	24.14.9
eastern townships	284.4.8	199.4.4	463.13.4	£676.1.4	92.17.6	2.0.0	155.1.8	nil	nil	72.15.8	366.16.3
TOTAL	614.12.1 (27.42)	414.5.10 (18.48)	672.2.5 (29.99)	£1,054.10.7	257.7.5 (11.48)	65.3.8 (2.91)	217.6.10 (9.6)	nil	2.5.0	83.0.3	491.6.4

Figures in brackets are the percentage of the value of those crops included in the 1801 Crop Returns only.

TABLE VI(10)
NUMBER OF PROBATE INVENTORY REFERENCES TO CROPS IN THE PECULIAR OF SNAITH, AFTER 1731

	wheat	rye	barley	skeg	big	maslin	corn	liquorice	mustard	hops	oats	peas	beans	vetch	rape	turnips	clover	hemp	line
western townships inventories 26	15	13	17	0	0	2	15	0	0	0	14	9	10	0	0	7	10	0	4
central townships* inventories 33	16	18	11	0	0	0	11	0	0	0	17	2	8	1	0	0	3	2	13
eastern townships inventories 20	12	2	6	0	0	0	4	0	0	1	4	0	9	0	0	0	1	1	9
TOTAL inventories 79	43	33	34	0	0	2	30	0	0	1	35	11	27	1	0	7	14	3	26

*There were also three references to potatoes and one to 'lentiles' all in Cowick.

TABLE VI(11))
VALUE OF CROPS ON PROBATE INVENTORIES IN THE PECULIAR OF SNAITH, AFTER 1731

	wheat	rye	barley	'corn' including skeg, big, maslin and other lesser crops	oats	peas	beans	turnips	clover	hemp	line
western townships	204.5.6	60.3.6	115.6.11	£231.5.0	156.5.0	15.5.0	58.14.0	62.5.6	80.11.1	nil	16.4.0
central townships	78.16.0	56.19.0	72.15.6	£52.12.0	57.12.0	5.14.0	10.10.0	nil	5.7.6	4.12.0	74.4.6
eastern townships	280.8.6	22.0.0	18.5.0	£92.0.0	23.16.0	nil	52.0.0	nil	2.0.0	6.0.0	58.0.0
TOTAL	563.10.0 (41.55)	139.2.6 (10.25)	206.7.5 (15.21)	£375.11.0	237.13.0 (17.52)	20.19.0 (1.54)	121.4.0 (8.93)	62.5.6 (4.59)	87.18.7	10.12.0	148.8.6

Figures in brackets are the percentage of the value of those crops included in the 1801 Crop Returns only. Potatoes were 0.36% of the total value of those crops.

own farming system. He ignored the smaller ones and commented on the return form that the acreages he gave contained 'The produce of seven townships'.[9] Unfortunately, he did not state which townships they were but, as separate returns were submitted for the chapelries of Rawcliffe and Carlton among the central townships and for Airmyn in the east, it can be assumed that the seven were: Snaith itself, Cowick, which was closely tied to Snaith agriculturally, and the largely sandland townships of the west of the parish, Gowdall, Heck, Hensall, Pollington and Balne. The other part of the Peculiar, the parish of Whitgift, also had a return on which the incumbent commented 'Swinefleet being in the Parish of Whitgift and a Chapel of Ease to Whitgift is included'.[10] Ousefleet and Reedness, also townships within Whitgift parish were not mentioned but as they were very small it can be assumed that their agriculture was subsumed with that of the kirktown.

There is much better coverage of the Peculiar in the 1801 Returns than the rest of the research area but even so direct comparison with the earlier cereal material is difficult because of the mixture of central and western townships that the Returns represent and, as the tables VI(4) to VI(11) show, these areas differed considerably. Nevertheless, tables VI(12) and VI(13), drawn up from the 1801 Returns, show fairly clearly that the major trends of the period after 1627 had not changed in any fundamental way. Wheat had maintained its position as the leading cereal in the east with the 1801 percentage of 39.43 of the arable acreage comparing well with the 41.55 percentage of value in the period 1731-1760 in table VI(11). The continued smaller importance of wheat in the central townships is reflected in the 1801 percentage of 31.27% of the arable given to it in the western and central townships where an expected higher proportion in the west is reduced by the low percentage of the centre. Barley percentages continued to be low with the difference between the eastern and western townships continuing to be clear. The decline of rye, which had been so important in the early seventeenth century, was almost complete in 1801. The decline in the rye and barley acreage was made good, to a large extent, by the rise of oats into second place in the order of crops and by beans which had also

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[9] P.R.O., HO/67/26/386
[10] P.R.O., HO 67/26/453

TABLE VI(12)
ACREAGE OF CROPS IN THE CENTRAL AND WESTERN TOWNSHIPS OF THE PECULIAR OF SNAITH IN THE 1801 CROP RETURNS

	wheat	barley	oats	potatoes	peas	beans	turnips/rape	rye	Total
Carlton	300	150	300	40	10	30	40	70	940
Snaith	1576.25	783	1423	383	2	517.5	534.5	440.5	5658.75
Rawcliffe	707.75	24.75	357.25	182	0	358	31.75	13.25	1674.75
Total	2584	957.75	2080.25	604	12	905.5	606.25	523.75	8263.5
Percentages	31.27	11.59	25.17	7.3	0.14	10.95	7.33	6.33	

TABLE VI(13)
ACREAGE OF CROPS IN THE EASTERN TOWNSHIPS IN 1801

Whitgift	707.75	24.75	357.25	182	0	358	31.75*	13.25	1674.75
Airmyn	492	2.5	314	196	6	294	55.5	27.5	1367.5
Total	1199.75	27.25	671.25	378	6	652	87.25	40.75	3042.75
Percentages	39.43	0.89	22.06	12.42	0.19	21.43	2.86	1.33	

*Described as 'all turnips'.

increased significantly in importance. The growth in importance of these two crops is possibly an indication of wartime demand for horse fodder but it is more likely to be a longer term response to the growing importance of horse breeding in the peculiar which was noted earlier. Turnips and rape only made a small impact in the eastern townships according to the Returns and a larger one in the west and centre. Brown commented on the 'great quantities of turnips and those of good quality, in spite of sowing broadcast they were rescued by the skill of the hoers'.[11] Brown's remarks were specifically referring to Snaith though 25 years earlier Arthur Young had stated that on the sandlands between Ferrybridge and Howden turnips were sown 'in some quantities' but that they were seldom hoed and the whole 'very indifferently cultivated'.[12] The most important of the new crops was potatoes which had risen from a minute proportion of the acreage in the period before 1760 to 12.42% in the east and to 8.6% in the west by 1801. This important development will be dealt with more appropriately in chapter VIII.

Outside the Peculiar of Snaith agricultural change and diversity can also be studied in probate inventories but, unfortunately, only from the late seventeenth century. In this part of the research area which covers the area bounded by Bawtry on the borders of Yorkshire in the south, the Manor of Hatfield in the east, the river Aire in the north and in the west a complex group of parishes nominally on the magnesian limestone but sharing on their eastern parts the characteristics of the adjacent lowlands. There are three main agricultural regions. As in the Manor of Hatfield and the Peculiar of Snaith the agricultural regions do not equate with the parish structure and townships have to be the basis of study except in the small sandland parishes such as Armthorpe and Cantley. The region consists of an area of sandland which merges with the Sherwood Forest sands in the south and the Hatfield sands in the east. The northern limit is that part of the Parish of Barnby Dun lying to the east of the river Don. North-west of the Don is an area of low, heavy land, with a tendency to flood which has Doncaster as its southern limit, the sandlands of the Peculiar of Snaith as its northern limit and the ridge of magnesian limestone as its western limit. The third

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[11] R. Brown, *op cit*, Appendix, p 38
[12] A. Young, *Northern Tour* (1770), p 358

region is the low lying part of the magnesian limestone to the north and south of Doncaster. Much of this region, such as Moss and Fenwick which were townships of Campsall, quite clearly belongs to the area of low, heavy, flooding land and is treated as such in this section, but in other parts the position is not so clear and although the land is low-lying its agriculture was influenced by the higher regions of magnesian limestone to the west.

Analysis of probate inventories from 1690-1760 in the lower heavy soil region gives the following order of crops by value:

1.	wheat	(46.5%)[13]	6.	peas	(5.0%)
2.	barley	(17.9%)	7.	rye	(2.8%)
3.	beans	(16.4%)	8.	rape	(1.6%)
4.	oats	(9.8%)	9.	clover	
5.	flax		10.	hemp	

The domination of wheat is very clear and reflects the importance of wheat in Sykehouse in the Manor of Hatfield and the eastern townships of the Peculiar of Snaith where the soil was similarly wet and heavy. Unfortunately, the values are very approximate owing to the nature of inventory evidence and the difficulty of sorting them accurately into soil regions. There is not a great deal of other evidence to check against the inventory results although the tithe records of the Owston estate for the period 1763-1771, immediately after the inventory results cease, show that some reliance can be placed on them. Owston is one of parishes on the magnesian limestone but a large part of its eastern and southern area is low and liable to flooding and even the central and western parts show more of the characteristics of the lowland area than of the magnesian limestone parishes in the higher west. The proportion of the four main crops collected for tithes in the parish was, wheat 34%, beans 27.7%, oats 23.5%, and barley 14.8%. The importance of wheat is not as great and barley has declined in importance compared with beans and oats but, in general,

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[13] The percentage value of crops on the inventories has only been calculated for those crops which appear on the 1801 Returns.

the figures confirm the position shown by the inventory analysis. The tithe figures omit the lesser crops grown on the estate and it is clear from other data that 'beans' included both peas and lentils. Also blendcorn was included with the wheat after 1763, when it was listed separately, but it was always a very small amount. Another minor crop occurring in the accounts once, in 1765, was rape where expenses for 'stubing and burning Ruff Close' and the sale of the resultant crop for £42 showed that the old practice of sowing rape on newly cleared ground continued and that it did not form part of the regular cropping sequence. Purchases of rye show that it was still used in the household of the lord of the manor who was also the tithe owner but it does not appear to have been grown in the parish at all.[14] There was no indication of the growing of potatoes in the inventory survey though a survey of the Owston estate in 1768 refers to a 'Potatoe Flat' in Woodfield[15] and in Young's Eastern Tour of 1771 he remarked that Anthony Wharton who farmed the carr lands to the immediate south of Doncaster was feeding potatoes that he had grown to his pigs.[16]

The order of importance of crops shown by the 1801 Crop Returns is as follows:

1.	wheat	(45.7%)	5.	potatoes	(3.1%)
2.	oats	(29.5%)	6.	turnips/rape	(2.2%)
3.	beans	(11.6%)	7.	rye	(0.6%)
4.	barley	(6.2%)	8.	peas	(0.5%)[17]

The nature of the crops included in the Survey and possibly the changes in the hierarchy since 1760 could reflect wartime needs and anxieties especially the rise in importance of the horse fodder crops. A clearer picture of the changes since 1760 can possibly be derived from the figures collected by the Board of Agriculture's surveyors as the war began. The response to the request for information produced replies from the same parishes as in 1801 though their nature was more varied than in the later year. The incumbent of Adlingfleet, for instance, replied that 76.8% of the

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[14] Doncaster Archives, Davies Cooke Papers, DD DC/E11/5 Account Books 1763-1772
[15] *Ibid.*, DD DC/E3/1/3, Owston Field Book, John Flintoff Survey 1768
[16] A. Young, *Eastern Tour*, (1771), p340
[17] P.R.O. H.O./67 Figures for those parishes within the Deanery of Doncaster are taken from D. Hey, 'The 1801 Crop Returns for South Yorkshire', *Y.A.J.*, Part 168, 1970, pp 455-464

cultivated ground was under grain, without specifying the type, 10% under potatoes, 6.6% under rape and turnips and 6.6% under flax.[18] For Birkin a little more detail was given showing wheat 43.5% (43.4% in 1801), oats 31.06% (32.6% in 1801), barley 13.3% (11.5% in 1801) and beans 12.04% (5.6% in 1801) and for Kirk Bramwith a full breakdown was given as follows:

		1801			1801
1.	oats	(31.2%/29/1%)	5.	barley	(4.58%/3.46%)
2.	wheat/maslin	(30.63%/41.6%)	6.	flax	(2.13%)
3.	beans	(22.9%/20.7%)	7.	turnips	(1.42%/2.7%)
4.	clover	(5.83%)	8.	potatoes	(1.2%/1.2%)[19]

These three parishes show how much the position might have changed between the beginning of the war and 1801. It can be assumed that some of the change such as the great increase in wheat growing in Kirk Bramwith, without, apparently, sacrificing any other crop, was a direct outcome of the grain shortages of the mid-1790s. On the other hand the figures for Birkin show no change except for an unexpected fall in the acreage of beans grown. The earlier returns are also valuable in showing the continued significance of the crops ignored in 1801, clover and flax. The Cooke papers also give information which helps to put the 1801 figures into perspective and to throw further light on the gaps. A survey of the Owston estate in 1793 is one of several undertaken after 1768 but is the only one to give a breakdown of the crops grown. These are as follows:

1.	oats	(39.9%)	4.	clover	(6.2%)
2.	wheat	(34.1%)	5.	seeds	(4.6%)
3.	beans	(12.8%)	6.	rape	(2.6%)[20]

These figures for Kirk Bramwith and Owston at the beginning of the French war seem to indicate an increase in wheat growing after the disastrous years of the

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[18] R. Brown, *op cit*, Appendix, p87
[19] *Ibid.*, *Appendix*, p 110
[20] Doncaster Archives, Davies Cooke Papers, DD DC E3 1/7, Owston Survey 1793,

mid-1790s in spite of the growth in demand for horse fodder that the war and the industrial and transport changes of the period brought about. Also interesting is the total absence of barley from the Owston figures and the distinction made between clover and seeds. Seeds are rarely mentioned in the research area and it is tempting to assume either than they were rarely grown or that they were subsumed under clover though it is known that in the first decade of the eighteenth century they were available for sale in Doncaster as John Wasteneys of Edlington brought them there.[21] Also sainfoin was grown 'a good deal' between Ferrybridge and Tadcaster on the magnesian limestone immediately to the north of the research area according to Brown in the 1790s.[22] The implication that barley had disappeared entirely from the cropping course in Owston is clearly false as in 1794 another survey was made which only described land as arable, meadow or pasture except for three references to barley and odd references to wheat, oats and clover which shows that, whilst no doubt much declined from its former importance, barley had not disappeared from the crops of the parish.[23] It is also a salutary reminder that the figures from the survey of 1793 like those for 1801 are only a snapshot of one particular year whereas those from the probate inventory survey of 1690-1760, whatever their other failings, cover a large area and many years and possibly, therefore, give a more accurate picture of the farming situation of the area than figures for single years do.

The 1801 Returns also treat parishes as single farming units when, particularly in this region, they were not so. Barnby Dun, for instance, comprised two very different parts. The main part of the parish was sandland but Thorpe in Balne, across the river Don from the kirktown, formed part of the low-lying and wet Thorpe Marsh which had some of the heaviest clayland in the whole of the research area. The Davies Cooke Estate included a large part of Thorpe in Balne and a survey of one Thorpe farm for 1798 showed that its crops were, wheat (38.9%), oats (25.7%), beans (21.8%) and clover (13.5%) which was very different from the wheat, barley, turnip

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[21] D. Hey, *Packmen*, p173
[22] R. Brown, *op cit*, p 116
[23] Doncaster Archives, Davies Cooke Papers, DD DC/E3/18, A Survey of Owston copied from several earlier surveys, 1794

culture of the parent sandland township.[24] The cropping pattern of the sandland parishes was indeed very different from the marsh lands and akin to that of townland Hatfield and the western townships of Snaith. The pattern revealed by the probate inventory analysis for 1690-1760 is as follows:

1.	barley	(36%)	6.	rape)	(5%)
2.	rye	(36%)	7.	turnips)	
3.	wheat	(10%)	8.	clover	
4.	peas	(7%)	9.	line	
5.	oats	(6%)	10.	beans (1%)	
			11.	maslin, bigg and skeg[25]	

With over 70% of the value of crops the domination of barley and rye is very clear before 1760 and whilst the new crops make an appearance maslin and the old poor sand crops have almost disappeared as they had in the sandlands of the Peculiar of Snaith. By 1801 the cropping pattern had changed greatly. It remained very different from the heavy soil pattern but some changes in the same direction had occurred notably the decline in rye growing which, though not as steep as in the other areas, was still very considerable. Wheat had also grown in importance but, again, not so steeply as in the sandlands of the Peculiar of Snaith. The order of crops derived from the 1801 survey was as follows:

1.	barley	(29.25%)	5.	rye	(13.1%)
2.	turnips/rape	(21%)	6.	potatoes	(3%)
3.	wheat	(18.67%)	7.	beans	(2.7%)
4.	oats	(13%)	8.	peas	(1.4%)[26]

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[24] Doncaster Archives, *ibid.*. DD DC/E3/4/5, Observations on Chas. Walker's farm at Thorpe, 1798. The response to Brown's questions in 1793 divided Barnby Dun into three and gave information on two but not on Thorpe in Balne.

[25] Percentages of value only given for those crops which are included in the 1801 Returns.

[26] P.R.O./H.0/67 and D. Hey, 'The 1801 Crop Returns for South Yorkshire', *Y.A.J.*, Part 168, 1970, pp 455-464

Oats had clearly grown much in importance and peas, a traditional sandland crop, had become the lesser of the pulses but the most significant element in the 1801 figures is the rise of turnips to major importance as the evidence makes it clear that rape was a very small element in the turnip/rape combination. Clover too had also increased in importance though, of course, it does not figure in the 1801 Returns. A survey of Barnby Dun c.1802 gives an illustration of these points. 'The township of Barnby Dun consists of 1133 acres of which one year with another there may be about 600 acres in tillage, a fifth of which in every year wheat, another barley, another clover, another turnips, another fallow'. The same survey gave identical proportions for the township of Sand Bramwith, another part of Barnby Dun parish.[27] The proportions given are obviously a rough and ready estimate and unfortunately the figures given by Brown do not clarify the position as the crops given for 1792 are: wheat 24.9%, clover 24.9%, and barley and oats 50.1%.[28] It can be assumed, given the importance of barley in the sandlands that oats were only a small proportion of the 50.1% and that the turnips were treated as a fallow crop and were, therefore, not considered worthy of mentioning, though the survey of 1802 in mentioning both turnips and fallow shows that turnips had not ended the practice of fallowing in this parish.

For Armthorpe the returns published by Brown gave the cropping course only which was: turnips, barley two thirds, oats one third; wheat and rye and clover fallow in the fourth year. Brown commented that this must be a mistake as wheat would not be sown on barley stubble but after the clover.[29] The incumbent of Kellington confirmed Brown's opinion for, although he did not send details of the cropping in Kellington, he reported that the fallows were sown with turnips then barley, clover and hard corn. He also stated that 'A great deal of the land [is] sown with Seeds and eat with Sheep'.[30] In 1771 Arthur Young had given the course at Cantley, the next parish to Armthorpe, as turnips, barley, clover and some wheat with some oats and peas.[31] This course and his comment as he passed between Ferrybridge and Howden through

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[27] Doncaster Archives, Davies Cooke Papers, DD DCE3/4/6
[28] R Brown, *op cit*, Appendix, p 90
[29] *Ibid.*, p 89
[30] *Ibid.*, p 97
[31] Young, *Northern Tour*, p 108

the sands of the northern part of the research area that 'turnips they sow in some quantity'[32] goes far to show that the indications of the inventory evidence after 1760 had developed and that turnips were well established by the third quarter of the eighteenth century. Young did not, of course, approve of the method of cultivation and his praise was reserved for the well-to-do experimenters who were growing potatoes, carrots, cabbages, lucerne and plantains on the sands around Doncaster.[33]

William Marshall described the magnesian limestone of the West Riding of Yorkshire as a 'natural district' which, he complained, was one of the many such districts obscured by the Board of Agriculture's obsession with counties as the basis of the agricultural surveys of the late eighteenth century. He considered that it had a better climate than much of the region and, in many parts, a deep fertile soil on a sound calcareous base; forming arable land of the first value'.[34] He was right to modify his description for, in other parts this natural division was not so suitable for arable farming. On the highest parts, for instance, the soil was often very thin and ploughing had to cope with large amounts of limestone, often in very large pieces and in the lower parts on the eastern side of the ridge the land suffered from a great deal of flooding and was little different from the adjacent wetland. It is this latter area which makes up the third division of the Doncaster region outside the Manor of Hatfield and the Peculiar of Snaith. The parishes in this area varied greatly in size, varying from the huge parish of Campsall with its seven townships to the much more typical small, one township parish, of Adwick le Street. They varied too in the amount of the parish which flooded and was therefore appropriate for this study. Campsall kirktown was largely magnesian limestone, but Sutton, Norton and Askern had only small areas on the limestone and much larger areas of low flooding land and the three other townships of Moss, Fenwick and Haywood were all well away from the limestone and frequently flooded. Bentley with Arksey had only a small amount of higher magnesian limestone on its western boundary and most of Bentley and all of Arksey was low alluvium. Brown recognised the variety of soils in these parishes

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[32] *Ibid.*, p 358
[33] *Ibid.*, pp 102-107
[34] W. Marshall, *The Review and Abstracts of the County Reports of the Board of Agriculture*, Vol I, 1808, p 330

describing one farm in an unnamed parish 'six miles from Doncaster' as having soil, 'limestone, clay and moor'. The crops sown on it were 23 acres of wheat, 9 acres of barley, 23 acres of oats and 5 acres of beans. He described another farm as having limestone and clay soils which grew, 22 acres of wheat, 12 of barley, 8 of oats and 5 of beans.[35] Analysis of probate inventories for 1690-1760 show crops in the following order of value:

1.	wheat	42.6%	5.	oats	5.69%
2.	barley	31.26%	6.	beans	3.16%
3.	peas	8.37%	7.	clover	
4.	rye	8.13%	8.	rape	0.72%[36]

The order and percentages of acreage in the 1801 returns was:

1.	wheat	32.0%	5.	beans	4.7%
2.	barley	27.0%	6.	peas	4.47%
3.	oats	19.32%	7.	rye	1.6%
4.	turnips/rape	9.65%	8.	potatoes	1.23%

The familiar pattern of the rise of oats in importance and the decline of rye is once again shown and turnips which are not mentioned on the inventories have risen to fourth place in importance since 1760. Rape was no more significant than it was in the inventories for three out of the four incumbents who answered the questionnaire noted that the figures for 'turnips/rape' were in fact 'all turnips'.[37] This apparent late adoption of turnips is paralleled by the small importance given to clover. Although clover figures in the inventory analysis of inventories it was only seventh in importance and Brown's breakdown of crops for two parishes, Edlington and Tickhill shows that it was still not grown everywhere. Edlington grew grass on one quarter of its arable acreage, one quarter was fallow, one quarter was wheat or barley and one quarter was peas, beans and oats. Tickhill had one third of the arable turnip

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[35] R. Brown, *op cit*, Appendix, p 92
[36] Percentages are only given for crops included in the 1801 Survey.
[37] D. Hey, 'The 1801 crop returns for South Yorkshire', *YAJ*, pp 460-461

and fallow, one third barley and oats and one third wheat and clover.[38] No clover was grown either on the two farms described above.

Although the cropping patterns of the regions making up this corner of the historic West Riding differed and there was a considerable variation in the way the regions were affected by the new agriculture the changes can be summarised as a great rise in the importance of wheat at the expense of rye and barley, significant rises in the fodder crops, oats and beans and lesser, but important, rises in the amount of the new crops, clover, turnips and potatoes grown. Initially potatoes, like clover and turnips, were seen primarily as fodder crops and the growth in the importance of all these crops, except wheat, illustrates the continuing importance of pasture farming in the area in spite of the absence of sources of evidence after probate inventories become rare. The value of animals during the inventory period of 1690-1760 amounted to £14,908-18-6 compared with £8,082-3-11 for crops. Several reasons were suggested in chapter II to suggest that inventory evidence exaggerates the value of animals in relation to crops; nevertheless, the balance in favour of animal farming seems clear enough. The above figures are for the whole of the research area outside Hatfield Manor and the Peculiar of Snaith and when they are broken down into the different regions which make up the Doncaster area they show that pasture farming like arable differs with the soil conditions. In all the area by far the most important animals were cattle. In the low-lying marshlands the value of all animals was £5,557-3-6 with cattle accounting for £3,082-5-0, compared with a total crop value of £3,556-3-6. Horses and sheep were worth £1,838-15-0 and £636-3-6 respectively. On the sandlands animals were worth £4,613-10-2 and crops £2,274-17-0. On the magnesian limestone fringe animals were worth £2,738-5-10 and crops £2,251-3-8. With horses removed from the value of animals, as mostly working stock, the value of crops and animals on the marshland was very similar, and on the magnesian limestone the value of animals was below that of crops but, on the sandlands the value of animals was still about one fifth more than crops. These figures are summarised in table VI(14) and clearly bring out the importance of cattle, the relative unimportance of sheep in the marshland and the magnesian limestone fringe and the much greater

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[38] R Brown, *op cit*, Appendix, p 103

TABLE VI(14)
A COMPARISON OF THE VALUE OF ANIMALS AND CROPS FROM PROBATE INVENTORIES IN THE DONCASTER REGION, 1690-1760 (excluding the Manor of Hatfield and the Peculiar of Snaith)

	CATTLE			HORSES			SHEEP				
No. of Prov. Invs.	number of references	average herd size	average herd value	number of references	average number kept	average value	number of references	average flock size	average flock value	total value of animals	total value of crops
MARSHLAND											
118	113	11.6	£27.5.0	103	5.98	£17.17.0	52	47.47	£12.4.0	£5,557.3.6	£3,556.3.6
SANDLAND											
67	55	23.1	£41.0.0	63	7.14	£17.0.0	43	114.0	£29.17.6	£4,613.10.2	£2,274.17.9
MAGNESIAN LIMESTONE											
63	61	10.18	£21.4.0	56	5.35	£12.19.6	32	48.4	£13.16.0	£2,738.5.10	£2,251.3.8

importance of both cattle and sheep on the sandlands. This is a clear indication of the importance of sheep in maintaining the fertility of the poor soils and also that much of the land could only grow grass on which the cattle were grazed. The cattle grazing emphasis of the sands is illustrated in table VI(15) which shows the smallest proportion of herds under ten head and larger proportions of medium and large herds. The sands also are the only part of the region with very large herds, over 50 head.

After 1760 pasture farming continued to be very important. Arthur Young's remarks on experiments among the gentry refer almost entirely to fodder crops. At Bawtry he refers to experiments with Scotch cabbage and with carrots for feeding cattle sheep and swine on the sandland.[39] At Doncaster he refers to Wharton of Carr House also growing cabbages on the carrs and sands for fattening cattle and potatoes for feeding swine.[40] Cooke of Wheatley also on the sands was growing potatoes to feed cattle and hogs.[41] Young also commented on the quality of the pastures around Doncaster and that the farmers preferred short-horn cattle.[42] Twenty years after Young was touring the district, Bryan Cooke, the squire of Owston, made a list of his farming stock. He listed ten dairy cattle, seven fatting beasts and four draught oxen, unfortunately he made no mention of their breed.[43] 'A Farmer' writing to the *Yorkshire Journal*, mainly about sheep, stated that the local breeds needed improvement but made no suggestion as to how this should be done[44] but, one of Brown's correspondents, a Mr Parkinson, suggested the importation of Craven (longhorn) bulls. The local preference for the shorthorn is reputed to be a result of the Dutch influence in the seventeenth century but there is little real evidence for this. However, the influence of the new improved shorthorn from the north-east of England was already appearing in the early 1790s. J.R. Walton's maps show the improved shorthorn to be creeping into the most northerly part of the county by

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[39] A Young, *Northern Tour*, p 102
[40] *Ibid.*, pp 105-109
[41] A Young, *Eastern Tour*, p 341
[42] *Ibid.*, p 369
[43] Doncaster Archives, Davies Cooke MSS, DD DC E9/11, November 1792, Doncaster Archives
[44] *Yorkshire Journal*, 21 March 1789

TABLE VI(15)
HERD SIZES IN THE DONCASTER REGION FROM PROBATE INVENTORIES, 1690-1760
(excluding the Manor of Hatfield and the Peculiar of Snaith)

	small herds up to 10 head	medium herds 11 to 20 head	large herds 21 to 50 head	very large herds over 50 head
MARSHLAND TOWNSHIPS	43.24%	31.53%	25.22%	none
SANDLAND TOWNSHIPS	29.68%	32.81%	31.25%	6.25%
MAGNESIAN LIMESTONE TOWNSHIPS	54.23%	32.20%	13.55%	none

1800[45] but an advertisement in the *Yorkshire Journal* of 7 April 1792 shows that it had reached south Yorkshire earlier:

> A Bull of the short Horned Kind will serve cows this season at Mr John Turner's North Elmsall at Half a Guinea a cow. He was bred by, and hired of Mr Collings, of Brampton, in the County of Durham[46]

To what extent the influence of this sire spread is not known but it is known that the area produced good cream cheeses. Miller writing in the very early nineteenth century mentioned the 'luxurious meadows' of Owston which produced 'excellent hay and the best cream cheeses in the neighbourhood'.[47] Such local cheeses were still being sold in Doncaster market during and after the Second World War.

Bryan Cooke was more specific about his sheep. His main flock consisted of 49 Leicester ewes and, interestingly, he had another three ewes which he described as 'Spanish'; these were presumably merinos. Merino sheep were spreading in England at the same time as Leicesters and Fussell states that although they became popular in Europe at the end of the eighteenth century and that 'England too had her enthusiasts', such that a merino society was formed, merinos never really caught on as 'the sheep was not suited to the requirements of English breeds, having little capacity for putting on flesh'.[48] The same could not, of course, be said about the Leicester. Bakewell's improved breed rapidly became famous for the speed with which it grew to maturity and it was in great demand in areas like the north-east coalfield where the miners demanded very fat meat. It also had many disadvantages so that it never replaced the native sheep in Lincolnshire.[49] It was also too slow in spreading in the Doncaster region to satisfy Bakewell and his supporters so that an advertising campaign disguised as concern for the national welfare was launched in the *Yorkshire Journal*. The campaign was started by the letter from 'A Farmer' mentioned above, he claimed that Dishley sheep had already shown themselves to be

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[45] J.R. Walton, 'The Diffusion of the Improved Shorthorn Breed of Cattle in Britain during the Eighteenth and Nineteenth Centuries', *Trans. Inst. Brit. Geogrs.*, new series, IX, 1984, Figure 1
[46] *Yorkshire Journal*, 7 April 1792
[47] E. Miller, *op cit*, p 292
[48] G.E. Fussell, in Singer, Holmyard et al, *A History of Technology: The Industrial Revolution c. 1750-1850*, (1958), p 28
[49] J.A. Perkins, *Sheep Farming in Eighteenth and Nineteenth Century Lincolnshire* (1977), p 47

especially valuable on the 'poor and barren lands' of Leicestershire and Nottinghamshire. 'A Farmer' stated that he farmed 'not many mile north of Doncaster' and that Dishley rams were needed to improve the local stock. Subsequently three shows of Dishley rams were held in Doncaster after advertisements in the local paper. After the final one in August 1789, the paper announced that 'several fine rams' had been 'let out for the season' which, as the hiring fee was in the region of £400, had been the object of the campaign.[50]
The traditional importance of pasture farming in the region is reflected in the specialist cattle and horse fairs that were held in Doncaster and market towns round about. The newspaper reports on these were extremely brief but they give the impression that the local supply was not meeting the late eighteenth-century demand. At the June fair in Thorne in 1787 horses were 'remarkably scarce'. At Doncaster in August they were 'extravagantly high' in price and in the following April at Doncaster they were still 'scarce'.[51] In 1787 the editor blamed the shortage on exports and after the report of April 1788 he commented that an export tax was required to stop the trade though it is clear now that the shortage was the result of a general increase in demand to meet the needs of industrialisation, especially in the north, and the improvements in water and road transport of the period. These factors had been affecting the horse trade before 1750[52] and were exacerbated by the wars after 1776. Reports on the supply of cattle varied considerably from the 'very large show of cattle' at Thorne fair in June 1787 to the 'but slender shew' at Doncaster of the same year. Factors such as the supply of spring grass still largely determined the number of animals sent to fairs in spite of the spread of the new fodder crops that were supposed to bridge 'the hungry gap'. At the spring fair in Doncaster in 1789, a very large number of beasts were sent because farmers had no grazing for them and the dearth or abundance of hay later in the year still determined whether they sent their beasts to the fair or not and whether they sent them fat or lean.[53]

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[50] *Yorkshire Journal*, 1789 and 1790
[51] *Ibid*, 23.6.1787, 11.8.1787 and 12.4.1788
[52] J.A. Chartres, 'The Marketing of Agricultural Produce' in Thirsk (ed.), *A.H.E.W.*, Vol V ii (1985), p446
[53] Yorkshire Journal, 23.6.1785, 11.8.1787, 11.4.1789 and 8.8.1789

The continued reliance on old staples of local farming such as hay and grass must not be allowed to obscure the innovation which had been going on in the region throughout the seventeenth and eighteenth centuries which accelerated between 1740-1760 and continued to do so after the inventory evidence ceases to be available. The innovation was not sufficient to satisfy the critical eyes of Arthur Young and Robert Brown whose views on local turnip husbandry and the continued existence of open fields and waste have already been quoted. Brown was also unimpressed by most of the farming he encountered in the West Riding generally. On the subject of bean culture, for instance, he wrote that their value was less than it should have been because of the 'pernicious' system of sowing broadcast. Had the beans, he claimed, been drilled and horse-hoed they would have been 'nearly as valuable on clay soils as turnips are upon those of a different description'.[54] He also criticised clover growing in the Riding because rye grass was not sown with it; 'The people in general have a mortal aversion to rye grass and the clover crops from the want of this mixture, make exceeding bad hay'.[55] This criticism was not related directly to the marshland area though there is little evidence for the growing of rye grass in the area. However, Gills, grocers of Doncaster, advertised in the local paper every spring for several weeks 'Fine new Trefoil, Sainfoin, rye grass, rib grass and the best new Norfolk Turnip seed'[56] which indicates some local demand for all the 'new grasses'.

Brown also criticised the landlords of the Riding for hindering convertible husbandry by restriction on the ploughing up of old pastures. The Ingram leases of the eighteenth century are very pointed in their prohibition and a Hatfield-Gossip lease in Hatfield as late as 1839 still carried the restriction.[57] Even very small landowners disliked the practice. Samuel Birks, nephew of Mary Hall of Arksey, spinster, lost all the property he inherited from her if he ploughed up 'any more or other grounds than what shall be plowed or in tillage at my decease'.[58] But it was on turnip husbandry that Brown, like Young, waxed most critical. He wrote:

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[54] Brown, *op cit*, p 97
[55] *Ibid.*, p 117
[56] *Yorkshire Journal*, e g 10 February 1787
[57] Doncaster Archives, Baxter Papers 61321/1, Lease 27 2 1839
[58] Borthwick Institute, York, Wills, Deanery of Doncaster, will of Mary Hall of Arksey, 26 2 1720

> Although turnip husbandry prevails over a great deal of the Riding, yet the proper cultivation of the root is not attended to... Except for a few individuals turnips are universally sown broadcast and most imperfectly cleaned. We understand that it is not much more than twenty years since they were hoed at all.

According to Brown in the whole of the West Riding open field turnip husbandry was only practised properly in Wath on Dearne, a small town eight miles west of Doncaster. But even there the 'degree of perfection' was only relative as open fields were inimical to proper turnip cultivation. Even on the enclosed lands he found little to praise:

> From Bautry (sic) to Doncaster, the land is of a light sandy nature, upon a spongy bottom. A great part of it has been lately enclosed...Turnips very bad, and little care taken to have the land laid dry, as we observed much water standing in the fields.[59]

To put these criticisms into perspective it must be remembered that the task of Brown and his fellow reporters to the Board of Agriculture was to make suggestions for the improvement of English agriculture at a time of national crisis and also in an age when agricultural improvement had become the fashion amongst the upper classes from the king downwards. The views of the later eighteenth-century critics were based on an ideal of turnip-fed sheep as improvers of poor light soil and on convertible husbandry on heavier soils with enclosure as an essential prerequisite to both. Also essential in their view was a cropping course in which two cereal crops never followed each other as in the famous Norfolk rotation of wheat, turnips, barley, clover. Norfolk farming was the centre of their inspiration and experimental and improving landlords like Coke of Holkham were the model created, especially in the writings of Arthur Young, for aspiring improvers to follow.

There was no general agreement on best practice, however, even in Norfolk. It is interesting to see in the second survey of Norfolk which was carried out by Young, the secretary of the Board of Agriculture and the leading spirit behind the topics. In view of Brown's comments on West Riding turnip growing and those of Young

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[59] Brown, *op cit*, p34

himself 25 years earlier, Young's comments on turnip growing in Norfolk are worth quoting. Young wrote: 'It is proper to begin with the crop, which, in Norfolk is made the basis of all others':

> Norfolk farmers are so wedded to turnips, that they sow them almost indiscriminately on all soils. Perhaps the heaviest land I have yet seen in the County: is at Goodwich... and I was petrified to see... turnips on such a soil... the very texture of the soil is adhesion itself, and greatly retentive of water; so that carting to remove the crop is very hazardous; the consequence is, a barley crop inferior to the land, in many cases (even in the fine barley year, 1802) worth not more than half of what would have followed beans or tares, well managed.[60]

In view of Brown's remarks on drilling and hoeing in Yorkshire it is worth quoting Young's explanation of the need for a new survey of Norfolk within ten years of the first: '... in the case of Norfolk', Young wrote, 'a new report was demanded for a local reason. The introduction of a new breed of sheep and the rapidity with which the practice of Drilling spread in the County, had effected so great a change in the State of Norfolk Husbandry', that all earlier works 'must necessarily be deficient'.[61] Much of the advancement of Norfolk farming appears to have been very late in the eighteenth century and the Report shows that Norfolk farmers, like those of the West Riding of Yorkshire and of every other farming area in the country, differed on many aspects of husbandry. The 'Norfolk' system was not uniform and was not a model for all. Even on the crucial issue of turnip fed sheep for light arable land Dr Raine Morgan has shown that this was a late seventeenth-century development in Norfolk and that in most other light land areas turnips were being fed to cattle up to c. 1750.[62] The separation of cereal crops by pulses, clover or roots was not even part of the leases on the Holkham estate until after 1816 in spite of the detailed regulation of farming on the estate for many years before.[63] Nearly half a century before the Norfolk rotation became a part of the Holkham leases Young had described the course in Thorne as the 'most infamous' he had come across because it had three

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[60] A. Young, *General View of the Agriculture of the County of Norfolk*, (London 1804)
[61] *Ibid.*, 'Introduction', p xv
[62] R. Morgan, *op cit*, p 177
[63] R.A.C. Parker, 'Coke of Norfolk and the Agrarian Revolution', *Ec.H.R.* 2nd, series VIII (1955), 2. Reprinted in Carus-Wilson, E.M. (ed) Essays in Economic History, Vol. II (London 1962), p 333
N.B: Holkham leases still permitted up to three grain crops in succession into the 1780s.

cereals crops following each other with turnips and clover on either side but, it has already been pointed out, that in the same year in Cantley on the sands only a few miles south west of Thorne he had commented on a course of turnips, barley, clover, rye and some wheat which was a permitted variation of the approved 'Norfolk' course. Clearly there were elements of bad and good practice in all areas and the criticisms of the reporters need to be read with this in mind.

There was, however, some local support for some of Brown's views and sometimes explanations were offered for practices he disliked. 'A Yorkshire Farmer' told him that the stewards and landlords were averse 'to old pastures being disturbed notwithstanding the advantage which might be derived by the tenant'. He also received a communication from 'A Yorkshire freeholder' which explained the reluctance to plough in the Craven district. There was much less reluctance to plough in the Doncaster region but the explanation has relevance there also: 'The proprietors there [in Craven] are justly afraid of the plough with its blessed companion the tithe waggon'.[64] Pasture land was usually assessed for tithe on an ancient modus of one penny per acre and was much less of a burden on farming than the tenth of produce that arable had to bear. Also, traditionally, rents of pasture or meadow land were much higher than for arable even when the latter was enclosed. Evidence on the Owston estates shows that this had changed by the second half of the eighteenth century, for instance, on the farms of Richard Linley and widow Hewitt, although meadow was still the highest rented land in 1788 at 25/- an acre, pasture and arable shared the same variation from 8/- to 20/- with the arable being the higher rented on the whole, but the difference was still not sufficient to encourage landlords to permit wholesale changes.

It seems, therefore, unwise to accept the implication of Brown's remarks that the agriculture of the area was backward except in so far that agriculture was, in his terms, backward in much of the country. Practices around Doncaster varied according to the skill, intelligence and knowledge of the local farmers and according to the extremely varied conditions of soil and drainage. On some matters Brown

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[64] R. Brown, *op cit*, p 123

received direct refutation of his views. 'TH' wrote to him that 'clover hay is a much better food by itself, than when mixed with rye grass',[65] and on some of his observations he received authoritative correction from William Marshall a few years later. On Brown's remark that the land north of Thorne was 'in a state of nature',[66] Marshall commented in a footnote, 'Either this must be a mistake: or some extraordinary improvements have recently taken place: or the Reporters had viewed this passage in a very wet season'.[67] Brown's views are summed up in the last part of the following passage:

> Common fields are frequent [in the South Yorkshire region] the difference of value at present between common field, and inclosed land of similar quality, is about one third greater in favour of the latter; but if the spirit of improvement was a little more awakened, this difference would be greatly increased.[68]

He was obviously unimpressed by the will to change evidenced in the West Riding as a whole and not just in the marshlands of the south east. The comments on the value and extent of enclosure are taken up in chapter VII but there is plenty of evidence to suggest that the 'spirit of improvement' had shown itself in the south east long before Young, Brown and other late eighteenth-century protagonists of the new farming were born. It has already been shown that the new crops most closely associated in traditional views with the agricultural revolution were being grown in Hatfield relatively early in the period of their diffusion. In the rest of the Doncaster area this was also true where local conditions made it sensible to grow them. Clover and turnips were not, however, the only indication that innovation was taking place. It is clear from the inventory evidence that the region's farmers were on the look-out for new methods of making their work profitable throughout the period covered by this chapter. For the earlier period, before 1690, this is most clearly shown in the townships of the Peculiar of Snaith and their early probate inventories.

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[65] *Ibid.*
[66] *Ibid.*, Appendix, p 37
[67] W Marshall, *Review and Abstract of the County Reports to the Board of Agriculture, Vol 5, Eastern Department* (1818), p 5, footnote
[68] Brown, *op cit*, p 134

The pressure for innovation in farming methods from the middle of the seventeenth century came from the unsatisfactory prices of staple cereals. Poor prices continued for almost a century and encouraged farmers to move to alternatives which either produced a better cash return or increased the yield of the staples as the tendency of farmers when prices are low is to make up the deficit by selling more which, in turn, forces the prices further down. Recent work has shown that some of the new crops became known as a result of the work of market gardeners and the writings of agricultural publicists whose intent was practical rather than theoretical.[69] There were, however, many crops, other than the cereal staples, which had been grown long before the economic turnaround of the middle of the century and some of these had been part of the economic resources of marshland farmers since medieval times and possibly earlier. A crop supposedly popularised by market gardening was fruit and there is evidence that it entered the farmers' income-producing armoury in the early seventeenth century. There are nine references to apples or pears in the Peculiar of Snaith between 1629 and 1747. This does not indicate that the marshland was set to rival Kent or Worcestershire as a centre of fruit growing and indeed the inventory references are usually to very small values but Thomas Jefferson of Hook had 'aples sold in ye chamber, £10' on his inventory in 1691. His death had obviously occurred between the sale of his apples and their delivery which illustrates both the limitations of inventory evidence and the fact that fruit growing was not just for consumption on the farm. It has already been noted that Copley of Wadworth had planted orchards in the 1640s.[70] Many farmers outside the Peculiar had small orchards in the late seventeenth and eighteenth centuries though there is no evidence that any fruit entered the market nor that cider or perry began to rival beer in popularity, though John Broughton of Almholme of the parish of Bentley with Arksey had a 'sider mill' in his kilnhouse at his death in April 1720.

Other crops that indicated the willingness of the farmers of the region to widen the range of farming activity are tares or vetch, mustard, liquorice and hops. Vetch was a fodder crop grown on fallow land, as turnips were later, and it was reaped, dried and

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[69] J Thirsk, 'Agricultural Innovations and their Diffusion', in Thirsk (ed.) *A.H.E.W.* Vol V.ii (1985), pp 533-589

[70] J.T. Cliffe, *op cit*, p 277

fed to animals as clover was. It was being grown in Cowick in 1600 and 1601 and references occur to it again in 1654 and 1748.[71] Like clover and the other legumious crops it also added nitrogen to the soil though the seventeenth-century farmers of Cowick did not know that. Mustard was a clearing crop used, especially in marshland areas, for preparing land for oats and it is found in inventories in the marshland parish of Whitgift in 1639 and the Whitgift township of Reedness in 1631 and 1632. It was also a cash crop of importance as a flavouring like liquorice which also appears to have been grown in the Peculiar. Liquorice was, of course, a speciality of the Pontefract region where the deep loamy soils were said to favour its growth. Pontefract was the principal market for the townships of the Peculiar of Snaith and it is that contact which probably encouraged William Clarkson 'Scolemaster' of Snaith to grow 'likoras' worth three pounds which was recorded on his inventory in 1639. John Barker of Snaith also had liquorice worth four pounds on his inventory in 1650. Hops too were spreading in the early seventeenth century as hopped beer began to replace ale in the north of England. References to hops occur in Whitgift as early as 1634 and in Carlton in 1659. It is unlikely that either of these references indicate the growing of hops though the Christopher Copley whose orchards were noted above was growing them in the 1640s. It was not until later in the century that the evidence shows them spreading from the Retford area of Nottinghamshire into Hatfield where they were grown for over fifty years and into Owston where the Cookes grew them from 1718-1723. After the later date they were probably grown in adjacent parishes as hop poles were sold to neighbours.[72]

The growing of rape was widespread in the years after 1626 in the newly cultivated lands of the drained area and it spread into the marshland areas to the west and north. It did not, however, make a very great impact in that although inventory references to its growth are widespread geographically and cover the whole period of the inventories they are only spasmodic and do not indicate a great deal of interest in what was a very lucrative cash crop. It was also a very exhausting crop and was

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[71] B.M.S. Campbell, *Ec.H.R.*, 2nd Series, Vol XLI, No 2 May 1988, 'The diffusion of vetches in medieval England', shows that vetches, which were thought to be largely post-medieval, had spread widely in the south east in the 13th and 14th centuries.
[72] Doncaster Archives, Davies Cooke Papers, DD DC/E 11/1 Copy of Accounts of Thos. Herrot Stwd to Bryan Cooke of Owston Hall Esq

always a gamble to harvest as bad weather at the crucial time could result in the loss of most of the oil seed. This is why on the drained lands of Thorne in the late eighteenth century the whole population is said to have turned out to help with rape harvest and the occasion was turned into a festival. References to rape growing occur in Snaith township in 1637 and 1655 but as the southern part of Snaith was part of the drained land called Dykesmarsh it is probable that these examples were merely part of the extensive rape growing there in the immediate post-drainage period. There are no other references to rape growing in the township in a very large number of inventories for the later seventeenth century and the eighteenth. Inventories outside the Peculiar of Snaith show a few farmers growing rape mostly on a fairly large scale. The largest grower was William Flather of Holmhouse in the parish of Armthorpe who had in 1724 'a last and a halfe of rape seed' worth £50. Armthorpe is a sandland parish but Holmhouse, as its name indicates, is on the lower, wetter and heavier soil between the sands and the drained land of Hatfield. Flather farmed on a large scale but was small compared with Benjamin Haveley, gentleman, of Loversall. Haveley's goods were appraised at £3,626.7.4d with farming goods comprising almost exactly half of the total in 1722. His twelve quarters of rape seed were a very small part of the value of his farm stock but, like Flather's rape, his cultivation of it illustrates the diversity of cropping in the region, especially among the larger farmers. Loversall is a magnesian limestone parish but Haveley probably grew his rape on the lower wetlands on the eastern borders of the parish. Further evidence that rape growing was widespread in the region is provided by John Stirk of Kirk Bramwith in the lowland who had seed worth £30 in 1722 and William Peas of Bentley with Arksey, gentleman, had four and a half acres of rape worth £22.10.0d in 1730. Thomas Grant of Shaftholme, in the same parish, had a similar amount in 1757. There is not, however, enough evidence to suggest that it was ever an important crop and, indeed, it was noticed in the previous chapter that by the early part of the eighteenth century it was no longer as widespread as it was reputed to be in the decades after the drainage.

Amongst crops, however, it is turnips and clover that are considered to be the main indicators of a readiness to accept the new farming. As would be expected from their relatively early appearance in Hatfield these crops were also spreading in the surrounding areas. It seems that turnips appeared first in Hatfield and about 30 years

later, c. 1720, they begin to be mentioned on inventories in all the sandland parishes around Doncaster. The earliest reference is to 1721 in Cantley. The western sandlands of the Peculiar of Snaith appear to have been later in adopting turnips and there are no references to the crop before 1748. From then they appear in inventories in Gowdall, Hensall and Pollington but it can be assumed that they were grown in these townships earlier. It is possible that they were associated with the increase of wheat growing that was referred to earlier. They were grown on the same system as in Hatfield and were invariably described as 'fallow turnips'. They had, therefore, a very short growing season and would not appear on inventories except for a few weeks. The tithe evidence for Hatfield was earlier used to show how inventory evidence underrated their significance. Clover produced more inventory references and, naturally, a wider geographical spread, as it was suitable to a wider range of soils. The first hard evidence of clover being grown is in 1719 in Sykehouse and Snaith township within a year or so of its estimated first appearance in Hatfield. There are no inventory references to the crop in Owston though a map of 1723 shows a 'Clover Close fflatt' and there is a reference to the 'clover close' in estate accounts in 1717.[73] The other early inventory references are to the magnesian limestone (Loversall and Adwick-le-Street) the wetter parts of Campsall such as Haywood and Fenwick, Trumfleet (a wetland outlier of the sandland parish of Kirk Sandall), Cowick in the Peculiar of Snaith, and Cantley in the sandland. By the 1730s there are increasing references to the crop covering Tickhill, Bentley with Arksey, Carlton Snaith sandlands. Taken in conjunction with the Hatfield evidence it seems fairly certain that the period of introduction of turnips was the last quarter of the seventeenth century with a slow initial diffusion which quickened up at the end of the 1720s. By 1750 they were grown all over the sandlands but they were never sown 'indiscrimately' as Young complained that they were in Norfolk and they were not the basis of husbandry. Consequently they never received the attention that the agricultural reporters believed to be their due. Clover seems to have been introduced later but because of its more general value to have been taken up more quickly. It was well established by the 1730s, i.e. within twenty years of the first evidence of it

[73] Doncaster Archives, Davies Cooke Papers, DD DC F4/1/1 1723 (map) and E11 F Accounts of Thos. Herrot

being grown. However, clover and the other new grasses were available as seed in Doncaster market in the first decade of the century which indicates a lengthy gestation period as in the case of turnips.[74]

It is not surprising that willingness to innovate existed in the farming areas around Doncaster. The region had never been narrowly confined to the basic crops that supposedly characterised the classic open field areas of the midlands until the sixteenth century. The very varied soils of the region and the availability of hundreds of small closes for rent had produced a system in which cash crops played an important part and which responded readily to market changes. Consequently the search for small profits from non-cereal crops existed long before the economic watershed of the mid-seventeenth century made such searches more usual in English farming. Long before 1650 the crops which best fulfilled this purpose were hemp and flax. Additionally these crops also provided useful by-employments. In some townships enough people were employed in the preparation of these crops for spinning and in the spinning and weaving of the thread to create a mixed industrial and agricultural economy of the type found further west in parts of Derbyshire and the West Riding where iron and steel working and woollen textile manufacture existed alongside agriculture.[75]

For much of the period of this study most farmers grew both hemp and flax although over it the emphasis changed. In chapter II it was shown that hemp was the more important crop before 1626 but at some point, which is difficult to determine, in the second half of the seventeenth century flax became more important and by the early eighteenth century hemp appeared to be declining rapidly. There were, of course, great differences between parishes and even between townships within the same parish in the importance of the two crops. Of a small number of inventories for Adlingfleet between 1695-1732 two thirds grew both crops, but in the township of Sykehouse over the same period only flax was itemised on the inventories. Flax was a very important crop in Sykehouse; out of 36 inventories 32 record flax which was a

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[74] D. Hey, *Packmen*, p 173
[75] See, for example, D. Hey, *The Rural Metalworkers of the Sheffield Region* (1972)

bigger proportion than in any other township. Trumfleet was another township with a high proportion of flax growers and, outside the limits of the research area, Drax on the river Ouse was another township with a large number of growers. Many townships only had scattered references to either hemp or flax and most of these were townships with wetter lands but drier, lighter soils could be used. For instance in 1682 John Hatfield of Hatfield presented to the town 'a little lin land' on which to build a schoolroom for the grammar school founded in the first decade of the century.[76] The 'lin land' was only 50 yards from the church and was on the highest part of the sandland.

The working of flax, in particular, was more widespread than the growing of it, if the evidence of the inventories as most of them indicate households with line wheels for spinning linen thread. The preparatory processes of retting and heckling also provided labour and were dependent upon water. Consequently, the dykes in the marshland were often blocked with flax in preparation for these processes. The importance of the crop in the main growing areas is well illustrated in the case of Sykehouse. Not only was almost every inventory concerned in some way with the growing of flax but the activities connected with it almost dominated some of them. John Petty's inventory dated 15 January 1694/5 included references to five line (spinning) wheels and one wool wheel as well as line seed worth two pounds and unthreshed wheat, oats and line worth £11. Petty was a medium sized farmer whose total inventory was worth £77-15-1 and apart from his more than average interest in flax spinning he was growing it on the small scale which is usually considered normal for this exhausting crop. The large farmers, however, grew it on a large scale. Yeoman Richard Jackson's inventory of January 1718/19 totalled £316-14-4 and included wheat, blendcorn and lineseed worth £25, a parcel of line, a fan and two deals worth £6-15-0, oats and line worth £26, a parcel of dressed line, well trough, barrow and grindstone worth £4-5-0 and a parcel of line 'at Sanderson's barn' worth £3. The two Laveracks whose large-scale farming was mentioned in the previous chapter also shared this interest in flax growing. Robert's inventory of January 1714/15 included four line wheels and a wool wheel, line 'knocked and unknocked'

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[76] *18th Report of the Charity Commission*, p 618

[i.e. retted and unretted] worth £36, a parcel of line seed worth £4, line in a barn at Tideworth and hay worth £80 and rated line at home worth £13-10-0. The inventory of Nathan dated January 1735/6 also had five references to line including 12 acres growing worth £30, a parcel of old line worth £10 and 38 stone of line at Snaith worth £5.

Townships like Sykehouse processed and spun much of the crop grown there but also sent flax to neighbouring areas where it was not grown. For example, William Winter, a Sykehouse blacksmith, had in March 1695/6 in addition to line growing and in store another six stone in a pack cloth worth £1-10-0 and obviously awaiting transport. Much of the flax grown and spun in the township was also woven there. Matthew Simpson had 'one wool wheel, two line wheels' and 'in ye shop two prs of Loomes and all the gears belonging £2' on his inventory dated March 1713/14. The list of small debts owing to him show that his customers were local. Twenty-one of the 26 debts owed to him were owed by Sykehouse people and the other five were owed in adjacent parishes. The local significance of the finished product does not, however, reduce the importance of the crop to the local economy and its long history in the region is a significant indication that the marshland farmers were used to looking for market opportunities and were well prepared for the period of experimentation in cropping that the decline in demand for cereals forced on them after 1650.

In the late eighteenth century parliamentary subsidies for the growing of hemp and flax provide evidence to show that the crops were still important though probably increasing mechanisation removed some of the activities associated with the crops from the countryside.[77] Distribution of the subsidy was organised by the Clerk of the Peace for the county and in the case of the southern parts of the West Riding of Yorkshire and adjacent parts of north Lincolnshire was distributed at Pontefract. Notices to apply for the subsidy were published in the local paper from 1787 and for a number of years a full list of all those claiming the subsidy was published with

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[77] J. Thirsk, *English Peasant Farming* (1957), citing British Parliamentary Papers 1836 (79), pp 421-422. 'Hemp and flax were encouraged during the Napoleonic Wars by the payment of a bounty'. In fact the bounty was being paid several years before the French wars broke out.

their township and the amount of subsidy paid. The subsidy was distributed from Pontefract to a wide geographical area bounded by Elland near Halifax in the west, the Isle of Axholme in the east, Ulleskelf near Tadcaster in the north and the county boundary of Yorkshire as the southern limit. In this wide area the south Yorkshire lowlands with 27 townships claiming subsidy and the area centred on Selby to the north of the marshlands with 18 townships claiming subsidy were clearly the most important growers of hemp and flax with 45 out of the 77 townships claiming subsidy. The main growing centres were all in the Peculiar of Snaith: Carlton had 24 claimants who claimed £51-13-4 between them, Swinefleet had only six claimants who claimed £45-2-10, Rawcliffe had 11 claimants who claimed £44-13-6 and Sykehouse, the fourth township in importance and the first in the Manor of Hatfield had eight growers claiming £33-7-0. With the subsidy at fourpence a stone these sums represent a large amount of flax and hemp still being grown, 3,053 stones in the case of Carlton and 2,708½ stones in Swinefleet. There is, unfortunately, no distinction made in the accounts between hemp and flax. It is tempting to suppose that the large number of growers in Carlton represents small hemp growers and the small number in Swinefleet represents flax growing on the traditionally larger scale but there is no evidence to support this.[78] Nor is it clear whether these figures represent all the flax and hemp that was still grown. Arthur Young was very doubtful that the bounties had any effect at all in Norfolk. He wrote:

> The former bounties per stone, had no effect whatever – they did not occasion a single acre extraordinary to be sown; and I personally know, that many persons who cultivated hemp, did not even think them worth applying for; the forms were so difficult and tedious.[79]

The British Parliamentary Paper previously cited by Joan Thirsk also stated that both hemp and flax 'disappeared almost completely after the protective duty was reduced in 1832'.[80] Foreign competition was forcing prices down and Young considered that

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[78] *Yorkshire Journal*, 16 May 1789. Similar lists of 'Payment of Bounties on Hemp and Flax' were published for the next few years.
[79] A. Young, *General View of the Agriculture of...Norfolk*, (1804), p334
[80] J. Thirsk, *English Peasant Farming* (1957), p 228, citing BPP 1836 (79), pp 421-2

the subsidy would have to be much higher before it would significantly increase the native crop production.[81]

If Young's views on the impact of subsidy on Norfolk hemp and flax growers are accurate for south-east Yorkshire it seems likely that the totals given in the local paper are an understatement of the amount actually grown and do not reflect an increase of interest to earn more subsidy. The continued interest in the crop reflects, therefore, the traditional concern for crops with a good market potential and the use of the wide range of soils of the region to the full. These traditions suggest that the criticisms of the inefficiency of farming in the area should not be taken too seriously. The agricultural leaders of the Doncaster region were small to middling gentry who mostly farmed on their own account and were keen to make their estates pay. Although even the small farmers were accustomed to seeking profit in several directions, it is usually assumed that they had neither the capital nor the education to become innovators. Now that the importance of the 'heroic' figures of the agricultural revolution has been reduced it is suggested that it was those educated gentry with the need to make their estates pay to maintain their living standards who were the principal propagators of the new farming methods. Writing on agriculture became increasingly popular during the seventeenth century and the writers were particularly concerned to give practical advice to practical men among the small gentry. It was, it is contended, this class that acquired enthusiasm for agricultural change long before such an enthusiasm became fashionable among the aristocracy and the large landlords in the eighteenth century.[82] There were many such small gentry in this region and whilst there is no conclusive evidence to prove a widespread influence on farming there is enough to suggest that there were enough innovators among them to make Doncaster, their market and social centre, into a source of new ideas among the yeomen and larger husbandmen of the region.

The Copleys of Wadworth were obviously a source of new ideas in the early seventeenth century and undoubtedly small gentry being related to the Copleys of

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[81] A. Young, *General View of the Agriculture ... Norfolk*, (1804), pp 335-336
[82] J. Thirsk in Thirsk (ed.) *A.H.E.W.*, Vol V ii (1985), chapter 19

Sprotborough Hall and Nether Hall, Doncaster. Christopher's growing of fruit and hops has already been mentioned and he was closely connected with the work of one of the chief sources of agricultural ideas in the country, the Hartlib group, through his cousin Cressey Dymock. Dymock was a very active member of the Hartlib circle and he has already been mentioned as the author of an idealistic and impractical scheme for model farms on the newly drained lands of Hatfield. He spent some time at Wadworth experimenting and Joan Thirsk shows how he struggled against the stubborn obstinacy of his cousin's farm workers to prove that a plough which could also 'sow or set corn, harrow and dung in one operation'[83] would work. He claimed that eventually he won the support of the workmen but his schemes did not win the approval of his more practical kinsman[84] and the revolutionary plough does not appear to have been heard of again. Cliffe points out that in the early seventeenth century there were several puritans among the Yorkshire gentry 'with few social pretensions who threw their energies wholeheartedly into the business of managing and developing their estates'. William Copley, Christopher's father was one of these and when he passed on the Wadworth estate to his son he continued to farm the demesnes of neighbouring Loversall which he had already put into a state of 'great tillage'.[85] The Bosviles of Warmsworth were also related to the Copleys and shared a 'similar passion for good husbandry'.[86] In the reign of James I Gervas Bosvile improved the yield of his estates in Warmsworth, Thorne and Alverly 'by means of enclosure and redistribution of strips'. He was also enclosing lands in Doncaster and Tickhill at this time.[87] The interrelationships of the gentry families were very complex. Apart from his connection with the Copleys, Bosvile was also related to the Wallers, Wormeleys and Yarburghs who were leading families in the Manor of Hatfield in the early seventeenth century. Bosvile wrote in his accounts in 1621 'My brother Yarburgh and I...doe pay to Sr Robt Swift Knt for the kings miln at Hatfield yearlie at whit. and Mart.£10.'[88] Whilst these connections do not imply an equal

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[83] *Ibid.*, pp 582-583
[84] Hartlib MSS, University of Sheffield, 55/2/4 letter of March 1653 as one example of hostility between Copley and Dymock.
[85] J T Cliffe, *op cit*, pp 53 and 277
[86] J T Cliffe, *op cit*, p 160
[87] *Ibid.*, p 214
[88] W Y A S, Battie Wrightson Papers, BW/R/4

enthusiasm for agriculture they do indicate that the ideas of the most advanced members of the cousinship would be discussed and the most profitable ones adopted.

Recusant families were also sometimes driven to agricultural improvement to delay the ruination of their estates by recusancy fines. Cliffe cites the Stapletons of Carlton the Cresseys of Birkin as examples of such families.[89] The interregnum saw many Royalists put in a similar position by fines and the heavy taxation of the parliamentary government. The Cookes of Wheatley claimed to have been fined £15,000 for their adherence to the Royalist cause. This family had been prominent in trade and local administration in Doncaster for a century before the Civil War and moved into landed property when Bryan Cooke bought the manors of Arksey with Bentley and Wheatley during the interregnum. In spite of the large fines the family was not impoverished by them and bought up Royalist estates and lent money to impoverished Royalists in the period up to 1660.[90] In the next two hundred years the agricultural history of the area immediately north of Doncaster was largely dominated by the Cookes as younger sons bought estates adjacent to Wheatley, Arksey and Bentley. Whilst they were not spectacular innovators they were mostly careful record keepers and in them the influence of new practices is seen. The series of surveys of the lands of Arksey/Bentley shows successive Cookes consolidating strips, enlarging farms and permitting enclosure.[91] The enclosure of Bentley and Arksey ings in 1759 was one of the earliest uses of parliamentary enclosure in the county. Henry Cooke, a younger son and Recorder of Doncaster, acquired Owston about 1700; when he died in 1717 he had created the hop and clover closes which have been mentioned before. The carefully kept records of the Owston branch of the family show their determination to make the estate pay in spite of the succession of early deaths of the owners and the long minorities of the heirs. During the eighteenth century the hall was rebuilt and estate farms, even in outlying parts like Stainforth, were improved. Ways of enclosing were constantly sought to improve usage, for example, Wood Nook Ing in the early part of the century was let for agistment to owners of cattle and horses from a very wide area. By 1788 it was used for many

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[89] J T Cliffe, *op cit*, p 160
[90] P Roebuck, *Yorkshire Baronets, 1640-1760* (1980), pp 20, 23, 305
[91] Sheffield Central Library, Local History Section, Cooke Papers C2 VIII Arksey Surveys

purposes as part of Hewett's Farm but it had ceased to be rented grazing land long before this time.[92] In 1760-61 the commons and wastes were enclosed by act of parliament and very soon after most of the open fields were also enclosed though without act of parliament and the records give no indication of the way it was done. When Anthony Cooke died in 1763 leaving a young family his widow, Mary, managed the estate even more carefully during the long minority of her eldest son. When the heir, Bryan Cooke, reluctantly took control of the estate he too carried on the tradition and in his early years in control he developed a passion for surveying his estate and listing his property. His mother had spent large sums on enlarging the estate: £20,000 for land in her native Adwick le Street, £16,000 on the Duke of Ancaster's estates in Thorpe in Balne and many smaller parcels and freeholds both within and without Owston.[93] Bryan Cooke also enlarged the estate by buying land in Barnby Dun and elsewhere. Apart from owning an increased amount of land in the Doncaster region the Cookes married into other local landed families. A product of one such marriage was George Cooke Yarborough who bought an estate in Armthorpe and Streetthorpe in the 1770s and turned 'barren sandy heathland' into 'rich pasture and arable land'.[94]

Among the early growers of new crops were John Hatfield II of Hatfield and Benjamin Haveley of Loversall, gentlemen, and innovators in poultry and animal-keeping included the Empsons of Goole and Bryan Cooke. The farming gentry of the area were undoubtedly important in increasing the range of farming options in the region but below them socially was a further class possibly even more important in introducing new ideas to the general run of small farmers. This class of yeomen verging on gentry were of considerable wealth and, in the parishes where there were no large landowners or absentee landlords, of great social and economic importance. Members of this group were the Moores of Hatfield. Henry Moore was followed by Timothy Moore as Lord Irwin's sub-agent in the Manor of Hatfield and covered between them a long period in office from the 1680s to the 1720s. The office they

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[92] Doncaster Archives, Owston Papers, DD/DC/E3 1788
[93] G.A. Usher, *op cit*, p 184
[94] D. Holland, *Changing Landscapes in South Yorkshire* (1980), p 39, citing E. Miller, *History and Antiquities of Doncaster* (1804)

held seems to have been purely informal but included considerable business which generated much correspondence with the Steward at Temple Newsam. They were, however, mainly farmers, Robert Moore was the first man in the Manor to have turnips recorded on his inventory in 1691 and Francis claimed in a letter to Temple Newsam to be the first to introduce clover into the open fields. Hook was another parish with no resident landlord as most of the land belonged to the Trustees of the City of London. Slack control of the estate allowed the Jefferson family to control a large area of land and to abuse the rights of the landlord which was described when the Trustees carried out a survey of the estate in 1714.[95] Thomas Jefferson was described as 'yeoman' on his inventory in the late seventeenth century and his many interests included the growing and selling of fruit.

The spread of new kinds of stock and crops is, of course, only one indicator of agricultural improvement and possibly, in the long run, the careful year to year management of the soil was more important. Many inventories show how much care was given to this aspect of farming by farmers of all sizes who were intent on minimizing, as far as they could, the considerable risks of farming in this area of poor sands and heavy land constantly in danger of flooding. Many inventories show how much work was done on the fallows and the value of this in time and manure was considerable. The inventory of John Lavarack of Reedness on the heavier soils of the eastern Peculiar of Snaith in October 1701 included one year's rent of three acres of 'summer faulse', £1-10-0, four times ploughing and fifty-five loads of manure, £3-14-0. John Schofield of Armthorpe's appraisers included on his inventory of January 1698/9 the value of fourteen acres of rye and wheat 'that hath been limed, manored and foulded', £20. By such means the barren sands of Armthorpe were made fertile by Schofield and many others for centuries before George Cooke Yarborough was lauded by Miller for making the 'barren sandy heathland' fertile in a period when it had become fashionable for landlords to be concerned with farming matters.[96]

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[95] P.R.O., DL 43/10/14
[96] Holland, *op cit*, p 39

The use of the sheep fold on sandland and manures of all kinds was, of course, widespread in England long before the seventeenth century. In the Doncaster area winter flooding had long been appreciated as a means of fertilising pasture and meadow and marling was used on the poor sands of the south and north of the research area. Camden pointed out that on the banks of the river Aire near Pontefract 'there is found a yellow marle of such virtue that the fields once manur'd with it prove fruitful many years after'.[97] In Armthorpe, away from the beneficial effects of river flooding, there is a reference to 'marlepitts' in the glebe terrier of 1638.[98] Camden also noted that 'there is limestone plentifully found here; they burn it at Brotherton and Knottingly' from whence it was sent to the west where 'they manure and improve the soil' with it.[99] Camden was writing in the late sixteenth century and it is clear that lime was being used to the south and east of Brotherton and Knottingly as well as in the west indeed these two centres of lime production had a rival nearer Doncaster at Campsall and also at Sprotborough where the river Don cut through the magnesian limestone. Strickland's discussion of the use of lime in the East Riding suggests that Doncaster lime did more harm than good to the land though it was still being used as he wrote.[100] Among early recorded lime users were John Huscroft of Balne who had a close with 'Lyme and manure and one other close of fallow with lime in it' worth three pounds on his inventory of 1632. John Wood, in neighbouring Pollington, also had 'manure and lyme' worth twenty shillings in September 1638. This use of lime is not exceptionally early as Hoskins, Kerridge, and Thirsk have all shown it being used as early, or earlier, but it is over two centuries earlier than Tomlinson writes of the use of lime by the farmers of the drained lands and much before the mid-eighteenth century when Havinden recognised the use of lime as widespread all over Britain.[101]

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[97] Camden, *Britannia*, 1695 edition, reprinted 1971, p 711
[98] Borthwick Institute of Historical Research, University of York, Ter F Armthorpe 1638.
[99] Camden, *op cit*
[100] H.E. Strickland, *General View of the Agriculture of the East Riding of Yorkshire* (1812). He wrote, 'Lime from Conisbrough (which is always sold as Doncaster Lime) is inimical to all vegetation' and Ferrybridge lime was 'considerably dearer'. Conisbrough is the next township up river from Sprotborough. Campsall lime had a good reputation being described as 'an excellent compost being burned to manure cold grounds'. Cited by D. Hey, *Packmen*, p 147
[101] M. Havinden, 'Lime as a means of Agricultural Improvement: The Devon Example', in C.W. Chalklin and M.A. Havinden (eds) *Rural Change and Urban Growth 1500-1800* (1974)

Although nothing more was heard of Cressey Dymock's all-purpose plough the region has been associated, possibly erroneously, with the development of the Rotherham plough which 'has been heard of over the whole island'.[102] It has been suggested that the Rotherham plough was a development of a Dutch model either brought over from the Netherlands in the early eighteenth century or by the settlers in the Hatfield area after the drainage. The evidence for both of these views appears to be scanty. Whether the Flemish immigrants to the drained lands of the Chase were innovative was discussed briefly in the previous chapter and it was suggested there that their struggles to farm the very wet lands left little room for experiment. However, it can be assumed that they spread the cultivation of rape and possibly introduced short-horned cattle; David Hey has pointed out that the four-wheeled waggon was probably introduced by them.[103] Certainly only the two-wheeled wain or cart appears on the early inventories in the Peculiar of Snaith and later in the seventeenth century but the waggon is infrequent. Whether they also brought in a plough is not known as there are no inventories before about 1690 and the earlier inventories of the Peculiar of Snaith give no plough details. Many, like John Huscroft of Balne, had several ploughs, '3 ploughs, 2 coulters, 3 shares and 4 harrows £4' (inventory July 1632) but not until 1690 is there a specific plough mentioned in the Peculiar when the appraiser of John Scholey, also of Balne, wrote '1 Dutch plough, 1 English plough, 1 harrow £1'.

The connection between the Dutch and the Rotherham plough is reinforced by the eighteenth-century literature in the debate about the originality of the invention of the latter. For instance Robert Brown wrote 'the validity of the patent was combated and set aside, on the ground of its not being a new invented plough, but only a plough improved',[104] Marshall adds that 'On its introduction into East Yorkshire, it was called the "Dutch plow"'.[105] The existence of a Dutch plough in the marshlands is known through the inventory of William Millman of Dikesmarsh, Thorne who had in

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[102] R. Brown, *op cit*, p 51
[103] D. Hay, *Packmen*, p 96 first comes across a waggon in Tickhill in 1649
[104] R. Brown, *op cit*, p 51
[105] W. Marshall, *op cit*, p 379

1697 '1 old waggon a dutch plough and harrows'.[106] The attempt to link this plough with the later invention is very difficult and Marshall points out that traditional Dutch ploughs were not at all like the Rotherham plough and that the late eighteenth-century Dutch ploughs which were similar were derived from the Rotherham. Marshall also cites a Joseph Walker who claimed in 1794 that the ploughs in use between Doncaster and Thorne required four horses to draw whereas the Rotherham only required two.[107] It is clear from post-1690 inventories in that area that several types of plough were in use.

Fussell refers to a 'bastard Dutch plough' which was made for 'soft boggy land' and was used in Lincolnshire and further south in the seventeenth century and, although he adds that it was not popular because it was expensive to make,[108] it seems logical to suggest that such a wetland plough was used in the drained lands of Hatfield Chase. Blith's famous illustration of plough types in 1659 shows both a large Dutch share and a small English share and these were probably the types referred to in the inventories after 1690.[109] The varied soils of the Doncaster region required different treatment and many farmers worked very varied soils, and ploughs therefore would have to be specialised. Unfortunately for the most part appraisers did not specify them although there was a period in the parishes of Finningley and Hatfield when this was done and from these it is possible to see their use. Apart from William Millman who only had one Dutch plough, two other inventories stipulate only one type. John Teeson had two Dutch ploughs and two sledges in 1690 and Edward Hopple had one English plough on his inventory of 1690/91. Teeson, who was a descendent of post-drainage immigrants, farmed on Dikesmarsh like Millman, but Hopple was a Thorne butcher with a stall in Doncaster market and although his animal interests were considerable his arable interests were small and presumably confined to the townlands of Thorne. The majority of inventories which specify the plough type mention more than one kind and almost all of them belong to Finningley

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[106] G Marshall, 'The "Rotherham" Plough', *Tools and Tillage* III, 3, 1978, p 166 and D Hey, in J Thirsk (ed), *AHEandW* V i, p79
[107] G Marshall, *op cit*, p 164
[108] G Fussell, *The Farmer's Tools* (1952), p 41
[109] W Blith, *English Improver Improved*, 'seventeenth-century Ploughs', reproduced in G Fussell, *Ibid.*, pp 22-23 and many other places

and Hatfield where farming light and heavy land was common. In Finningley township William Salmon had two Dutch and three English ploughs in 1694 and in 1725/6 Abraham Kent had one of each. In the Finningley townships Thomas Hanks of Blaxton had three Dutch and two English ploughs in 1693/4 and in 1697 Thomas Tuke of Awkley had two Dutch and three English. In Hatfield Francis Moore had one of each in 1699/1700 and John Stones of Dunscroft had one Dutch and two unspecified ploughs in 1712. Moore's ploughs were also valued separately at one pound for the Dutch and ten shillings for the English which might illustrate the greater weight and strength of the heavy soil plough or merely their relative ages and condition.

In the early part of the eighteenth century two other plough types appear in the inventories. John Bayse and John Thompson both of Hatfield Woodhouse had ploughs described as 'Rawcliffe' ploughs in 1707 and 1711/12 respectively and in 1715 William Hobson of Bearswood part of Hatfield Woodhouse had one described as '1 plough Rawcliffe share'. All three of these farmers lived on the light soil but heavy drained land was very near to them so it is impossible to decide from these inventory references the nature of the Rawcliffe plough. However William Flather of Holmhouse, Armthorpe, whose large farming interests have been referred to before, had in 1725 three Rawcliffe ploughs and one 'sand' plough. The Holmhouse farm was surrounded with low-lying wetland which merged in the east with the western extremities of the Hatfield drained land which implies that the Rawcliffe plough was a development of the Dutch plough and that the sand plough was an alternative name for the English plough with which Flather ploughed his part of the Armthorpe sands. The Rawcliffe plough might have contributed to the development of the invention of the Rotherham but there is no evidence of this. What it does seem to show is that in the forty years before the Rotherham plough was invented there was sufficient interest in plough design in the region for appraisers to specify types although this was not true for Rawcliffe. Of 89 Rawcliffe inventories the plough named after it was not referred to nor were any other plough types. There does not appear to be any interest in the development of any other agricultural machinery and Brown indicates the almost total absence of drilling of crops in the region. There must have been some interest for in the *Yorkshire Journal* of 7 July 1787 it was reported that 'On Tuesday a grant passed the great seal, to John Wright, of Thurnsco, in this county,

farmer, for his new invented drill plough, to save expence in cultivation'. There was, of course, good reason for the lack of enthusiasm for drills from Tull's invention onwards – they were not strong enough and they did not work very well. Hence Wright's attempt to produce an improved model and the advertisement in the local paper of 27 March 1790 placed by I. Cooke of Oxford Street, London to popularise 'Cooke's Patent Drill Machine and Horse Hoe with six shares, the one thing needed to bring the drill into general use, Price £12-12 ready money'. A later editor of the *Doncaster Gazette* commenting in the mid-nineteenth century on the lack of interest in agricultural machinery around the turn of the century added that 'Fixed thrashing machines worked with horse power, were first erected in this part of the country in 1791. In the year 1803, Mr Thomas Pasmore, of this town, obtained a patent for improvements in a straw cutter, and a mill to crush beans, barley, malt and oats'.[110] Change in agricultural machinery and implements was observable, therefore, at different speeds in different aspects, like most other agricultural regions of the country, but, on the whole like everywhere else, it was generally slow and gradually accelerating in the late eighteenth century.

There was one area, however, in which change had been very rapid if it is possible to believe the Board of Agriculture's surveyors. In the survey of the West Riding Brown stated that 'east of Doncaster to Thorne and Snaith three-fourths of the lands are... under the plough'. He considered that this area was the most arable orientated part of the corn district of the West Riding. The other parts of the corn district were 'About Boroughbridge, Wetherby, Selby and c.' where about half of the land was under the plough and 'about Pontefract, Barnsley and Rotherham' where two-thirds was ploughed.[111] William Marshall also emphasised the predominance of arable in the early nineteenth century. As he travelled from Thorne to Howden before he crossed the river Ouse at Boothferry he saw 'A herd of good milk cows:- almost the only stock *observed*, in this stage unless on the commons.[112] These two statements imply an enormous change in the agricultural economy of the region from the early seventeenth century and even from the later period covered by inventories up to

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[110] W. Sheardown, *The Marts and Markets, at Doncaster* (undated), Reprinted 1979, p 14
[111] R. Brown, *op cit*, p 78
[112] W. Marshall, *Eastern Department*, p 9

1760. The traditional view of the lowlands was of an area dominated by hay and pasture and in chapter II some attempt was made to modify this by showing that marshland agriculture was already inclining towards arable in the early seventeenth century and it was suggested that in terms of value of produce it was at least as important as pasture farming. The situation, it was suggested earlier in this chapter, had not changed significantly a century later in the Peculiar of Snaith and analysis of inventories outside the Peculiar for the period 1690-1760 showed the great importance of cattle and to a smaller degree horse breeding. Hey has written 'throughout our period [1640-1750] the district was noted principally for rearing and fattening, together with some dairying and horse breeding'.[113] It is possible to believe, therefore, that pasture interests had almost disappeared in the half century before the wartime survey. It seems to be clear that one of the main pressures in the region was towards the expansion of the arable but whether it had gone as far as Brown and Marshall claim is doubtful. Of the evidence on late eighteenth-century farming used previously the 1801 Returns are of no value as they are only related to arable but, fortunately, Brown's enquiries did involve estimates of arable, meadow and pasture and his figures cover sixteen parishes or townships within the research area; six predominantly on the marshland, five on the sandland and four on the eastern margins of the magnesian limestone. Figures were also given for Hatfield which was, of course, a huge parish which divided roughly into half marshland and half sandland. The acreages collected by Brown are:

Total	arable	grass	waste	woods
53,437½	30,189¾	20,461¾	2,486	300

To Brown and his fellow surveyors 'waste' meant common and this pasture when added to the figure for grass gives 22,947¾ acres of non-arable land, 42.94% of the whole. The commentators were obviously correct in their assessment of the dominance of arable but Brown's estimate of three quarters is a great exaggeration. There is no reason to suppose that the figures given by the incumbents to Brown were incorrect though the figure for woods is clearly a great understatement at 300

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[113] D. Hey, in J. Thirsk, (ed) *AHEandW* V i, p 80

acres given for one parish only, Edlington.[114] Coppices and woods were spread throughout the area and especially on the sandlands. Land use divisions were, of course, different in the three soil regions: the heavier low-lying marshy land was divided roughly equally between grass and waste at 47.19% and arable at 53.8%[115] and the sandland and magnesian limestone were divided very similarly at 38.94% grass/60.92% arable and 38.83% grass/58.08% arable, respectively. Arable was dominant in the whole region but nowhere to the extent supposed by Brown. Nor was it likely that a great change took place during the grain shortages of the wartime period. The statement made by Dean and Cole that 'During the French Wars...a big increase in the output of grain was achieved only by bringing more land under the plough at the expense of the nation's meat supply'[116] was long ago questioned by A.H. John who thought this relationship was 'doubtful' and that the increase was the result of a growth of productivity per acre and per worker. [117] John's view seems to be the more accurate reflection of the position in the Doncaster region for, as Stuart Macdonald has written, 'It is an expensive and protracted business to convert a farm from one function to the other. Indeed, much land would fail to respond to such radical change. So, too, would many farmers...'[118] It is possible that the farmers of this region were more accustomed to such changes than the Northumbrian farmers Macdonald was writing about but the preponderance of arable observed by Brown and his fellow surveyors was not a consequence of the war but of a very long trend going back to medieval times when the farmers of Hatfield expanded into the wetlands to grow crops whenever a long dry period gave them the chance to do so. This trend had been much reinforced in the eighteenth century and had contributed to the decline in the land given over to pasture but without necessarily reducing the amount of livestock. Indeed, much of the 'agricultural revolution' was based on this very trend for as Frank Moore had stated in the 1730s during the Hatfield tithe dispute, 'Since foder hath been got by sowing clover allmost all of ye Inclosed land that is fit for tillage is converted into Corne Ground'. Moore further claimed that

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[114] R. Brown, *op cit*, pp 87-98

[115] The inaccuracy in these figures is a result of some incumbents who gave a total acreage slightly less than the sum of the acreages for arable, grass and waste.

[116] P. Deane and W.A. Cole, *British Economic Growth 1688-1959*, 2nd ed (1969), p 75

[117] A.H. John, 'Farming in Wartime' in *Land, Labour and Population*, (1967), p 37

[118] S. Macdonald, 'Agricultural Response to a Changing Market during the Napoleonic Wars', *Ec.H.R* 2nd Ser. XXXIII, No 1, Feb 1980

since clover had been grown farmers had been able to reduce their hay land by two-thirds. Similarly the spread of turnips had reduced the need for other fodder and were grown on the hitherto unused fallow land. Even so, comments in the *Yorkshire Journal* indicate that the hay crop continued to be important but, as much land was suitable for arable meadow or pasture in the area and a great deal of land was ancient enclosure, there were fewer obstacles to changes in land use than in traditional midland open field areas.

This chapter has been concerned with the whole of the research area outside the Manor of Hatfield. It shows that there was a great deal of similarity between the Manor and the rest of the area in the way that agriculture changed between 1630 and 1800. In the seventeenth century the changes were slight but after 1700 change quickened as important developments occurred both nationally and locally. Throughout the whole period the basis of local farming was very similar with a mixture of pasture and arable farming dominated by cattle and the four main cereals. On the whole, wheat dominated in terms of value if not in the acreage devoted to it though in the heavier lands in the eastern townships of the Peculiar of Snaith and elsewhere it was the most important cereal. Rye and oats were also very important as was barley on some of the lighter lands. Sheep were also important on the sand lands of Armthorpe, Cantley and Barnby Dun and were folded on the arable as they were in the western townships of the Peculiar of Snaith.

For indications of change in the period 1630-1680, Peculiar of Snaith inventories are the main source and they have given indications of changes of some significance in both the short and the long run. In the former it is clear that the old light land cereals were disappearing rapidly and that wheat was catching up with rye in importance. Also that the industrial crops continued to be widely grown with flax taking over from hemp as the more valuable crop. There is also some indication that horses were taking over from oxen as the principal draught animals and that a consequence of this was an increase in the growing of oats. Another important sign of early progressive farming was the willingness in a period of agricultural decline to experiment with new and unusual crops both for fodder and for cash. Tares, vetches and turnips are among the fodder crops and mustard, rape, liquorice and fruit the cash crops

In the late seventeenth and early eighteenth century more significant changes were being introduced though some of them were slow to spread. Turnips did not become common on the light lands of the Peculiar until thirty or more years after they were cultivated in the open fields of Hatfield though on the sandlands of the Chase, such as in Cantley, they appear at the same time as in Hatfield. Clover also spread in the whole of the research area from c.1750 especially in the heavier lands in the east of the Peculiar. The new grasses such as sainfoin were being grown in the later part of the century.

Small scale enclosure was occurring outside the Manor throughout this period. Large scale parliamentary enclosure after 1750 was so important that it is the subject of the next chapter. The men behind these changes were of the same group who forced change in Hatfield in the 1720s. They were owners of moderate estates, and larger farmers who tended to have a greater interest in agriculture than the making of profit. Branches of the Cooke family who owned the three local estates of Wheatley which included Arksey with Bentley, Owston and Armthorpe with Streetthorpe (Edenthorpe), were involved in drainage, rationalising land use and adopting the latest ideas and pedigree animals such as the Improved Short Horn cattle, Leicester sheep and even imports such as Spanish Merinos.

This period, therefore, provided the basis for the area to become the most agriculturally advanced part of the West Riding and a pioneering region for the light land revolution which turned sandlands into one of the most cost-effective cereal producing areas of the country.

CHAPTER VII

PARLIAMENTARY ENCLOSURE IN THE EASTERN TOWNLANDS

The bulk of enclosures by act of parliament in the townlands east of Doncaster took place between 1750 and the end of the Napoleonic Wars though some lingered on into the mid-century. Enclosure was an important element in the modernisation of agriculture in the nineteenth century. Not surprisingly it coincided with attempts to improve the drainage of the wetlands and to warp the wettest parts as all three were a product of the increasing profitability of farming which started about 1750 after a century of depressed prices.

Parliamentary enclosure was, of course, a national movement in which the remnants of the open fields, commons and wastes, which had been part of the traditional communal agricultural system in much of the country, almost completely disappeared. In the research area, as elsewhere, enclosure by means of an act of parliament completed a process which had been going on for centuries by other means.

Enclosure awards frequently included provision for improvement of drainage and whilst these were mostly on a small scale they were adequate in drier areas. The enclosure of Epworth, in the Isle of Axholme, and of Hatfield included drainage schemes but these were only a part of the drainage work which went on during this period. Even so it took over another century before it could be said that the drainage was 'perfected'. Before the drainage was made satisfactory, in the period before and after the Second World War, a large step had been made towards making the wettest lands productive by the artificial warping discussed in the next chapter. Warping was carried out on the marshes and carrs nearest to the rivers Don, Ouse and Trent. By this means some of the claims made by Vermuyden and his supporters nearly two hundred years earlier at last began to be realised.

The process of parliamentary enclosure was one of the first areas of agricultural history to receive serious attention from twentieth century historians.[1] Even so traditional views that English agriculture was still largely medieval in its basic organisation until c. 1750 remained strong until relatively recently. Over the last half century, however, it has been increasingly accepted that enclosure by act of parliament was the culmination of a very long process of piecemeal and often clandestine erosion of the open fields, commons and wastes. At its most extreme this view claims that parliamentary enclosure was only a minor tidying up operation after the bulk of enclosure had occurred by the middle of the seventeenth century.[2] There is some justification for this view within the research area for, in marshland areas, the open fields tended to be a small proportion of the agricultural lands of the manor, and manors and parishes tended to be too large for close control so that casual enclosure occurred from early times. Indeed, Arthur Young found that in parts of marshland Lincolnshire there was a belief in a right to enclose, and there is evidence that the same belief was held in Hatfield.[3] Also, as a former forest area, much land had been park which tended to have been enclosed early and leased outside the traditional system.

The Earls of Warenne who owned Hatfield manor at Domesday had three parks two of which were enclosed by the time of John de Warenne's death in 1347. Even part of Hatfield Great Park, which survived largely intact into the seventeenth century, was rented. One of the consequences of the sale of the Manor to Sir Arthur Ingram was that his grandson encouraged Edward Simpson to enclose and sub-let the bulk of the Great Park in the 1660s with the disastrous results described in Chapter V. Enclosures in the parks were, of course, the result of conscious decisions by the lords but the results of the informal processes were seen in the discussion of the 1607 Survey of the Manor in Chapter V where the results of centuries of piecemeal enclosure were seen to be recognised and regularised by the additions of small fines to the rent. The full extent of this process can be seen in the Survey commissioned by

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[1] Notably by E.C.K. Gonner, *Common Land and Enclosure* (1912); G. Slater, *The English Peasantry and the Enclosure of the Common Fields* (1907); H.L. Gray, English Field Systems (1915)
[2] E. Kerridge, *The Agricultural Revolution* (1967)
[3] S.A. Johnson, 'Enclosure and the Changing Agricultural Landscape of Lindsey from the sixteenth to the nineteenth century', unpublished MA dissertation for the University of Liverpool, 1957, p 21, citing Arthur Young, *General View of the Agriculture of Lincolnshire*, 1799

Sir Edward Osborne in 1634 at the beginning of his brief period as lord of the manor, Table VII(1).[4]

Piecemeal enclosure continued, of course, after 1634 especially on the farmlands nearest to the townships. Hatfield West Field, for instance, had shrunk to less than half its original size by the time the pre-enclosure map was drawn in 1811. This map also shows two small areas of open field among the many tofts and closes of Hatfield Woodhouse and suggests that at one time the area had been part of Mill Field, also a survey of Thorne 'Field Lands' carried out in 1786 shows that the South, or, Little Field, only contained ten lands with an acreage of three acres 22 perches and that the North, or Great Field, was only 30 acres, 3 roods, 9 perches divided into one hundred lands.[5] It is clear that although Thorne open fields had always been small they had been encroached upon recently and illegally for the enclosure award of 1825 shows that somehow the Little field had grown again to over 49 acres and the Great Field to over 155 acres.

Table VII(1)
Enclosed Lands in the Manor of Hatfield in 1634
(excluding the drained lands)

Township	No of Closes	Acreage	Closes with no acreage
Hatfield*	322	669a, 34, 10p	nil
Stainforth	254	728a, 1r, 0p	14
Fishlake	420	1,266a, 0r, 20p	nil
Sykehouse	408	1,488a, 2r, 0p	nil
Thorne	91	140a, 2r, 0p	32
TOTAL	1,485	4,236a, 2r, 30p	46

*includes Hatfield Woodhouse and Tudworth, 'closes' including pighills, pightles, purprestures and shaws.

In Chapter V it was claimed that the tithe case documents of the 1730s showed how important closes were to the arable farming of the manor and particularly to crop

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[4] B.M. Egerton MS 3389
[5] Sheffield Archives, E. Elmhirst, 1075

innovation. Some of the defendants in the case had 'ancient closes'. Some of these were not very ancient and the tithe case had a sub-plot relating to recent illegal enclosure which illustrated some of the processes by which closes were created and enlarged. Captain John Hatfield was a soldier in the parliamentary army and a member of a south Yorkshire gentry family who settled in Hatfield about 1650. By the time of the tithe case in the 1730s his grandson, John Hatfield III, lived in Hatfield House, a later seventeenth-century mansion built on the south side of the West Field. In his written evidence to the Chantry commissioners the third John Hatfield stated that:

> In ye year 1731 he had held about three acres one rood of clover grass made into hay on part of his ancient land being meadow and called ye new close being taken of ye field called ye west field buting on ye West Field north and west and took of ye waste about fifteen years ago.

It has been shown that before the West Field took its turn in a cropping course that included clover and that some lands were so worn out with regular cropping that they were put down to grass but that did not make the West Field 'meadow' nor could it be called 'waste' and it seems that Hatfield was using these terms to confuse the issue, which was whether arable land on which turnips and clover were grown should pay tithe in kind or the traditional penny per acre modus on meadow and pasture. The words were probably also chosen to justify his enclosing a part of an open field. Hatfield House had almost certainly been built on the edge of the West Field and by 1811 the pre-enclosure map shows the grounds taking up a very large part of the Field.

By the early eighteenth century the Hatfields were the most important family in the township and possibly in the manor but lesser men were also engaged in enclosing as John Newsome's evidence shows. Newsome stated that he held lands from 1731-1733 that had been inclosed from the common arable fields:

> to wit one close... by estimation one acre adjoining the farr field... and one close called Deans Ing East and being ancient enclosure ..he had been informed that it was inclosed from the farr field a long time ago by one Mr John Cook and hath continued ever since...he had one acre in North Ing...buting on the farr field south and the Inclosure called Stevens Ing north, two roods in Brearholme Ing... which had been inclosed by Thomas Watson

> in... 1720 and in the year 1733 by the tenants then in possession whose names he did not know.

Most of the defendants, and it must be remembered that they were only a small proportion of those who could have been accused, admitted to recent enclosure but, according to the evidence in the related trespass case, Parish v. Jackson and Cooke, in which elderly inhabitants were called to bear witness that a close was ancient, such inclosing was a custom of the Manor. Elizabeth Gilate was prepared to state that the close in dispute was fenced from the field fifty years ago and she had heard that 'there has been a Right to Inclose from all the Fields in Hatfield Town Time out of Mind'.[6] That this should be an accepted custom of the manor seems unlikely though Arthur Young found a similar belief in the adjacent part of Lincolnshire. It seems more probable that the belief in a right to inclose derived from a custom of occasional enclosure which became permanent by default. William Jackson said in his tithe case evidence that he had:

> land inclosed from the Common arable in all the years [1729-1734] viz six roods in Briarholme Ing... inclosed by the defendant in 1733... and that in the year 1728 Thomas Dearman who was then in possession thereof Inclosed the same and believe this may have been several other times Inclosed. He also had nine roods in North Ing... Inclosed as Briarholme Ing before... these two Ings... are accepted and taken to be part of the ffarfield being arable and lye open to the same.

Piecemeal enclosure of the open fields was often preceded by the consolidation of the lands or selions. This process was already well advanced by the time of the 1634 Survey of the Manor of Hatfield, except in Thorne, which had, in spite of the almost complete disappearance of the open fields by 1786, almost no consolidation in 1634. Consolidation was probably a response to the extremely small size of many of the lands in the manor, the bulk of them, especially in Hatfield, being of one rood and, in some furlongs, half a rood. Most consolidation, by 1634, had been done by the more powerful figures in the manor. In Hatfield, for instance Mr Yarborough, a considerable landowner in the area, had in Farrfield, consolidated lands in all five furlongs which gave him nine acres in two pieces of five and four acres which represented five and six consolidated lands respectively. In Haddam Field he had

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[6]WYAS WYL 100, TN/HC/B/17, Parish v Jackson and Cooke

twelve lands consolidated which only amounted to two acres and seven lands together amounting to three and a half acres. In the four fields he had 69 lands in total consolidated into 14 parcels as well as many single lands. Mrs Portington, widow of a gentry family of Tudworth and Barnby Dun, and Mr Lee, son of Sir Henry Lee of Quarrendon, Bucks, had much less land than Yarborough but had consolidations ranging from four lands to ten. The Parsonage had six groups of consolidations including one of five 20-perch lands. Consolidation was particularly marked in the furlong nearest the town in West Field. There only two single lands remained in 1634.

Piecemeal enclosure by encroachment on the open fields, commons and waste meant that by the time parliamentary enclosure was agreed upon much of the land was already in closes. Obviously many had done as James Fretwell of Norton recorded in his diary for April 1730, 'I enclosed a little bit of the West Field by annexing it to the north end of West Close.'[7] This was so in many parts of the research area. In the most extreme case, Balne, in the parish of Snaith, no open field land was left to enclose by parliamentary act and there were 2,397 acres of ancient enclosure in a township acreage of 2,840. Similarly in the townships of Moss and Fenwick of Campsall parish the amount remaining for enclosure by act was small. Three hundred acres in Fenwick out of 2,371 acres in the township and 700 in Moss of a township total of 2,497 acres. In the early eighteenth century Fenwick had had seven open fields. At the same time in Campsall about half of the open fields had been enclosed.[8] W.S. Rogers, who mapped parliamentary enclosures for the whole of the West Riding of Yorkshire claimed that it showed the partial nature of the majority of such enclosures in the Riding and that his map 'demonstrates very clearly that overall, this is the final, clearing-up stage in the history of West Riding enclosures'.[9]

Nevertheless the period of parliamentary enclosure was very important in the history of agricultural change. Landowners and large farmers had become increasingly impatient with the limitations of common husbandry and although these were not the

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[7] C. Jackson (ed), *Yorkshire Diaries I*, Surtees Society No 65, 'Diary of James Fretwell', p 211
[8] D. Holland, *op cit*, (1980) p 15
[9] W. S. Rogers, 'The Distribution of Parliamentary Enclosures in the West Riding of Yorkshire, 1729-1850', unpublished M Comm Thesis, University of Leeds, 1952, p 33

barrier to agricultural innovation that they were once thought to be by historians to be contemporaries in the mid-eighteenth century were bombarded with propaganda against them. Once farming began to be more prosperous, as the effects of population rise began to be felt, the drive to remove the last vestiges of open field agriculture began to grow more intense, although for nearly a century after c.1750 the rate of parliamentary enclosure fluctuated. Several explanations have been given for the variations in the timing of the movement suggesting that interest rates were an important factor as well as high prices in wartime and the example of neighbouring parishes. In the research area it appears that there was a general drive to enclose by act in the earliest period of parliamentary enclosure but not all parishes were able to translate the drive into action. The explanation of the timing of an act to enclose appears to be found more in the size and complexity of the parish or manor than in differences in enthusiasm or in the national situation.

There were 19 parishes in the research area which could be classed as small, i.e. under 7,500 acres. They ranged in size from Kirk Bramwith with 1,326 acres to Kellington with 7,482 acres. Ten of them were below 4,000 acres. These small parishes included 31 townships, although ten were single township parishes. Fifteen of these parishes had an enclosure award in the first burst of enclosures before 1783, eight of them being single township parishes. Kellington's award was in 1793, Loversall has no recorded award and Burghwallis, although it was the second smallest parish, did not have an award until 1818. It also had a second award, a very small one, as part of the Sutton-in-Campsall award of 1858. Fishlake as part of the huge Manor of Hatfield, did not have an award until 1825. Five other small parishes had second awards three of which were during the Revolutionary and Napoleonic wars and two, Bentley with Arksey and Adlingfleet, were late at 1830 and 1847 respectively. The 15 awards before 1783 involved 22,234 acres (although a small amount belonged to the large parish of Campsall) of a parish area of 61,767 acres. The later secondary awards involved another 2,628 acres. The total enclosed was, therefore, well under half the total area of the parishes.

The other five parishes in the research area were very different in size and complexity. They ranged in size from Whitgift at 8,942 acres to Snaith with 32,102 acres and all, except Thorne, included several townships: Whitgift and Hatfield had

four each, Campsall had six and Snaith had eleven or twelve if Goole Fields is considered separate from Goole. In the large parishes with many townships the process of enclosure could take a very long time. In the case of Whitgift the first of three acts was passed in 1759, the third award was made in 1834. In Campsall the first act was passed in 1779 and the fourth award was made in 1858. In Snaith. enclosure took 102 years from an act to confirm enclosure by agreement in Snaith. Cowick and Rawcliffe in 1752 to the award to enclose Rawcliffe Field in 1854. There were six separate acts and awards affecting very different types of area. Some were of a single township, some were of combinations of townships and, in two cases, there were combinations with townships outside the parish. In Campsall too the enclosure of Moss township was combined with Kirk Bramwith, a separate parish.

In these three large parishes the length of the enclosure process was partly a result of the multiplicity of townships with their own separate open field systems and agricultural organisation which led to enclosure being sought at township level rather than at parish level. It was also partly a result of the enclosure of field and commons at different times, but in all three cases enclosure by act of parliament started early. In the case of Hatfield, Thorne and Fishlake this was not so as they were all part of the Manor of Hatfield and the problems arising from the debate on the ownership of the soil resulting from the ruling of the Council of the North in 1630 were not finally ended until the enclosure bill was passed in 1811. Thus when an act was finally obtained it was for the manor rather than for the parishes or townships. Also it was only on a manorial basis that the problems of the commons could be settled. There were three major problems which it was hoped parliamentary enclosure would solve. These were, the distance of their commons from Stainforth, Fishlake and Sykehouse, the overuse of the commons and their largely wet and useless state. The first two problems tended to overlap, the Fishlake Bye-Law book, for instance, shows several cases of Thorne men being fined in the Bye-Law court for trespass on Fishlake Commons, which were nearer to Thorne than to Fishlake. The Hatfield vestry in the early eighteenth century made several attempts to prevent abuse of the commons by individuals but mostly the problem was that the commons were unstinted and too many people had common right. The wetness of the commons was a subject of complaint to the Commission of Sewers soon after the drainage was completed in the

seventeenth century. The previously quoted comments of the Board of Agriculture's surveyors in the 1790s shows that they were little better then.

The enclosure act for the Manor was not passed until 1811 and although the award of the allotments in the open fields and ings was completed and handed over to the new owners by 1813[10] it was 1825 before the award was finally published. This period of 14 years between act and award was long enough but it was only a small part of the period during which some of the owners in the manor had been pushing for a parliamentary enclosure. Attempts to procure an act went back to 1787 and there were probably earlier moves. The 1787 attempt arose out of the dissatisfaction of larger farmers with the overuse of commons especially by smallholders and occupiers of messuages without land attached to them. A Deed of Association was drawn up with the intention of making regulations to limit rights of pasturage. To thwart this an opposition group proposed a bill of enclosure to prevent or delay the regulation of the commons. The contest between the two rival groups was carried on in the pages of *The Yorkshire Journal* which had started publication in Doncaster in 1786. The dispute came to a head in three separate advertisements in the issue of 6 October 1787. The first advertisement which was headed 'Hatfield Inclosure' referred to a 'respectable' meeting of proprietors and their agents on the 24th September at the Red Lion in Thorne, where it was resolved by a 'Majority then present' to apply to parliament for an 'Inclosure and division of the commons'. It also announced a meeting at the Bay Horse, Hatfield to be held the 29th October to draft a bill and to free those who had signed the Deed of Association from 'all future Inconvenience and Expense that must...attend so improvident a measure'. A second advertisement from the rival group claimed that the agreement to enclosure was only carried out because many of the commoners who 'resorted to the meeting prematurely withdrew themselves...supposing that no question was to be put'. A third advertisement followed up this accusation of trickery by calling for a meeting at the Bay Horse, Hatfield to reject the proposed enclosure and 'to carry into effect the Plan of Regulation' of the commons. Both these schemes appear to have been dropped possibly because neither side could muster sufficient support. It is also

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[10] B. Brown, *The Story of Robert Forster's Charity* (undated), Doncaster, p 14

likely that both schemes came up against the determination of the Lady of the Manor to use enclosure to assert her claim to right of ownership of the soil in the Manor.

Having lost their hope to regulate the commons the larger farmers opted for enclosure. Attempts were made to start the process in 1794, 1800, 1801 and 1802 and all failed. The desire of the major landholders in the manor for an act of enclosure was a good opportunity for the last of the descendants of Sir Arthur Ingram to have her right to the soil recognised. Legal cases going back to 1640 had always decided the issue in favour of the commoners. First, however, the Lady of the Manor, the Marchioness of Hertford, started legal proceedings to reverse the decision of the House of Lords in 1750. Through her husband, the Marquis, counsel's opinion was sought. Once again the whole history of the dispute going back to 1630 was recited and once again opinion went against the Ingram claim. Mr Sergeant Williams and Sir William Romilly advised the marquis that the lady of the manor of Hatfield had 'no right to the soil' on the broad lanes and common waste lands. They also rejected her claim to right of pasturage on the common in right of ancient demesne lands but accepted her right in respect of messuages purchased by her or her ancestors since 1633. This opinion was given in October 1809 but it did not affect the Hertfords' determination to make good their claim as is seen in the Preamble to the enclosure award of 1825 where it is stated that the Lord and Lady of the Manor 'claimed...to be entitled to...the soil of and in the Commons Moors Lanes and Waste grounds within the said Manor'. It must be assumed, therefore, that between October 1809 and February 1811 when the draft of the successful bill was completed those pushing for the enclosure capitulated to the demands of the Hertfords without whose support no bill could be successful.

There were also major problems over tithes, enfranchisement of copyhold and drainage. A meeting at the White Hart in Thorne in February 1811 resolved that Major Creyke [of Rawcliffe Hall] should submit a proposal to Sir Henry Etherington Bart [of Hull] to commute the tithes of Hatfield, Thorne and Stainforth on the same terms as had been accepted by the Dean and Chapter of Durham for Fishlake and Sykehouse. It was also resolved that if Creyke's approaches failed 'the bill should be persisted in leaving the said lands subject to tithes', which is what occurred. A further resolution authorised the committee 'to treat with the Marquis of Hertford for

enfranchising the Copyhold Estate...at a less number of years than he had proposed to take' and to accept the best terms they could make. Similar arrangements were made for enfranchising the copyhold in the minor manors.[11]

The surveying and allotting of the land was a huge task in a manor of 41,042 acres although much of the area was not included as much was enclosed already; even so the award was 263 pages long. The distribution of the remaining townlands was quickly done but it had long been recognised that the enclosure of the commons and waste would be a long business. During the preliminaries to the 1801 attempt to introduce a bill to parliament the engineer William Jessop had been consulted on drainage and submitted a report 'To the owners of land interested in the intended Inclosure of the Commons and Wastes in Thorne and Hatfield' which suggested that much had to be done before enclosure was worthwhile. Consequently the 1811 Act stated that the commons and waste would not be allotted until drainage had taken place. Thus although the award included provisions for dyking and ditching, as most awards did, there was a quite distinct 'Act For the more effectually Draining and improving Lands, within the Level of Hatfield Chase, and Parts adjacent.'[12] The preamble to this act specifically referred to the 1811 Enclosure Act stating that the 'several purposes' intended in the enclosure act 'cannot be effected without the Aid and Authority of Parliament'. There followed detailed provisions for drainage which appointed commissioners, gave instructions on the work to be carried out and methods of paying for it. It is not clear when the work was finished but even when it was the award could not be made as the Earl of Manvers objected to the effect of one of the new drains on his adjacent land. The result of this great effort was the enclosure of 1,804 acres of open fields and ings and 6,974 acres of commons and waste. This latter figure included 647 acres of Thorne waste but the bulk of Thorne waste c. 8,400 acres was left unenclosed because of its state.

The Manor of Hatfield was not the only intended enclosure to be delayed by difficulties. Rogers has shown that in eight other areas enclosure proposals came to nothing. An attempt for a second enclosure in Bentley with Arksey failed in 1805, 23

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[11] Sheffield Archives, Papers of Clark and Co., Snaith, SCR 365
[12] Doncaster Archives, AB9/TC2/1/7

years before an act was obtained. Failed attempts put off successful acts for over ten years in the case of Barnby Dun (1792-1803), Reedness and Swinefleet (1779-1793) and Kirk Sandall (1793/4-1806). Campsall, Norton and Askern failed to secure an act in 1812 but succeeded a year later. Burghwallis, which had failed with Campsall in 1812, had to wait until 1854 before an act for its enclosure was finally passed. An attempt to enclose Doncaster Town Field in 1815 failed and the land is still largely open. Barnby Dun, Kirk Sandall and Burghwallis were small parishes which had difficulties in securing enclosure acts but on the whole it was the large parishes with many townships in which the enclosure process was most long drawn out and difficult. In a little over a century in an area of c. 161,000 approximately 51,000 acres was enclosed by parliamentary means. This included 14,994 acres of townlands – open fields and ings and 36,060 acres of commons and waste.

The effect of this period on the agriculture of the research area is not easy to determine. Obviously open fields, commons and much waste came into individual ownership and the landscape became more fenced and hedged, although large areas of it were so enclosed before 1750. Obviously also, individual farmers were free to adopt new methods of farming but Chapters V and VI show that they were doing so without the benefit of parliamentary enclosure early in the eighteenth century. In some parts of the country, especially the midlands, enclosure resulted in the creation of isolated farmsteads surrounded by ring fences[13] but there was no great movement of farmsteads from village nucleations in the research area. This was largely because the farms required scattered lands of different types to meet their farming needs and also because much land was still wet and unsuitable for crops. New farms were created on isolated sites such as Owston Grange in 1809 nearly sixty years after enclosure.[14] In Cantley, where the commons were still unstinted in 1761, the farms called Kilham Fen, Cockwood, Gate and Boston Park on the commons were post-enclosure creations. Similarly the name South Wood Field Farm in Armthorpe implies a post-enclosure creation. An undated Harvey Estate map of Finningley (c. 1850) indicates that much of the Harvey lands were in ring fences by that time but they did not necessarily have new post-enclosure farms central to them. Acomb

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[13] W.G. Hoskins, *The Making of the English Landscape*, (1955), pp 204-10
[14] D. Holland, *op cit*, pp 35-36

Farm, for instance which was on the northern boundary of Blaxton now had its land in a ring fence but the farmstead was on the northern edge of it on the same site as it had been since at least the sixteenth century. By and large the farms were still in the village settlements, this was clearly so in Bentley and Arksey, in the Hatfield Manor townships and Finningley. There were many scattered and isolated farmsteads but these were a product of earlier settlement, as in Fishlake and Sykehouse, Moss and Fenwick or the seventeenth-century drainage which produced its own landscape of widely scattered farms.

Much has been written on the effect of enclosure on small farmers. In an area where there were many small farmers, smallholders and labourers who also rented land, freedom to use common pasture, especially where it was unstinted or unregulated, could be very important to survival. In enclosure large areas of the common passed into the hands of lords of the manor, tithe owners and large proprietors, all, usually, outsiders. An early example of this occurred in the enclosure of part of the commons of Bentley with Arksey in 1759. Of a total of 958 acres enclosed the Lord of the Manor, Sir Bryan Cooke, was awarded 351 acres in 15 allotments. Another 192 acres went to gentry families and the rest was awarded in 61 allotments to others with common rights in amounts varying from two to 19 acres. The owners of common right cottages who were awarded the smallest amounts could well have resented exchanging their former right of common for two acres but they could have done much worse. Richard Gibson, a beneficiary of the award, wrote to the enclosure commissioners from Nottingham on 10 January 1759 to complain at a decision made at an enclosure meeting that:

> Every Cottage to have half as much as a messuage and Farm of 30L p. ann. as to that of mine I dare say could not cost less than 600 Building and should think it very unreasonable that a little bad cottage not worth above 20 or 30L should be intitled to half as much inclosure if that was ye result of the meeting I think the planning bad and youll give me leave to dissent from what I think is so very unreasonable.[15]

Many others felt similarly but twelve of the owners of cottages refused to sign the articles of enclosure unless cottages were allotted half the amount of messuages and

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[15] Sheffield Archives, Cooke of Wheatley, CD XVI, Misc

they seem to have had their way. Gibson's complaint reflects the attitude of the larger farmers to cottagers and echoes the remarks of John Hatfield III about Hatfield commons made twenty years earlier during the tithe case. He claimed:

> As to a cottage their abilities at most is keeping a cow in the Summer wch the farmers reckon but a Trifle upon the Common, so the present scheme [unstinted] bee greatly in favour of the Cottages and worse for the Farmers that wont be capable of keeping near the stock wch I am told are of good account to the farmers.

In Bentley with Arksey 70 years after Gibson's letter, as a result of the second enclosure award, another 1,448 acres out of 1,839 came into the hands of Sir Bryan's descendent Sir William Bryan Cooke. In neighbouring Adwick le Street at the enclosure of 1761 the Lord of the Manor, Anthony Eyre, was allotted 199 out of 350 acres of common and 300 out of 500 acres in the open fields. The bulk of the rest was allotted to Lord Pollington and two gentry families. Only ten other allotments were made, one of under an acre to the pinder, five were made to John Tyas of 'Adwick in the Street', yeoman, amounting to seven acres one rood two perches of the commons, 29 acres three roods ten perches in the open fields and just over an acre in the ings. Tysas was the only local farmer to receive any land, the other four small allotments went to men in neighbouring parishes. In Finningley also the locals found little of their former commons coming to them. Eighty-three allotments were made amounting to 2,537 acres in the three townships: Finningley, Blaxton and Auckley. Of this, 672 acres went to the lord of half the manor, John Harvey, 902 acres to the Rector, John Harvey's uncle, Edmund, and Childers W. Childers, Lord of the Manor of neighbouring Cantley and lord of a quarter of Finningley was alloted 162 acres. The lord of the other quarter, William Killam, was allotted 51 acres. 1,787 acres or 70% of the total allotted went to four out of 35 allottees.

In the Manor of Hatfield a huge area of commons was enclosed, nearly 7,000 acres. It was divided into 1,164 allotments of which hundreds were allotted to small farmers and cottagers. But the vast bulk of the land enclosed 5,948 acres went into the hands of a few. 1,657 acres to the Dean and Chapter of Durham in lieu of tithes and glebe in Fishlake and Sykehouse, 1,264 acres to William Gossip, the heir of the Hatfield estate, 1,037 acres to a John Benson, 650 acres to a Joseph Atkinson and 941 acres to the Lady of the Manor for manorial rights including copyhold rents.

fines and her recently won 'right in the soil'. To meet the costs of the enclosure another 1,116 acres were sold mainly to Gossip, Benson and Atkinson, this amount is included in their allotments.

Towards the end of last century polemical writers blamed the parliamentary enclosure movement for the destruction of English rural society. Rural workers were 'divorced' from the soil, the peasant and the 'sturdy' yeoman were replaced by large tenant farmers and rural depopulation was accompanied by the great growth of towns. Whilst the definition of 'peasant' is still obscure in the English context, that of 'yeoman' no longer implies only the small landowner/occupier but a small farmer whether an owner or tenant and often both. It is this group which it is supposed was most affected by the loss of the commons and the costs of fencing and hedging their small allotments. The catastrophic effect of the parliamentary enclosure was first modified by A.H. Johnson in 1909.[16] He showed that the decline of the yeoman or small farmer was part of a long process to which parliamentary enclosure contributed but did not cause. Johnson pioneered the use of the land tax to assess changes in the scale of landownership, a source which has been much used since, notably by E. Davies who concluded after a study of land tax returns in many counties that:

> After 1780 [enclosure by Act of Parliament] led to an increase of all grades of occupying owners; and before 1780 it is doubtful whether they were affected adversely, since they were present in greater numerical strength in parishes which had undergone such enclosure than in those still in open field.[17]

The tables VII(2), VII(3) and VII(4) are attempts to use the land tax returns to compare the social structure of three townships in the research area before and after parliamentary enclosure. Table VII(2) compares the land tax returns for Barnby Dun before and after the enclosure of 1803-1807 which enclosed 1,332 acres of open fields, ings and commons. It appears to support the view that small owner occupiers increased as a result of the enclosure as those owner occupiers paying the three lowest categories of tax, up to 15 shillings increased from 14 to 26. There was hardly any change in the two highest categories. The number of non-occupying owners

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[16] A.H. Johnson, *The Disappearance of the Small Landowner*, (Oxford) 1909
[17] E. Davies, 'The Small Landowner, 1780-1832, in the light of the Land Tax Assessments', *EcHR*, I (1927), 1. Reprinted in E.M. Carus-Wilson, *Essays in Economic History*, Vol I, (London), 1954, p 293

Table VII(2)
Land Tax Returns for Barnby Dun, 1802 and 1814[1]

Category of Taxpayer	up to 5/-		5/- to 10/-		10/- to 15/-		15/- to 30/-		Over 30/-		TOTALS	
Year	1802	1814	1802	1814	1802	1814	1802	1814	1802	1814	1802	1814
Owner occupier	11	12	3	10	0	4	3	2	8*	9*	25	37
Non-occupying owner	6	11	4	4	1	1	2	3	6	6	19	25
Tenants	7	11	4	5	1	1	1	3	6	9	19	29

* including the River Dun Company

[1] Doncaster Archives, LTA 6

Table VII(3)
Land Tax Returns for Bentley with Arksey, 1808 and 1834[1]

Category of Taxpayer	up to 5/-		5/- to 10/-		10/- to 15/-		15/- to 30/-		Over 30/-		TOTALS	
Year	1808	1834	1808	1834	1808	1834	1808	1834	1808	1834	1808	1834
Owner occupier	16	10	5	5	8	12	6	1	9	7	44	35
Non-occupying owner	16	24	10	9	7	12	4	3	11	6	50	53
Tenants	39	28*	15	21	9	28	9	7	26	26	98	110

* This number refers to tenants of land. There were also 113 tenants of houses and cottages. Most of the cottages were not assessed for tax.

[1] Doncaster Archives, LTA 8

increased from six in 1802 to 11 in 1814 in the highest category and from 13 to 19 in the four lowest categories of taxation which also implies an increase in the number of small owners. Though whether they were owners of land is not clear as no indication is given in the returns of what was being taxed. Much of the apparent increase in the number of small owners, both occupiers and non-occupiers, in the lowest taxation categories could have referred to owners of cottages or houses only. The increase in the number of tenants in all categories from 19 to 29 is largely explained by the entries for Thomas Gresham who was the leading owner occupier in 1802 with no tenants and paying over £23 in tax. In 1814 whilst he was still the leading owner occupier paying slightly less tax he had also become the leading rentier with seven tenants of property taxed at between £6-10-6 and two shillings and sevenpence.

Table VII(3) compares the land tax returns of Bentley with Arksey for 1808 and 1834 before and after the parliamentary enclosure of 1827-1830 in which 1,800 acres were enclosed. The years compared in Barnby Dun were years of wartime prosperity for farmers whereas the much longer period between the years of comparison in Bentley with Arksey covered not only the enclosure but also the very difficult years, for farmers, at the end of the Napoleonic Wars. Nevertheless the assessments indicate some of the ways enclosure affected the parish.

The comparison before and after enclosure in Bentley with Arksey shows a decline in the number of owner occupiers in the lowest and the two highest categories with an overall decline but there was a slight overall increase in non-occupying owners which all occurred in the three lowest categories from 31 in 1808 to 45 in 1834. In the two highest taxation groups the number of non-occupying owners was nearly halved. The number of tenants in the highest taxation group remained static but there was a doubling in the middle range between over five shillings to 20 shillings. The apparent decrease in the number of tenants taxed at under five shillings is a consequence of the greater clarity of the 1834 Returns. Most of the entries in the group did not refer to land and were omitted. The assessments show clearly the impact of enclosure on the power of the lord of the manor who was also the chief landowner. In 1808 Sir George Cooke had 44 properties all rented except one. Nineteen of his tenancies were in the highest category of tax and ranged up to

Table VII(4)
Land Tax Returns for Hatfield Parish, 1811 and 1834[1]

Category of Taxpayer	up to 5/-		5/- to 10/-		10/- to 15/-		15/- to 30/-		Over 30/-		TOTALS	
Year	1811	1834	1811	1834	1811	1834	1811	1834	1811	1834	1811	1834
Owner occupier	64	62	23	28	9	16	8	9	6	7	110	122
Non-occupying owner	96	65*	28	25	19	14	23	13	16	13	182	130
Tenants	120	155	33	36	21	17	24	17	24	23	222	248

* This figure includes 32 non-occupying owners of more than one holding. Many were of houses only and many occupied some of their land as well as renting some. Ten owner-occupiers had five or more tenants in 1834. These are counted only once for each tax category.

[1] Doncaster Archives, LTA 20

£14-15-0. Eleven were in the lowest category and were taxed as low as threepence. These were obviously tiny cottages. In 1834 his son, Sir W.B. Cooke, had 77 tenants of whom 12 were of cottages houses or gardens. Thirty-six were in the three highest categories and 23 of these were in the highest and represented very large farms in a region where farms tended to be small. Although the number of owner occupiers increased in Barnby Dun and the number of non-occupying owners increased slightly in both parishes the overriding impression is that enclosure greatly increased the power of the most powerful men.

Table VII(4) compares the pre- and post-enclosure Land Tax Returns for the township of Hatfield, excluding the rest of the Manor, for the years 1811 and 1834. Hatfield was very different in agricultural structure from the other two examples. It was much larger, of course, the lord of the manor was an absentee and although he was a very large landowner there were also several other very large landlords. Many changes in landownership had already occurred in the struggle to achieve an agreement to enclose in the two decades before the Act of 1811. The Manor Court Rolls of those years show a great many land transfers from small copyholders to buyers who were vigorous supporters of enclosure and great beneficiaries from it later. The names of John Benson of Thorne, gent, William Elmhirst of Ouslethwaite, Darfield, John Ellison of Thorne, Esq, William Gossip of Hatfield and Richard Slater Milnes of Fryston Hall all occur frequently. The sellers were often not inhabitants of the manor although they were frequently described as 'late of Hatfield'.[18] The Land Tax Returns indicate an increase in owner occupiers in every category of taxpayer except the smallest though the overall increase was small. Unlike Barnby Dun and Bentley with Arksey there was a marked decrease in the number of non-occupying owners although this largely reflects the great increase in multiple tenancies in the lowest category and many in this category represented houses only. Even so, in every higher category, there was a small decrease in non-occupying ownership which presumably represented the sale of land by absentee owners. It is possible that some sellers were acquiring capital to set themselves up as tenants on new larger farms but the figures do not indicate any great change in the number of farming tenancies as most of the increase of tenants is amongst the smallest taxation group.

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[18] WYAS, DB 205, Hatfield Court Rolls

Although the land tax returns have been used so much to assess the changes brought about by parliamentary enclosure the results are, at best, vague and unsatisfactory as G.E. Mingay clearly established.[19] This is possibly less so in a very small sample and, as Mingay claimed, 'The relative paucity or plenty of small owners is one fact the returns can indubitably establish'. Generally he considered that 'the unreliability of the returns makes 'detailed investigation of land tax assessments... simply not worth while'. Despite this warning of their limitations as a source the land tax assessments have been used for increasingly ambitious projects.[20] Ginter has produced an extended and detailed criticism of the ways the assessments have been used to establish acreages and especially of studies with an urban base or a wide geographical coverage. Even for studies of the impact of enclosure on the small landowner he considers that after 1798 the assessments are too inaccurate to produce worth while results.[21] Hence the three post-1798 comparisons produced here for Barnby Dun, Bentley with Arksey and Hatfield are likely to be no more than a rough indication of the effect of enclosure on the smallholders but the post-enclosure assessments give a good indication of what the large landowners did with their increased estates.

In the case of Hatfield parish it is not necessary to rely on the post-enclosure assessments to examine the structure of the village and its farms as a detailed survey was made in 1833 for poor law rating purposes.[22] The survey permits the farming structure of the parish to be worked out in detail though it has some of the weaknesses described by Mingay for the land tax returns especially the geographcial limitations. Landowners small and large owned land outside the parish especially in the other parishes of the Manor and, in an area where it was normal for tenants to have several landlords, tenants did not confine themselves to renting within the parish. However, bearing in mind that small owners in Hatfield might also be owners in Stainforth, Thorne, Fishlake and Sykehouse or even further afield the survey shows that eight years after the award of 1825 and 20 years after the townlands were

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[19] G.E. Mingay, 'The Land Tax Assessments and the Small Landowner', *The Economic History Review*, Second Series, Vol XVII, No 2, 1964
[20] D.E. Ginter, *A Measure of Wealth, The English Land Tax in Historical Analysis*, (London) 1992, pp 265-292
[21] *Ibid.*, p 267
[22] Doncaster Archives, PR Hat 1/2/2/3

actually distributed many very small allotments in the former open fields and ings continued to be held by the original allottees or their descendants. In Furth Field, 21 allotments were still held by 12 owners. The largest of these was 7a-3r-12p, and the smallest was 1r-18p, which was one of six allotments of under an acre. The acreage of Furth Field owner occupied land in 1833 was 68a-0r-34p, of a total acreage of 209a-0r-18p. Twenty-six of the allotments had tenants farming them and averaged 5a-1r-33p, the owner occupiers averaged 3a-0r-33p. In all the fields and ings of the parish, 68 allotments were held by owner occupiers and 99 were tenanted; the average holdings were very similar to those for Furth Field. Outside Furth Field there were only nine holdings under an acre held by owner-occupiers, nevertheless, there were many small ones and the average was much increased by some relatively large holdings of about ten acres. In 1833 there were 29 owners working their own land on the former open fields and ings, 18 were not of the same surname as on the 1825 award but some had inherited the land through wives and it is clear that extreme smallness of allotments, the cost of fencing and the inconvenience of working them did not mean that allottees readily gave them up.

It is much more difficult to tell the degree of continuity between 1825 and 1833 in the allotments of the commons and wastes. The schedules for the commons are very long and include allottees from all over the manor but it is possible to relate 18 owners in 1833 to allotments in 1825. These were, like the open fields, often of very small areas. Mostly, however, in both former commons and open fields the land was tenanted and it is difficult to avoid the conclusion that the enclosure, enormous as it was, did not materially affect the structure of farming in Hatfield or, indeed, in the manor as a whole. The larger landlords of the pre-enclosure period were the even larger landlords of 1833, they were joined by a new group of large landlords who had expanded their holdings prior to enclosure. All of this group, with the exception of the lord of the manor, farmed some of their land and let the bulk of it. Below them was a group of fairly large farmers who rented, often from several landowners, owned some land themselves and sometimes had tenants of their own. There were also some small farmers who did all these things on a very small scale and others who were entirely owner-occupiers or entirely tenants. On the townland in 1833 tenants were the largest group (111), followed by those who worked all their own land (56). There were 29 who were tenants but worked some of their own land and

two small owners who worked most of their own land and rented some to others Although there were still great differences between the farming structure on the drained land and the townland there was increasing integration, as 21 level farmers were now also farming on the townland. Except for the scale of large land ownership and the sale of land by non-occupying owners, mostly absentees, the structure of farming was much the same as it had been before enclosure. This does not mean that enclosure had not affected the small men. Many who had maintained their independence before enclosure must have been forced into labouring by the loss of the commons. For they lost, not only the pasture for an animal or two but also freedom to roam and to gather kindling and food. The catching of rabbits which had been a staple of the Manor's poor for centuries now incurred the risks of the savage poaching laws which accompanied the final years of the parliamentary enclosure period. In the 200 years since the drainage an area which had had hundreds of acres of unregulated land had become almost all private and fenced. The broad lanes at the north side of Hatfield township which had survived the attempt of the Marquis of Hertford to privatise them although the free grazing that made them 'broad' lanes before enclosure had gone. The 'narrow' lanes and some parts of the moors and the wastes north of Thorne were all that survived. The commercial working of peat and the transformation of parts of Thorne wastes into fine quality warp-land ensured that these too were removed from common access during the nineteenth century. Nevertheless examination of the poor law accounts for Hatfield Parish for the years 1807-1830 gives no indication of any upsurge of able-bodied poverty which might be attributable to enclosure. 1831 is the year of maximum population in the parish, which could be an indication of increasing distress, but before that date the poor law accounts indicate the normal preponderance of widows, deserted wives, children and the old. There were occasionally increases in the number of men applying for 'relief' but these were of short duration and probably connected with bad seasons rather than enclosure.[23]

The absence of rentals before and after enclosure in the research area makes it very difficult to assess the benefit of enclosure to landlords. In Owston the rental for the whole estate was c. £440 in 1717, in 1777, after enclosure it was £1,104, but this

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[23] Doncaster Archives, PR Hat 1 2/1/4 and 1 2/1/5

large increase in rental had little to do with parliamentary enclosure as only 375 acres of commons and waste were involved.[24] The open fields had been enclosed privately and both private enclosure and parliamentary enclosure were part of a long programme of improvement and expansion of the estate. Charity records give a little information but it is small and unsatisfactory. In 1829 the Trustees of the Brewer's Charity in Arksey reorganised the charity's tenancies to take advantage of the recent enclosure. The 'advanced' rents were to go to the Lord of the Manor, Sir W.B. Cooke, who had paid the Charity's enclosure costs. Two of the tenants immediately went into arrears. William Strong whose rent was £18-1-6 was £3-0-0 in arrears in 1830, £17-0-0 in 1831 and £21-0-0 in 1832-4. His rent was reduced in the latter year but he was still £20-0-0 in arrears in 1838. T. White on a rental of only £7-7-0 was £3-13-6 in arrears in 1831 and £7-0-0 the following year. Subsequently he seems to have avoided arrears and when he died in 1840 his successor paid a rent advanced to £9-0-0. It is possible that Strong was a poor farmer but his problems are likely to have been compounded by the very poor state of the newly enclosed land for, in the year of the award, 1830, the Lord of the Manor had recognised that the full value of enclosure could not be achieved without a major scheme to prevent flooding. The cost of this scheme, and its failure, on top of the costs of enclosure, from which he never had the full benefit forced Cooke into the sale of large parts of the estate in the 1850s. The lands of Robert Forster's Charity in Hatfield were enclosed in 1813 and four years later the rent for a large central farmhouse, buildings and 15 acres of land was increased from 17 guineas to £23-0-0. Whether this was a realistic assessment of the increased value of the land is difficult to state as the Trustees did not treat the Charity's assets in a businesslike way. The accounts do, however, give a clear indication of the costs of enclosure on a small piece of land. The costs of quicksetts, fencing, carrying, planting and erecting totalled £37-0-0, nearly £2 10s an acre, in addition the cost of enfranchising the copyhold land was £12-0-0. The Charity was able to sell timber on the new enclosures for £47-0-0 to meet this expenditure[25] but many small men were forced off their land by such costs. Parliamentary enclosure, therefore, had very mixed results on individuals both poor and rich, but overall it was, along with improvements in drainage and the spread of

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[24] Doncaster Archives, Davies Cooke Papers DD DC/E3/1/1 and 3
[25] B. Brown, op cit, pp 13-14

artificial warping, one of the factors which shaped agriculture in the area into the twentieth century as the number of small holdings gradually declined and the larger farms grew.

Nevertheless, there was still a large number of small farmers in the decades after enclosure both in the Manor of Hatfield and in the rest of the research area as tables IX(2) and IX(3) show. Their survival underlines the fact that although parliamentary enclosure was a very important contributor to agricultural change in the area it was not as important as it was in what Chapman called 'the Midland core' of parliamentary enclosure. Chapman shows that in areas with large amounts of waste, commons and pasture parliamentary enclosure tended to be later, to take longer to be arranged and the results tended to be less uniform than in the main open field regions.[26] There were, of course, great differences in the dates, complexities and rapidity of the enclosure process in the many parishes and manors of the area but it tended to be a slow and complex process. This was especially true of the enclosure of the Manor of Hatfield.

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[26] John Chapman, 'The Extent and Nature of Parliamentary Enclosure' *A.H.R.* Vol 35, 1987, Part I, p.34

CHAPTER VIII

DRAINAGE AND WARPING, c.1750–c.1875

After struggling with inadequate drainage for over a hundred years, the Commission of Sewers came to the decision that improvements to the system had to be made. The decision was no doubt assisted by the increased profits from agriculture being made in the second half of the eighteenth century, but the immediate stimulus was a major breach in the banks of Bickersdyke in 1763.[1] In the next sixty years a series of eminent engineers was called in to report on the weaknesses of the drainage and to advise on the necessary improvements. The engineers' criticisms were damning and their preferred solutions always too expensive for the Commission of Sewers to carry out. Hence, although minor recommendations were implemented, no major work was done until the mid-twentieth century.

To deal with the Bickersdyke breach in 1763, the engineer John Smeaton was called in. He suggested a widening of the channel at Misterton Soss and the rebuilding of Snow Sewer which, like Bickersdyke, was an ancient drain which the Dutch drainers had overburdened. He also suggested that the sluice to the Trent should be lowered by 16 inches. These works were probably carried out. In 1774 problems in the central section of the drainage led to the calling in of Thomas Yeomans to consider the River Torne outlet to the Trent. The central section of the drainage is the most complex and its failure affected most of the Levels. Yeomans saw the Torne as the key to most of the problems, so consequently his main recommendation was to make a straightened version of the Old Dun river line to take the waters of the central section into the Trent near Adlingfleet and thereby avoid the acute bend at Dirtness Bridge and acquire a much increased degree of fall. When this was rejected he suggested a shorter route to enter the Trent at Luddington. This too was rejected. Two years later Smeaton was called in again and confirmed Yeomans' views on the need for a major

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[1] Metcalfe, op cit, pp 138-163, Korthals-Altes, op cit, pp 131-141 and Tomlinson, op cit, pp 105-113, all deal exhaustively with the changes and suggestions recommended in this period. This section relies heavily on their work.

scheme but had to settle for modification of existing sluices and drains though, according to Rennie's Report of 1813, Smeaton's advice that the banks of the Torne should be raised and its channel widened had been followed, with the result that the Torne now rarely overflowed its banks. Rennie, however, also expressed his belief that the sluice into the Trent was still much too small and the channel much too crooked with the result that much of the adjacent land was permanently soaked.[2]

Smeaton's comments in 1776 indicated the failure of the original scheme to cope with 'upland water'. He reported that in a wet summer or autumn the water carried by the Torne flooded the lowest parts of the Chase and caused great loss of crops. His opinion was that the works were

> in their first execution... greatly imperfect, for though there would appear a striking difference between a drowned country for the whole of the year (some small parts of ground here and there excepted) and its present state, where almost every part bears crops of some kind in some seasons, yet it is manifest from certain facts that the drainage could never be much better than it is...[3]

When Rennie surveyed the state of the drainage nearly forty years later he had the advantage of working with the Hatfield based engineer, Joseph Thackray, who provided him with accurate measurements of distances and falls which he used to explain why the drainage had always been so inefficient. He analysed each part of the system within Yorkshire and made only passing references to the Lincolnshire and Nottinghamshire parts, which were not within his remit, and argued that the principal cause of all the problems was the inadequacy of the outfalls, especially during the Spring and neap tides. He wrote:

> notwithstanding the time of ebb [tides] so much exceeds that of flood [tides], the surface of the land in Hatfield Chace is so very low that the River Doors at Keadby Sluice (which is the principal Drain for the Low Lands) even in the most favourable state of the River, seldom continue open for more than 4½ hours, and when there are Land Freshes in the Trent, the Doors are often not

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[2] Sheffield Archives, *The Report of John Rennie, Esq on the Drainage of Hatfield Chase*, November 1776. Cooke of Wheatley, IX, viii

[3] W Y A S WYL 100 TN/HC C10, *Report of John Smeaton on Drainage of Hatfield Chase*, November 1776

> more than 2½ hours open, and indeed, at some times, they may be said to be scarcely open at all.

The short time that the drains actually allowed water to flow was also a cause of problems on the New Idle and the North Idle which were joined by 'an Aqueduct, or Trunk, under the River Torne, having a gauge of 2 feet 8 inches wide, and 2 feet 3 inches high'. Rennie made no comment on the smallness of this culvert but on the fact that it was only opened two days per week. During these two days water could be discharged by the New Idle Sluice at Althorpe or the Keadby Sewer Sluice of which Keadby, with a lower sill by nine inches, was much the more efficient. 'The New Idle', he commented,

> drains a district of Low Lands of upwards of 9,000 Acres, at present, and it is the only Drain which carries off the Highland Water discharged into this District of the Chace, and so badly does it perform its service, that the greatest part of this District is very frequently flooded, and, therefore, the Land is of little comparative value to what it would be if kept constantly dry.

The drains which served the lowland immediately to the south and east of Hatfield and Armthorpe, the New Cut, Woodhouse Sewer and Dicken Dyke, brought down,

> a very large quantity of Water into the Levels [drawn from] at least 20,000 acres of Low Lands, independently of High Lands, which the Drain [Woodhouse Sewer] is not able to carry off in proper time. The operations of Husbandry are, therefore, often retarded by the wetness of the Land, past the proper season for sowing or reaping.

Rennie also warned that the proposed draining and allotting of Hatfield Commons, as part of Hatfield enclosure, would make matters worse. He had concluded that the existing inadequate drains made little difference at the outfall as the waters ran off so slowly but:

> when they are made of sufficient size and kept in good order...the speedy discharge of the Water will greatly injure the Low Lands in the Chace, as the Commons lie upon a higher level than they do.

He not only warned that the improvement of the Common drainage would make the general problem of the outfalls worse but added that the costly alterations to the Idle drainage associated with the enclosure of Epworth in the 1790s had not improved matters for the same reason. During the negotiations for the proposed Stainforth-

Keadby Canal, also in the 1790s, the Participants had raised strong objections on the grounds that the canal would increase the risk of flooding on the line of the canal through the lowest part of the Chase. Their objections were only overcome by the addition of back drains on either side of the canal for its whole length. Subsequently, Rennie's Report makes clear that the back drains became an integral part of the drainage system by taking water from 'the several drains which pass through the Commons between Hatfield and Stainforth', which they did 'in a very imperfect manner', according to Rennie.

Rennie submitted separate estimates for his three main proposals: £7,931 for the 'probable Expence of a Catchwater Drain from the River Torne, at Fulsick Nook to Newington, and of branches to Misson, and to the Turnpike Road from Finningley to Thorne'. £17,684 for 'increasing the Slopes of the Back Drains of the Keadby Canal to the Old Dun, and of Widening the same to Wike Gate, to a 15 Feet Bottom – of the new Drain to Woodhouse Sewer, and cleaning ditto, and Dicken Dyke to the north west of Cantley, and cleaning Dutch Dyke'. But these works would not, he believed, materially effect an improvement. He wrote:

> I am decidedly of the opinnion that when the works I have mentioned are completed, although the Drainage will be improved, it will not be improved to that extent, which so extensive and valuable a District of Land ought to be No land can be accounted effectually drained, unless the surface of the Water, during the Winter Season and the Spring, be kept at least 2 feet within the soil...

As this could not be achieved with the present outfalls, Rennie brought up once more the proposals of Yeoman and Smeaton for a completely new cut to an outfall at Waterton much nearer to the junction of the Rivers Trent and Ouse which, he estimated, would cost £80,719. He also suggested that all who benefited from the improvements should contribute to the cost and not only the owners of the Dutch drained lands as was the case traditionally.

In 1813 two acts of parliament were passed to improve the drainage. One was for Hatfield Commons, as part of the enclosure; the other was to implement some of Rennie's suggestions, although these were only the minor improvements associated with the outfalls. However, also in this act the Participants were authorised to install

a steam pump to improve the flow of water from the southern part of the drainage below the River Torne by pumping it into the Trent.[4] This development was of great importance for the future of the drainage in two ways. Firstly, it removed water without recourse to sluices and thus avoided all the outfall problems outlined in Rennie's report and was so successful that a second pump was installed at Dirtness Bridge in 1861 to raise water from the lowest parts of the northern district. Secondly, these pumps were the forerunners of the series of electric pumps which were installed along the Trent in the mid-twentieth century which secured major improvements. Windmills were the major source of power to the area east of Doncaster before efficient steam power was developed, but unlike the drained areas of south Lincolnshire in the eighteenth century and the Bedford Levels in the seventeenth, windmills do not seem to have been used to pump water. Possibly because, as Joan Thirsk points out in relation to south Lincolnshire, 'in wet seasons when they were most needed there was normally very little wind' and, therefore, they were not very effective.[5] The extra cost of steam pumps was met from 1813 by a special 'engine rate'.

Long before the second steam pump was installed however, another scheme was proposed for a major new drainage channel, but this time serious attention was given to the issue of cost, as it had become obvious that the traditional methods of paying for the maintenance of the works was not adequate for the funding of work on this scale. On this occasion the Participants had formed a special committee 'appointed to consider the alleged want of a proper outfall And whether a better Outfall, at a moderate Expense, cannot be obtained'. The report of the committee, which was presented at a General Meeting of the Participants on 14 February 1829, went far beyond its brief by suggesting that the outfalls on the River Trent should be abandoned and that the waters of the levels should be directed into the River Ouse near Ousefleet.[6] At this point, the Report claimed,

> The low water of the Ouze (sic) is six inches below that of the Trent at Adlingfleet, and is never affected by floods. There is an advantage here, from the tides setting in close to shore, and keeping the outfall clear of warp and

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[4] J. Tomlinson, *op cit*, p 109
[5] J. Thirsk, *English Peasant Farming* (1957), p 208
[6] Sheffield Archives CWM IX viii

> sand. Low water here is five feet eight inches lower than the average of low water at Keadby – and, not being in any way affected by floods, it would in ordinary wet times be six feet six inches below Keadby, and in floods would for several days together, be eight or nine feet lower, and this at a time when, more than any other, the Level would be oppressed with water.

The cost of this nine mile cut with a hundred feet bottom and a proportionate enlargement of Idle Drain from Dirtness Bridge south to Idle Stop was estimated at from £100,000 to £110,000 which was a great increase on Rennie's estimate of £80,000 for a shorter cut in 1813 but the proposers of the scheme also outlined revolutionary (in the context of drainage) methods of financing it. After outlining the expected advantages of the new proposals they wrote:

> ...but the great question is – whether under the existing circumstances of the Level, it is practicable? So much already has been laid out in drainage, that there is unwillingness with those, to whom it would not be inconvenient, to lay out more. The great losses which have been occasioned by the earlier depression of agricultural produce, and the late unfavourable seasons, joined with the very serious losses occasioned by last summer's floods, have made it generally inconvenient to advance money for such purposes. All these circumstances raise formidable difficulties, and render it next to impossible, at the present period, to raise money by the usual method of acre rate; and were the project proposed simply a project of drainage, which necessarily requires such a method, it could not be attempted.

Consequently the proposals included plans for the new channel to be used for warping and navigation in addition to drainage. It would be financed by a company formed under an act of parliament, as canal companies were, with shareholders providing the capital. The attraction to investors was an estimated income of nearly £11,000 arising from three sources; £8,210 from warping, £2,237-10-0 from drainage rates and £500 from navigation dues. 'If', the Report claimed,

> the required capital could be raised without reference to the landowners in the Level, and the Level only charged with annual sums in proportion to the benefit – if this charge were fixed previously to going to parliament, – and it were not brought upon them until they felt the benefit of it – the prospect certainly would assume a new character, and would, we conceive, readily meet the concurrence of the proprietors.

Once again an ambitious project did not 'meet the concurrence of the proprietors' and nothing came of it. However, great changes were occurring in the Levels over the period when ambitious schemes for drainage improvement were being discussed

and rejected. The members of the Participants' Committee upon the Outfall had relied for their estimates of profit from warping and the methods of carrying out the warping part of their scheme on the previous practice of two local experts, Ralph Creyke, of Rawcliffe House, and Frank Sotheron, of Kirklington, Notts., who had already transformed some of the worst areas of the Levels into profitable land by making private warping contracts with landowners.

Accounts of the beginning of artificial warping vary in their detail but they agree that it was in the middle decades of the eighteenth century. Mr Day of Doncaster, who wrote an extensive account of warping in the Board of Agriculture's *General View* for Yorkshire, stated that its first use was by 'a small farmer' with lowland on the Dutch River who applied for the permission of the Court of Sewers

> to lay a tunnel, a few inches square, through the bank of the said river, for the purpose of warping his land, which was granted him (with a great deal of reluctance, for fear of overflowing the country with water) on his giving a proper security for indemnifying the country against any injury which might happen thereby.[7]

Later in his account Mr Day gave a different version of the beginning of warping, ascribing its first use to a

> Mr Richard Jennings of Armin, [i.e. Airmyn on the River Ouse] near Howden...about 50 years ago [i.e. in the 1740s]. It was next attempted by a Mr Farmer, steward to – Twisleton, Esq of Rawcliffe, [on both the River Aire and the Dutch River] also by a Mr Mould of Potter Grange [Airmyn] both about 40 years ago; and it has since been tried by a great variety of people since that time.[8]

Arthur Young in the *General View* for Lincolnshire in 1813 also dealt with the early years of warping in Yorkshire and stated that

> Mr Walker, steward to Mr Twisledon [sic], 40 years ago began this practice, but it dropped for 20 years till Mr Freham, another steward took it up.[9]

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[7] Brown, et al, *op cit*, cited in Marshall, *op cit*, pp 388-9. The small farmer is possibly the Mr Barker of Rawcliffe who carried out 'the first recorded warping' in 1730-40, according to G D Gaunt in M. Limbert (ed), *Thorne Moor Papers* (1987) Doncaster, p 23

[8] *Ibid.*, p 39

[9] A. Young, *General View of the Agriculture of Lincolnshire* (1813), p 324

Whatever the time and wherever the place of first use, warping was, by the end of the eighteenth century, widely practised on the northern lowlands of the Trent in Lincolnshire and on the Ouse and its tributaries in the Yorkshire lowlands. The authors of the two county reports and their contributors all wrote enthusiastically of the value of the process.

Artificial warping could only be carried out on land which was below the level of its adjacent river at high tide. The process required that the land to be warped should be embanked all round and be provided with a controlled channel to let in tidal water and keep it within the banks until a later low tide, during which time the silt or warp carried by the tide deposited itself on the land. Young gave an account of Lincolnshire warping but went into great detail on the experiences of Mr Webster of Bankside and Mr Nicholson of Rawcliffe. He stated in a footnote, that,

> as warping began there, [in Yorkshire] and has been very largely practised, I thought it would contribute to rendering this account more satisfactory, and therefore viewed the works.[10]

There are three farms alongside the road north from Thorne and under the bank of the Old Turnbridge Dyke stretch of the River Don called 'Bankside'. The two northern Banksides, one in Thorne and one in Rawcliffe, each still have indications of a drain to the river and the southern one is only a short distance from Makin Durham's Warping Drain of the 1850s.[11] The land attached to these farms was highly rated for drainage scots at twelvepence per acre. Even so parts of it were abandoned in the eighteenth century because it was so wet. Young commented that warping 'has made so great an improvement... that it merits particular attention'. Mr Webster, he wrote,

> has warped to various depths, eighteen inches, two feet, two feet and a half, & c. He has some that before warping was moor land, worth only 1s 6d an acre; now as good as the best. Some of it would lett at 51 an acre for flax or potatoes; and the whole at 50s. He has twenty acres that he warped at three feet deep, between the beginning of June and the end of September; and eighteen acres, part of which is three and a half feet deep. This is the worst year he has known for warping, by reason of wetness. He has applied it on

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[10] Young, *op cit*, p 320
[11] O.S. Thorne Sheet S.E. 61/71, 1:25000 Second Series

> stubbles in autumn, by way of manuring: for it should be noted, as a vast advantage in this species of improvement, that it is renewable at any time: were it possible to wear out by cropping or ill management, a few tides will at any time restore it. As to the crops he has had, they have been very great indeed; of potatoes from 80 to 130 tubs of 36 gallons, selling the round sorts at 3s, or 3s 6d, a tub; and kidneys at 5s to 8s. Twenty acres warped in 1794, could not be ploughed for oats in 1795, he therefore sowed the oats on the fresh warp, and scuffled in the seed by men drawing a scuffler; eight to draw and one to hold; the whole crop was very great: on three acres of it measured separately, they amounted to fourteen quarters one sack per acre. I little thought of finding exactly the husbandry of the Nile in England.

According to Young, Mr Webster began warping about 1790 and this seems to have been the time when real interest in its possibilities began to be shown. It was also the time when the initial proposals for the Stainforth-Keadby Canal were being made and Young indicates that these included warping from the soakage drains proposed on either side of the canal, though this, clearly, was not carried out.[12]

Young also wrote of his visit to the warp lands of Mr Nicholson of Rawcliffe although he does not indicate whether the warp came from the River Aire or the Dutch River, though both were available for Rawcliffe farmers.

> I viewed Mr Nicholson's warped land with much pleasure, and found his warp in some fields to have been deposited from two feet deep at the bottom, gradually shallowing up a slope to five or six inches at the top, forming a level. Mr Harrod warping on the other side the bank; the tide was in, the morning I viewed it, and a fish pond and holes were filling up rapidly.[13]

These early warpers in Yorkshire made their breaches in the banks and their drains for their own use, though Mr Webster of Bankside allowed a neighbour to extend his drain into his land, charging him five pounds an acre. Presumably these small warpers had the permission of the Commission of Sewers to breach the banks but, even on a small scale, a profusion of small breaches would have eventually caused serious damage to the banks. Young showed, however, that in Lincolnshire, as early as 1795, larger schemes were being broached by contractors which would allow the land of many farmers to be warped from one larger breach.[14]

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[12] Young, *op cit*, p 322
[13] *Ibid.*, p 324
[14] *Ibid.*, pp 316-18

The first contract warping in Yorkshire was probably by Ralph Creyke of Rawcliffe House. Metcalfe's researches show that his career started with a contract to warp 55 acres in Goole for Francis Blackburne in 1812, for which he charged £1,165-0-0. He also warped 225 acres for Josias Cockshutt Twisleton in Sandhill. In April 1816 the Court of Sewers gave him permission to warp 900 acres in Rawcliffe. All of these schemes used the Dutch River. His most important work followed an act of parliament in 1820 for 'warping and otherwise improving certain moors, commons and wastes and other low grounds in the parishes of Whitgift and Snaith'. This led to the digging of Swinefleet Warping Drain the following year and the warping of 1,528 acres from the River Ouse. The 30 owners whose land was warped paid £15 an acre. Creyke claimed, in his letter to the Society of Arts of 24 March 1825, that he warped on a larger scale and more cheaply than any previous warpers. He stated that he used a much larger sluice, 16 feet wide compared with the previous five feet, a main drain of 90 feet compared with the previous 12, and that he warped up to 500 acres at a time compared to the previous 14 acre maximum. Creyke also claimed that he achieved a much greater silt deposit with each inundation and warped throughout the year instead of in the summer months only, which was the previous practice. For these innovations he was awarded the Large Gold Medal of the Society.[15] By 1845 the Swinefleet Drain had been extended eastwards over Fockerby Common to warp 2,000 acres and early in the twentieth century the drain was extended in the original southerly direction almost to the Stainforth – Keadby Canal. This extension is marked on the canal side by the name 'New Warp Farm'. Warping in this area possibly went on until 1939.[16] The Ralph Creyke who pioneered large-scale warping was described as 'Jun'[ior] in the Society of Arts papers and as 'the younger' in his will of 1824. He died in 1828 and left his interests in the Swinefleet Warping Drain to his son, also Ralph Creyke.[17] The Creyke family warping business in association with Admiral Frank Sotheran's descendants continued until 1878 when it was bought by Makin Durham of Thorne Hall. The Swinefleet Drain then became part of the assets of Durham's company, the Yorkshire Land and Warping Company Ltd.[18]

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[15] *Transactions of the Society of Arts*, 1825, Vol 43, pp 1-5
[16] G.D. Gaunt, 'The Geology and Landscape Development of the Area around Thorne Moors', in M Limbert (ed) *Thorne Moor Papers* (Doncaster), 1987, p 26
[17] Doncaster Archives, DX Tay 5/11B
[18] Doncaster Archives, T.G.H., Dx Tay 5

Makin Durham with Ralph Creyke Junior and his partners were probably the most important influence in the improvement of the wetlands north of Thorne. He was born in Thorne in 1804 and was still engaged in engineering projects at his death in 1882. He was apprenticed to William Pilkington of Hansall, engineer and surveyor, who acted as surveyor or commissioner in 18 Yorkshire enclosures including the enclosure of Hatfield and three other enclosures in the research area.[19] He moved to Thorne in the 1820s and was the engineer responsible for the attempt to solve the flood problems of the area west of Hatfield and north of Doncaster under the Dun Drainage Act of 1827. He died before the scheme was completed and Durham took over his responsibilities.[20] Goodchild records that Durham was known in his lifetime as 'the second Vermuyden,[21] and this was meant as a compliment! He became the largest proprietor on Thorne Moors and the conveyances for his many purchases before and after the completion of his warping drain are in the papers of the Yorkshire Land and Warping Company.[22] His warping drain which cut due east from the River Don was completed as far as the road north from Thorne and Moorends called Johny Moor Long in 1856 and was his most important contribution to the improvement of Dykesmarsh. Casson writing a few years later commented that,

> Already a considerable tract of low swampy grounds has been raised, by means of the drain and warping, from three to five feet above its original level, and has been rendered some of the finest and most productive land in the country.[23]

The drain was extended eastwards before 1881 and south, adjacent to the site where Thorne pit was to be opened, later. Warped land in this area was ploughed for the first time in 1896.[24]

The warping of this large area was not, however, just the work of the Creykes, Makin Durham and the eighteenth century innovators. Gaunt's map shows the extent of

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[19] W.S. Rogers, 'West Riding Commissioners of Enclosure, 1729-1850', *Y.A.J.* Pt 159, Vol XL, 1967, pp 401-419
[20] Sheffield City Library, Local History Section, Cooke of Wheatley, IX viii
[21] J. Goodchild, 'The Peat Cutting Industry of South Yorkshire', Pt Two, *South Yorkshire Journal*, Part 4, No 8, 1973, p 11
[22] Doncaster Archives, T.G.H. Dx Ta
[23] W. Casson, *History and Antiquities of Thorne*, 2nd edition (Thorne), 1869, p 143
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Warping Drains around Thorne Moors
(copied from *Thorne Moor Papers*(1986) by kind permission of the editior, Martin Limbert)

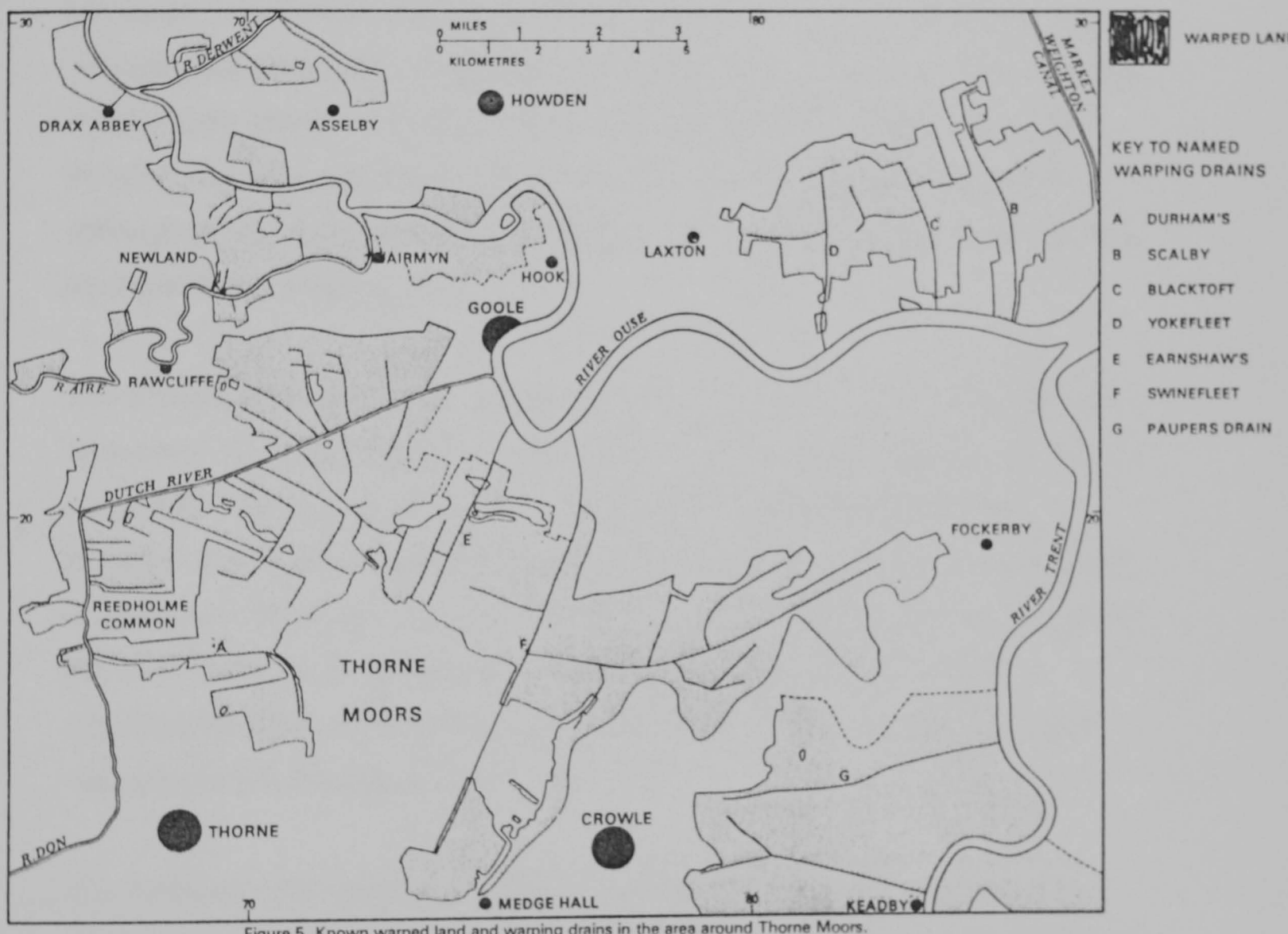

Figure 5. Known warped land and warping drains in the area around Thorne Moors.

known warped land and the warping drains of the northern parts of the research area as well as areas outside it east of Crowle and in Lincolnshire and north of the rivers Aire and Ouse. The map shows another warping drain going south from the Ouse, Earnshaw's drain, in the vicinity of Goole Hall and Goole Grange, and other areas of warp land on the western side of the Don and along the southern bank of the Ouse and Aire away from the influence of the two main warping drains. Some of the warping on the west bank of the Don was by Durham who, in about 1880, warped land in Sykehouse (nearly opposite his warping drain), for Samuel Ducket. Moreover, Lord Downe of Cowick Hall attempted, without much success, to warp Cowick South Park and is reputed to have warped Snaith Ings. North of the Aire, but within Snaith parish, Carlton Marsh was warped in the 1890s. In the south of the research area there was little warping because of the distance from tidal waters although the eastern extremities of Finningley were warped from the western end of the Snow Sewer warping drain.

It is difficult to exaggerate the spectacular improvement that warping brought to this large area of peat moss. Much of Goole Fields, a large area of Thorne Moors and the moorlands of the central townships of the Peculiar were all changed beyond recognition. Previously much of this land, when not being flooded by very high tides or breaches in the banks, locally called 'gymes', had a water table so near the surface that cultivation was frequently impossible before warping but, as the Land Classification Maps of the Ministry of Agriculture of 1970 show, after warping it was classified in the highest grade.

The ambitions of the nineteenth century improvers, however, went beyond tidal warping. The Creykes, Durham and a leading Hatfield landowner, J. Hatfield Gossip, all believed that profit could be made from improving the raised peat moors of Thorne and Hatfield by dry warping as they were too high to be warped by tidal water. By the mid-nineteenth century the ancient peat extraction industry of the moors had died and, as large scale extraction of peat from them had not then started, they were considered to be useless. Also, as they held vast quantities of water, they were an obstacle to the improvement of the lower land in the vicinity. The ecological aspects of changing these rare landscapes troubled the nineteenth century improvers

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no more than the draining of the wetlands of Hatfield Chase had concerned the Dutch drainers in the seventeenth century.

Dry warping involved the cartage of warp from a suitable source and spreading it manually on the peat after it had been dried out by the cutting of drains. Even though the draining caused the peat dome to shrink it was still above the level at which it could be tide warped. John Hatfield Gossip, the grandson of the last John Hatfield of Hatfield, was allotted 490 acres of Hatfield Moors in the enclosure award of 1825. Most of it was adjacent to the small agricultural area near the centre of the Moor called Lindholme which in 1833 Hatfield Gossip held as a tenant of the lord of the manor though he seems to have become the owner of it later. This area, on the north east corner of the moor, was near the dried-up pre-Dutch drainage river courses of the Idle and the Torne which were seen as repositories of river warp for the moor. At first Hatfield Gossip used carts to bring the warp to the moor but this proved a slow process. The carts were replaced by a moveable railway track and branches on which carts were pulled by a locomotive. The success of this method of warping is difficult to determine. Claims were made that it was as cheap to carry out as tidal warping and that its results were comparable or even better. A William Edwards published an article in the *Journal of the Royal Agricultural Society* in 1850 in which he claimed that with the railway line the moor was

> covered at the rate of 8 or 10 acres a day with a clear and friable soil absolutely ready for seed, day by day as fast as it is levelled, for the fine alluvium does not require any previous exposure to the atmosphere. The rapidity with which the barren waste is converted into rich land actually cropped is a remarkable and most interesting feature of the operation.

Edwards added that the advantages of the method included the 'well drained sub-stratum of peat' which decomposed under the coating of soil,

> the roots of the new crops were thus supplied with moisture and nutrient. The result was that prolific crops of clover, turnips, and particularly beans were grown on the newly warped land and grass remained in good condition even in the driest seasons, and was constantly of a very high quality.[25]

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[25] Metcalfe, *Thesis*, pp 187-189

These claims are difficult to accept. The 'well drained... peat' claimed by Edwards in 1850 could not be the result of recent draining. The drains on Hatfield Moor are few compared with those on Thorne Moor which were not a success. The prospectus of the Hatfield Moor Improvement Company estimated an expenditure of £1,350 on draining in the five years prior to 1850. The same source claimed that 3,000 acres had been warped at a cost of £19 per acre.[26] However, the implication of other evidence is that the claims of the Company and possibly the article by Edwards were part of a desperate attempt by Hatfield Gossip to sell shares to offset the debts he had contracted with Robert Wright to buy land and begin the warping. In February 1850, the year of Edwards' article, Hatfield Gossip made an agreement to sell his estate to a J. Allen Edwards of Blackheath, Kent, for £75,000. The agreement fell through because Hatfield Gossip's mortgages on the land 'considerably exceed' the sale price and the principal mortgagee, Wright, claimed to be the absolute owner of the estate. There is no evidence that the two Edwards were connected, though a considerable correspondence between Hatfield Gossip and J.A. Edwards is mainly concerned with the former's financial plight and ways of overcoming it.[27]

The glowing recommendation in the Royal Agricultural Society's *Journal* produced no enthusiastic response from inventors and when Lindholme came into the hands of the Wright family they spent, according to Tomlinson, 'large sums, upon the property'. He wrote,

> I find that what is now termed the Lindholme estate comprises 4,390 acres, of which 1,200 acres are under cultivation. When the seasons are favourable this new made land produces excellent crops; but here excessive and continuous rain brings disaster, and sometimes ruin, to the cultivator.[28]

Nevertheless Makin Durham was possibly influenced by the claims made for the success of dry warping on Hatfield Moor and made similar plans for Thorne Moor. Durham's first intention was to carry warp from the Don on the railway line from Doncaster to Crowle and Epworth, via Thorne which was proposed by the Great

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[26] C.W. Hatfield, *Historical Notices of Doncaster*, (Doncaster), 1866, p 152/3
[27] Doncaster Archives, Baxter Papers, 61321/1
[28] W. Tomlinson, *op cit*, p 231

Northern Railway Company in an act of 1848. The Company abandoned the plan and as a consequence Durham constructed the warping drain from the Don towards Thorne Moor which was finished in 1856. Even then the main intention was to dry warp from the warping drain but before this could be done the moors had to be dried out and the peat dome lowered by drainage. No attempt had been made by the Dutch drainers to improve the two moors. Thorne Moor had a dyke along the Thorne Snaith boundary called Blackwater Dyke which Limbert states is 'the oldest man-made feature surviving on the moorland, [which] once demarcated the N E edge of Hatfield Chase, and still marks one side of Thorne parish'. As a Chase boundary, he assumes that this dyke must pre-date the dischasing which accompanied the Dutch drainage.[29] A new drain, Thorne Waste Drain, was one of the drains ordered by the commissioners before the 1825 enclosure award to take water from the edge of the waste into the north soak drain of the Stainforth-Keadby Canal. Casson wrote:

> The cutting of this drain was the first step in the improvement of Thorne Moors, as it severed, by an embankment on the west side, the higher or waste water from the enclosed portion of the cultivated lower land lying to the west of the morass. The next step, many years after, was requiring the Stainforth Keadby Canal Coy, to improve the north soak drain, which had been badly neglected, and to make it and the outlet at Keadby into the Trent of the dimensions required by their Act. This was done under the superintendence of Makin Durham, Esquire, and great good to the drainage of the cultivated lands was thereby effected. Still the mass of nearly four thousand acres of wet peat, saturated with water like a sponge and retaining a degree of cold late on in the spring, and causing serious injury to the country around, remained in almost hopeless abeyance.[30]

In 1861 problems which had held up further attempts to drain the moors were solved. These involved, in addition to the Participants' turbary rights to 1,000 acres on the eastern side of the moors obtained in the seventeenth century and the question of the rights on the moors of the owners of adjacent land. Traditionally these owners had rights to strips or cables of moor land stretching to the parish boundary which were confirmed in the Enclosure Act of 1811. They, and the descendants of the Participants, were obstacles to the re-allocation of land which was essential to improvement. After a payment of £1,500 to settle the Participants' claims and a

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[29] M Limbert, *op cit*, p 4
[30] W Casson, *op cit*, p 141

reallocation to satisfy other owners, the Thorne Moor Improvement Company renewed operations. The Company built roads, made boundary ditches and five new drains.[31] Casson commented optimistically that,

> The cutting of the ditches and drains with the evaporation of the very dry summer of 1868, has caused the body of the waste to lower and compress amazingly: and it is hoped that, in the course of a few years, progress will be made, either by means of portable rail or flooding to cover the whole surface with warp.[32]

This hope was not realised, however: the 'very dry summer of 1868' was followed by the very wet years of the 1870s when much of the optimism of British arable farming was washed away. Tomlinson, who was a local man who had lived through the cart warping period, commented at the time when the high hopes for the process were declining, 'Diluted warp upon a spongy sub-soil is not a condition favourable to vegetation, except..."rushes"'.[33] The death of Makin Durham in 1882 took the main driving force from the attempt to make the dome of the moors cultivable, the wet years of the 1870s underlined the problems it involved and, in the 1880s, large scale peat working began on the moors, at first under Dutch influence. The Dutch company brought workers in from the Netherlands and a Dutch settlement grew up at Moorends. It was stated that 'peat moss litter has now become a most important trade, the Thorne Moors finding employment for 350 hands stripping the surface of the waste for litter.[34] The demand for peat moss litter had grown enormously in the late nineteenth century, largely as a result of the increase in the number of draught horses. The digging of peat for horticultural purposes has continued to be the main activity on both Thorne and Hatfield Moors up to the present, although pressure from ecologists has led to its reduction in the last few years.

Regardless of the failure of the attempts to cart warp the higher peat moors, the general improvement of the areas of moor and wetland adjacent to the tidal waters of the rivers which flowed into the Humber was an outstanding success. The most

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[31] M. Limbert, *op cit*, p 8
[32] W. Casson, *op cit*, p 142 (Casson was a director of the company.)
[33] J. Tomlinson, *op cit*, p 231
[34] J. Goodchild, 'The Peat Cutting Industry of South Yorkshire', *South Yorkshire Journal*, Part Three, May 1971, p 5

obvious indication of the truth of this is that the warping drains were extended and new land warped through the long period of agricultural depression which began in the 1870s and went on until the outbreak of the war in 1939.

Improvement in the agricultural conditions of parts of the drained area occurred in the period after 1750 though there was still a long way to go before the drainage was 'perfected'. Unfortunately, in the lands to the west of the Chase, improvements to the Dutch work of the seventeenth century made conditions there worse. Complaints of the damage caused by increased flooding of the lowlands between the Chase and the raised magnesian limestone belt were endemic and their general tone is summed up in this complaint, entitled by its anonymous author, 'Thorne Sleuce or the Devil upon Dunn set fforth in... 1706':

> Despite repeated complaints to the Court of Sewers etc little is done to prevent these lands being flooded. The meeting of the tides with the fresh water causes frequent losses in their meadows and mills. Around Noble Thorpe Marsh the meadows, commons, pasture grounds and field lands of neighbouring towns are so damnified that both freeholders and tenants have given out that they will and must be forced to leave. Some houses in Kirk Bramwith parish are by these inundations forsaken and fallen into ruin and above a half of the parish often in so base a pickle that for many days together few can stir out of their houses but by the assistance of one another on horse back.
>
> The drainage authorities object that the commons and low grounds are improved by the sludge and warp that their tides leave behind, granted, and for which the country has paid £2-300 for every 20/- yearly value. But suppose the ancient farms hold their rents, they should rather have advanced by this same improvement considering the number of acres of wood ground now turned into pasture and tillage. But several farms have had their rents fall by a half by the frequent overspreading of the floods which last 6-8 weeks at a time and 'thereby turn Autumn into deep of Winter'.
>
> The whole burden of the deluge lies upon this part of Yorkshire which ought not to be.[35]

Few of the farmers of the main area of drainage in the east would have agreed with this last claim though undoubtedly the western marshland farmers had a justifiable grievance. The western marshland settlements differ from those in the east in that

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[35] Bodleian Library, Oxford, MS Top Yorks c. 11 fos. 5-12. I am indebted to Professor David Hey for a transcript of this document.

they are on the alluvial marshland itself whereas those in the east are on islands of Keuper marl. Consequently flooding was even more serious in the west as the townships themselves were inundated and not just the farmland. It seems likely that because of this, successful precautions against floods, in the form of embankments, were taken early. Dugdale, who recorded many pre-Dutch drainage orders to repair breaches on the lower reaches of the Don, only records one for the area west of Hatfield.

> In II, H, IV. Thomas Knight of Arkesay was attached by John Fastolf who alledged that the said Thomas ought to repair certain banks upon the river of Done, in respect of his land in Bentley. To which the said Thomas pleaded that he might not.[36]

In the years following the Dutch drainage the owners of land adjacent to the Don and the Went became increasingly concerned with its effect on their land. The struggles of owners outside the Chase to control the Commission of Sewers (outlined in Chapter IV part 1) were mainly a result of this concern. Their negative response to the early proposals for the improvement of the navigation of the Don was largely a reflection of their fear that even more flooding might result from it. Led by Sir George Cooke of Wheatley, the owners claimed that the making of locks would raise the water level and thereby increase the number of floods.[37] The land owners later abandoned their opposition and improvements to the navigation of the Don were carried out after 1726, apparently without causing increased flooding. However, after 1750 a rise in sea level took place[38] which caused conditions to worsen both in the main area of the drainage and in the western lowlands. The response to this in the drained area was the calling in of engineering experts to advise on improvements, some of which, as indicated earlier in this chapter, were carried out, thereby beginning a slow improvement in the drainage. Paradoxically, improvements in the east caused the situation further west to deteriorate further. Floods became so frequent that by 1827 Sir William Bryan Cooke of Wheatley, the Lord of the Manor and principal landowner of Bentley-with-Arksey pushed through parliament a major drainage bill seventeen days after having an enclosure bill passed for Bentley-with-

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[36] W. Dugdale, *op cit*, p 127
[37] T.S. Willan, *The Early History of the Don Navigation*, (1965), p 127
[38] J. Radley and C. Sims, *Yorkshire Flooding – Some Effect on Man and Nature*, (1970), p 8

Arskey, as he knew that enclosure would bring little benefit without increased protection from flooding.

Although Sir William was the leading promoter of both bills the drainage bill was for a much larger area than his own lands and covered almost all the lowlands to the west of Hatfield adversely affected by the Dutch drainage. Under what was known as the Dun Floods Act, 15 townships on the north side of the Dun were to be protected by draining and embanking. In March 1827 during the preparations for the presentation of the bill, William Workman, one of Cooke's largest tenants, drew up a list of the acreages and townships supposed to benefit from it:[39]

	acres		acres
Bentley-with-Arksey	2,000	Kirk Bramwith	500
Tilts and Reedholme	300	Stainforth and Barnby Dun	550
Owston	800	Carcroft and Adwick	200
Thorpe in Balne	1,400	Moss, Sutton & Burghwallis	1,100
Trumfleet	450	Estimated Total	7,300

The commisioner for the works appointed under the Act was William Pilkington of Thorne, a well known enclosure commissioner and surveyor, who rapidly incurred Cooke's displeasure because of what he referred to as the 'enormous... charges of professional men for these operations'[40] and because of their apparent failure. Pilkington was unlucky in that his unfinished works had to contend with high rivers on two occasions in the spring and early summer of 1830. Cooke urged instant action and wrote to Pilkington to complain that,

> there are large gimes [gaps in the banks]... which have caused already great injury to the wheat crops in Almhome, Shaftholme and Thorpe... The river is also almost choaked up with Willows which ought to be removed...[41]

On his part Pilkington was already complaining that the scheme agreed in the Act

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[39] Sheffield Archives, Cooke of Wheatley MSS, Workman's estimate of the area subject to flooding.
[40] *Ibid.*, letter of Cooke to Mr Yarbrough of Campsmount, near Doncaster, 22 September 1830
[41] *Ibid.*, letter of Cooke to Pilkington, 14 March 1830

was too small, although it seems to have been made largely on his advice, and of the absurd expectations of the tenants who seemed to believe, like Sir William, that instant improvement could be made and that the work could be carried on without affecting farming operations in any way. Pilkington also came under fire from all the different interests in the drainage, for as soon as work was carried out designed to save one area from flooding, the others complained either that they were being ignored or that the work made their situation worse.

Cooke kept copies of his own correspondence to Pilkington and to the other members of the supervisory committee as well as their replies. By 1838 when Pilkington died, the collection provided a formidable indictment of Pilkington's inefficiencies and exorbitant charges, and of Cooke's absurd expectations. From 1836 Pilkington was clearly too ill to continue with the work and Cooke's complaints were sent to Pilkington's former apprentice, Makin Durham. Nevertheless when, in January 1837, Pilkington attempted to resign, Cooke and the committee forced him to carry on. Durham did not succeed him as commissioner for the works until after his death. By that time it was clear that the scheme was a total failure. Cooke had spent the previous two years attempting to reduce his own costs by spreading the charges for the work over a wider geographical area than allowed by the original Act. In this he was successful although the final acre rate demand was still 12s-6d and cost Cooke £1,350-7-0, less £527-6-0 for damage to his land. By the time this was paid the Bentley Bank had been completely destroyed. The total cost was £11,770-12-5½. The failure of the scheme and its cost meant that the benefits from the enclosure of Bentley-with-Arksey were long delayed and the many townships on the marshland north of the Don continued to be regularly flooded.[42]

Later in the century Tomlinson wrote of the 'several disastrous floods which' have succeeded the award of 1839. At the time he was writing, the works resulting from a second drainage act for the land west of the Chase were being completed. The second act, of 1873, was on a larger scale both financially and geographically than the 1827

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[42] D. Byford, 'Sir William Bryan Cooke and the Flooding of Arksey and Bentley, 1827-1839'. *The South Yorkshire Historian*, No 3, 1976, pp 22-23, gives details of Cooke's correspondence and of the problems with which Pilkington and Durham had to contend.

act and it was no longer reliant on the determination of one local landowner to see the work completed. Tomlinson gives details of the act which aimed at avoiding the dissatisfaction of the owners by carefully outlining their powers over the nomination, and appointment of eleven commissioners and by providing for regular re-elections. It also provided for the appointment of a sub-commissioner to assess the value of the work to individual owners and the rates they should pay. The Act gave borrowing powers up to £40,000 on the security of drainage rates with power to go beyond this if necessary. To quote Tomlinson again:

> The Act gives power to cut five several channels for the better drainage of that large area of lowlands north of the river, and also to construct seven embankments to protect low-lying lands from the river floods. These seven embankments are west of Hatfield Chace, extending (for some distance on both sides of the river) from Sprotborough, through Balby-with-Hexthorpe and Doncaster, to the Great Northern Railway embankment near Bentley-with-Arksey. The Act gives power also to straighten and shorten the course of the Don in various places, to enlarge and rebuild bridges, to raise and strengthen existing embankments, to remove obstructions and shoals from the bed of the river, and to cleanse, scour, and improve the channel. There are powers also to erect pumping engines within the parishes of Barnby-on-Don and Fishlake.[43]

The additional powers were authorised in an Act of 1879 reflecting the costs of the extensive plans of the 1873 Act plus additional plans for the deepening and widening of Clay Dyke in Fishlake parish and a new cut in Barnby Dun. The works were incomplete when Tomlinson was writing but in 1880 he had seen sufficient of their ineffectiveness to be able to describe the situation which continued until the middle of the twentieth century after the works were completed. He wrote,

> It is perhaps, too early to pronounce a decided opinion upon the general results of this new drainage. I know that from Sprotborough, through Doncaster to Sandall weir the district has already been benefited; but there are loud and continued complaints from the owners and occupiers of land lower down the stream; and unfortunately it is there, where the least benefit is derived, that the rates at present are, if not the highest, very considerable, amounting from 6s to 10s per acre per annum. Formerly, in case of flood, the waters overflowed Newton Ings, Crimpsall, Bentley Ings, &c., spreading north and east for miles; whereas by strong embankments, and an improved

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[43] Tomlinson, *op cit*, pp 111-112

> water-way above and around Doncaster, any extra freshes rush down in greater volume and velocity.[44]

The consequence, therefore, of the widening of the geographical scope of the 1873 Act made flooding between Doncaster and Hatfield worse. In addition to losing the great flood plain of the Chase which had lessened their flood risks before the seventeenth century, the townships to the north of the Dun now had their liability to flooding increased by the new work which included the area up to Sprotborough to prevent flooding on Newton Ings, Crimpsall and Bentley Ings. These were all ing land, traditionally pasture lands which were not cultivated because they were the recipient of flood waters, which as Tomlinson wrote 'rush down in greater volume and velocity'. In describing the flood of November 1880 he wrote,

> Early in October a continued rainfall caused considerable inundations from the dykes and smaller streams, which culminated at the close of that month. At Doncaster on Friday, October 29th, the depth of water in the river was 37 feet 3 inches, being four feet higher than in the great flood of 1872; the water in the street called Mash-gate (sic)[45] measuring in the lower parts 2 feet 9 inches deep. The arch of a conduit leading to Corporation Mill, at the foot of an ancient bridge, fell in from the pressure of the stream; and great fear was entertained that the main arches of the bridge would themselves succumb. Between Doncaster and Thorne, especially north of the river, many thousands of acres of land were submerged or surrounded with water, farmsteads and stacks being inundated to a depth of one to three feet On Sunday, Oct. 31st, the service in several country churches and chapels was discontinued, there being no access either for minister or congregation. For several days rafts and boats were in frequent requisition conveying families from their temporary island home; vehicles which attempted to cross the roads were submerged to the nave of the wheels, while in some instances horses had to swim rather than wade through the lower portions. Luckily, the farmers had managed to remove their cattle to higher grounds before the flood had spread so far; but the loss from submerged stacks, potatoes, turnips and newly-sown fields of wheat is very considerable. This calamity, following upon three unpropitious seasons will culminate in ruin to many; indeed, never during the past fifty years has there been such general distress amongst the cultivators of strong clay farms.[46]

Tomlinson's last comment echoes many accounts of the appallingly wet years of the 1870s and of their contribution to the great agricultural depression which ruined

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[44] *Ibid.*, p 112

[45] The Marshgate area of Doncaster was the lowest part of the town consisting of slums and workshops

[46] *Ibid.*, pp 112-113

heavy clayland arable farming for many years to come. In a footnote he added, 'Since the above was written another flood has taken place, but little less disastrous... so that the close of 1880 is not likely soon to be forgotten'. Regular floods and the limited effect of the early steam pumps meant that drained land farming away from the warp land continued to be difficult.

This chapter on the lands supposedly drained in the seventeenth century has two dominant and widely divergent themes. The more important theme is concerned with the lands that were least affected by the drainage and hardly drained at all. The transformation of these lands by artificial warping began on the border of the Chase and the Peculiar of Snaith c.1750 and expanded over the next 175 years to cover a great deal of the Humberhead Levels. Warping produced immediate improvement and by the twentieth century the warped land was recognised as some of the best agricultural land in the country. The Agricultural Land Classification Map of 1962 shows a strip of high grade land on either side of the River Ouse from above Selby which widens to cover hundreds of acres around Goole in the eastern part of the Chase and further south towards Finningley in Nottinghamshire. All this land was classified on the 1962 Map as Grade I and much of the adjacent land was Grade 2.[47] As warping spread it gave an entirely new dimension to the Chase agriculture. Although the traditional concerns of the area, cereals (mainly wheat) and store cattle, continued to be important a new staple was added in the form of the relatively new agricultural crop, potatoes, which, during the wartime years of the late nineteenth century, saw 'a very considerable expansion of the acreage' devoted to them[48]

The second theme which was very important in the long term was the reluctant acceptance that the rest of the drained land could never achieve its potential without serious and expensive improvements on the original system. The engineering experts who were consulted all recognised the failures of the Dutch scheme and suggested both major alterations to the existing drainage and minor improvements. Because of the expense only some of the minor improvements were implemented and the

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[47] *Agricultural Land Classification*, Base Map, O S Sheet 98, 1962

[48] A H John, 'Farming in Wartime, 1793-1815' in *Land, Labour and Population: Essays presented to J.D Chambers* (1967) p35

necessary major work was not carried out until the mid-twentieth century. An important historical result of this period of consultation is that the Dutch failures of the seventeenth century were fully exposed and Vermuyden's many critics were proved right. Consequentially the farmers on what had been the better drained land continued to struggle with flooding and standing water for many more years though the introduction of two steam pumps in the early and mid-nineteenth century brought improvement to some areas.

CHAPTER IX

AGRICULTURAL CHANGE IN THE NINETEENTH CENTURY

The opening years of the nineteenth century were, like the second half of the eighteenth, dominated nationally and locally by parliamentary enclosure and locally by the spread of artificial warping in some of the wettest of the drained land in the east and north of the Chase. The effects of the long war with France, increasing industrialisation and rising population had increased the demand for agricultural produce, especially for wheat. The increase in wheat production brought farmers high profits until the last years of the war when prices dropped sharply and never recovered wartime heights in the nineteenth century although wheat growing expanded steadily for much of it.

The sudden ending of high wartime prices brought panic into farming and government circles[1] as farmers and landowners expected the government to take measures to maintain their profits. At the root of the panic was the belief that the end of the Napoleonic War would produce a great surplus of grain in Europe which would ruin the British farmer. After great debate Corn Laws were introduced in 1815 to keep foreign corn out when the price in Britain was less than 80 shillings a quarter. The Law produced little effect on prices though it dominated farming politics for much of the nineteenth century.

It is clear that the impact of the depression was severe in the research area, there is also evidence that the spirit associated with the development of agriculture in the previous 70 years was still to be found in the post-war period both in the continued spread of the new practices slowly being adopted in the seventeenth and eighteenth centuries and in experimentation with nineteenth-century novelties.

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[1] A H. John, 'Statistical Appendix' in G.E. Mingay (ed.) *The Agrarian History of England and Wales*, Vol VI, pp 987-989, (1989)

Despite its reputation for conservatism, farming has always had to be able to be adaptable and to react to weather conditions and changing market situations. Farmers who did not do so failed sooner or later, hence the notion that farming was stagnant for centuries before a 'revolutionary' period starting about 1750 is no longer readily accepted. Nevertheless the increase in population which began about 1740 and the consequent ending of the century-long period of depression encouraged experimentation in cropping, stock rearing and farm organisation which strongly affected the research area as earlier chapters have shown. The wheat acreage had grown, the old low-yielding cereals had disappeared, potatoes were being grown on the newly warped lands, the new improved shorthorn cattle and Leicester sheep had made their appearance and hundreds of acres of open field and common land had been enclosed by the time the French war began in 1793. The high wartime prices and prosperity of farming and the growing interest in its technical aspects among the landowning class produced an impetus for improvement that even the post-war depression could not halt.

In the last quarter of the eighteenth century local newspapers like the *Doncaster Gazette* began to appear in many small towns. In the *Gazette* the continued enthusiasm for agricultural innovation is clearly illustrated. There were advertisements for new manures, new agricultural implements and the new breeds of sheep and cattle.

On 14 May the paper carried two notices which indicated the target audience. Firstly an advertisement by the Bawtry Farmers' Club of its coming meeting to exhibit stock and award prizes for the best animals. The prize classes included two for short-horned bulls. Secondly a meeting to form an Agricultural Society for the southern part of the West Riding held at the Angel, Doncaster, was reported. The Earl Fitzwilliam, whose family had a long tradition of agricultural innovation, was elected President and William Wrightson, of Cusworth Hall, was elected Vice-Pesident for the first year. In the 1830s these two landowners were founder committee members of the Yorkshire Agricultural Society and Fitzwilliam was a Vice-President. Most of the local gentry attended the Doncaster meeting. The *Doncaster Gazette* reported the Society's first show on 6 August. Among the prize winners were the Vice-President for the best Leicester tup and Sir F.L. Wood for the best South Down tup. Several

other prizes were awarded for Leicester and South Down sheep. A Mr Newman exhibited a new highly productive grass called Fuirin at the meeting and Sinkinson and Co. exhibited their improved straw cutter and a new turnip cutter. Both were 'highly approved of'. Despite the 'approval' farmers were reluctant to buy new machines, especially the more ambitious ones.

There has been long-standing criticism of farmers for their conservatism in this area by agricultural writers but farmers were aware of the feebleness and impracticability of most early inventions. On the situation in the Doncaster area W. Sheardown, a Hatfield landowner and owner and editor of the *Doncaster Gazette*, wrote:

> Fixed thrashing machines, worked with horse power, were first erected in this part of the country in 1791.[2] In the year 1803, Mr Thomas Pasmore of this town, obtained a patent for improvements in the straw cutter, and a mill to crush beans, barley, malt and oats but so little was agricultural machinery in demand, that, about 1828, an occasional winnowing machine, which had been made to order, was exhibited in the Corn Market... The farming implements at the latter named period were few and of clumsy make; they consisted principally of wagons, carts, wooden-beamed ploughs, harrows, wooden rollers, scythes, sickle [sic], flails, waffers or fans for winnowing, sieves for dressing, straw choppers, heavy stable hay forks, barrows &c.[3]

Sheardown's view of the inadequacy of locally made machinery is echoed at the national level by Brown and Beecham who wrote apropos the Great Exhibition of 1851:

> The products on display were a great improvement on the machines available fifty, even twenty years before. Seed drills, which Arthur Young had castigated as being too flimsy to withstand heavy use, were now recognised as efficient implements, adaptable to most types of seed, able to distribute seeds with a fair amount of accuracy, and often capable of distributing artificial manure as well. The threshing machine was an example of greatly improved design and manufacture. Small hand-operated machines used in Berkshire during the Napoleonic Wars were described as 'more curious than useful', and little better could be said of many of the horse-powered machines then to be found.[4]

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[2] These must have been amongst the earliest in the country. See Stuart Macdonald, 'The Progress of the Early Threshing Machine', *A.H.R.* 23 1, 1975, pp 63-77

[3] W. Sheardown, *op cit*, pp 14-15

[4] J. Brown and H.A.Beecham, 'Implements and Machines' in Mingay (ed.), *The Agrarian History of England and Wales*, VI (1989), p 305 (Hereafter, Mingay (ed.), A.H.E.W., VI)

They added that by 1851 'inventive genius was being directed towards farming in no small way'. Sheardown also gives credit to the increasing number of shows such as the Royal, the Yorkshire and the 'late successful Doncaster Agricultural Meeting' for stimulating manufacturers to make better machines; to establish supply depots and to exhibit at local markets, thereby encouraging the spread of new devices.[5] The greatest spread of the new farming methods was, according to Brown and Beecham, from about 1835 onwards.[6] This was the period when farmers had grown accustomed to the post-war situation of low prices and realised that it was no use relying on Corn Laws to return to shortage profits.

There are many documents on the Harvey Estate at Finningley for the post-war period and they show a determination to continue the improvement of the estate by drainage but this peters out as the rent arrears increase at an alarming rate through the 1830s. Two other well-documented estates for this period both belonged to Doncaster Corporation and they indicate a new and ultimately a very important new direction in light land, Chase farming. Rossington is several miles west of the drained lands of the Chase but is, in several ways, akin to the Chase townships. Its soil is predominantly sandy and it has a lower, heavy soil, area through which the River Torne flows in a semi-circle round the west and north edges of the township where it often caused floods. From the north edge it flows east-north-east towards Hatfield Moor where it had been straightened in the seventeenth century and subsequently embanked. Similar improvements to the river around Rossington had taken place in the early nineteenth century as part of the drainage of the Doncaster carr lands. The other Corporation estate, Long Sandall, was part of an eastern extension of Doncaster parish running along the River Don to Kirk Sandall and Hatfield. Again most of it was sandland. Both estates were enclosed during the latter part of the Napoleonic War. The Corporation employed land agents who reported on individual farms and made general reports on the two estates in several years between 1818 and 1826. The inspections of farms by the Corporation Estates Committee were also reported in committee minutes.

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[5] Sheardown, *op cit*, p 15
[6] Brown and Beecham, in Mingay (ed.), A H E W , VI

Rossington had been enclosed by Thomas Gee of Little Houghton, Durham, on behalf of the Corporation. The Enclosure Act of 1810 was very brief and merely confirmed Gee's changes. Gee was a well-known valuer and surveyor who was being used at this time by Lord Scarborough to modernise and increase the value of his estates in Durham, Lincolnshire and Sandbeck Park in South Yorkshire.[7] For the Corporation Gee wrote four pages of 'Observations' on his reorganisation of the farms on the Rossington estate, which he described as 'Flatting' them, and on the future running of the estate. He commented on the excellence of the farm buildings which he considered 'superior to most of the Farmsteads I ever looked over', but, with two exceptions, he thought little of the tenants. He wrote that 'the Turnip Husbandry to which a considerable part of the Estate is adapted is neglected in a shameful manner [as a result of] the indolence or ignorance of the present occupiers'. To try to ensure that the turnip husbandry improved he laid down conditions which tenants had to accept or pay an extra £5 rent per acre for every breach. Firstly, the tenants had to lay down one third of the farm immediately with hay seeds which was not to be ploughed up again without paying the extra £5 rent. This was followed by a list of instructions, breaches of which carried the penalty. No grass land over ten years old had to be ploughed and no other grass land was to be ploughed without laying down an equal acreage the previous year on a fallow crop. No rape, hemp flax, lineseed, woad, tassles [teasles] or potatoes were to sown unless the rape was to be fed to sheep and the potatoes were to be used by the family or fed to cattle. Two crops of white corn were not to be sown in succession. Two crops of white corn and one of clover, beans, peas or pulses could not be taken between each fallow except when the clover crop had failed. Taking more than two crops of hay in succession without manuring immediately after mowing also carried the additional rent. Gee recorded that the Estates Committee added to this formidable list that paring and burning of any of the carr land could only be done with the Committee's licence.

To the list of penalty bearing practices Gee added a further list of tenants' responsibilities for payment of tithes, repairs to buildings, using all the manure

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[7] T.W. Beastall, *A North Country Estate* (1974). He also acted as surveyor, commissioner or umpire in 30 West Riding enclosures from 1798 to his death c 1817. In his later years he lived at Ackworth, near Wakefield. W.S. Rodgers, 'West Riding Commissioners of Enclosure, 1729-1850', Y.A.J. CL IV p415

generated on the farm on the land, keeping the drain scoured and the fences repaired. Tenants were not to fell trees or sell any of the farm produce except the corn. In addition tenants were instructed:

> To fallow the arable ground every fourth year, and lay thereon not less than sixty bushels of bones, or ten three horse cartloads of manure per Acre and not less quantity than eighty bushels of Lime per Acre upon the Carr land.

Ramsey and Innocent, the two tenants excepted from Gee's general condemnation, were given a separate covenant, which required:

> Not less than 1/5th part of the land upon the Plough to be Fallowed every Year. 2/5th to be in Seeds or Clover, the Seeds to remain not less than two Years and the remaining 2/5th to be sown with Corn.

Much of the rest of the 'Observations' related to the compensation of tenants on giving up the tenancy.[8]

Gee had died by 1817 so his successor(s) wrote the later reports on the Rossington farms. They were not signed and they were written in different hands; nor is there any sign that the additional rents were charged for breaches of his conditions. Indeed, there were so many of these by some tenants that many of them would have been bankrupted had they been enforced. It is clear, however, that Gee's principles were behind the distribution of praise and blame in the reports and it is clear also that Gee's belief that the long-term interests of the owner were of paramount importance continued to be observed. Beastall reports that in his dealings with the Lumley tenants Gee was not 'an easy valuer', a view that his work for Doncaster Corporation supports even though the tenants to not appear to have felt the full impact of his rules.[9] The reports cover the period 1818-1828 when, of course, farming conditions were very different from when Gee wrote his 'Observations' but they dwell on what the agents, following Gee's views mainly, regarded as good practice on the light, easily exhausted, sands of the parish in the long-term interests of the Corporation. In these interests the agents were prepared to push labour-intensive operations such as drainage and capital-intensive operations such as the application of bones hence the

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[8] Doncaster Archives, AB 7/2/5
[9] Beastall, *op cit*, p 119

reports and Gee's 'Observations' read almost like a model of what F.M.L. Thompson called 'The Second Agricultural Revolution'. Thompson saw the essence of the post-1815 agricultural system as increased use of purchased fertilizers and feeding stuffs, the spread of field drainage, purpose-designed farm buildings and increased intensity of production. It also involved 'a rapidly rising [proportion of capital] supplied by farmers themselves'. He wrote:

> It is the twin facts of a substantial rise in the amount of tenant-farmers' working capital and of the adjustment in outlook required to regard farming as an activity in which, at least in significant degree, purchased raw materials are processed in order to produce a saleable finished product that justify the view that it was in the second agricultural revolution that farming became properly commercialised.[10]

There were 12 farms on the Rossington estate: a small one of 21 acres and the rest varying from 283 acres to 117. Five of the large farms were considered to be very well managed. The criteria of quality included: tile draining of both the heavier lowlands of the carr and those sandlands which were liable to 'quick springs', i.e. areas where the subsoil was 'in many parts of almost an impregnable cement of gravel which renders it waterproof'; careful fallowing, which involved the removal of the weeds to which the sandy lands were so prone; manuring with 'bought tillage', mainly bones and bone dust; and skilled hoeing of the turnips. There was much emphasis on restoring fertility by two-year seeds to precede hard grain crops and with keeping a 'full quantity' of sheep to firm and manure the soil which was said to be 'the best mode' of management on Rossington land.[11] The sheep fold was, of course, traditional on most of the sandlands of the area. Additionally the good farmers followed a regular course of cropping and kept their gates, fences, hedges and dykes in good order as Gee expected.

Although all the farms were essentially a mix of sheep, cattle, hay, turnips and corn, the mixture could vary. For instance, the largest farm, Rossington Grange, was principally a stock farm and the farm attached to the inn at Rossington Bridge on the Great North Road had much land devoted to grass to meet the stabling needs of those

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[10] F.M.L. Thompson, 'The Second Agricultural Revolution, 1815-1880', *Ec.H.R.*, 2nd ser XXI, 1968, pp 64-5

[11] Doncaster Archives, Reports on Management of Farms of Rossington, 1818-1828

calling at the inn. These variations were acceptable, unlike those of the poor farmers whose most serious failing was to grow too much grain. In 1822 the Estate Committee was told that Valentine Pigott 'visits his land too often with the plough'. In 1818 Charles Butterill's 180-acre farm had 90 acres under grain, 26 in grass and 24 in red clover and the agent commented that 'this mode of management must ultimately exhaust the land', particularly as he kept no sheep 'which the land is peculiarly adapted for'. There were other criticisms of red clover which by this time seems to have been considered a very poor subsitute for seeds.[12]

On the other hand those whose methods were held to retain fertility were praised, sometimes in odd circumstances. For instance, Henry Chadburn, the innkeeper and farmer at Rossington Bridge, was praised for removing the clay banks of the River Torne near the bridge and spreading the clay over his light land, which was not a process which the engineers who had recently embanked the river would have applauded. The tenant receiving the most praise was Mr Jackson of Rossington Grange who was selected for special mention by the Estates Committee at its meeting of 17 March 1817:

> The Committee have been highly gratified by viewing the improvements made by Mr Jackson...by underdraining &c. &c. and therefore recommend that the Corpn (sic) should at the next meeting pass a vote of thanks to Mr Jackson for the very spirited and excellent Methods of Management which he has pursued as an example to the Remainder of the Rossington Tenants to adopt.[13]

Mostly the tenants were under pressure to buy bone fertilizer and to drain. Doncaster Corporation had its own brick and tile works which provided the materials for new building and for land drainage. These were supplied free to tenants but they were discouraged from using their own workforce on drainage operations and were expected to employ skilled workers which was a considerable expense. Although tenants benefited in the short term, the long-term benefit went to the owners even though there was an elaborate system of tenant right in operation which gave the tenants some compensation for unexhausted improvements.

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[12] *Loc cit*
[13] Doncaster Archives, Doncaster Corporation Committee Reports, AB 2 2/4 1

There were only four farms on the Corporations's Long Sandall estate. Three were over 200 acres and one was 148 acres, hence, like the Rossington farms, they were large for the Doncaster region. The reports on the Long Sandall tenants had none of the enthusiasm shown for the best of the Rossington tenants. The reports become more complimentary, however, through the 1820s as the strictures on turnip hoeing, manuring and the growing of seeds began to have effect. Generally a 'lack of spirit' was discerned among the tenants as it was among the poorer ones in Rossington. Possibly the reports were more critical of Sandall farmers because it was considered to be a very good farming area. The General Report for 1818 began with the following statement of the tenants' good fortune:

> The tenants of this place are the best accommodated with extensive buildings I ever saw, and each of them having flats of fine dairy pasture adjoining [sic] the River [Don] is no small acquisition, also the choicest sands for the homesteads, and in addition to those, they have each of them a lot of clay which together make the complete farm.[14]

It was recognised that the tenants did have one great disadvantage which the recent enclosure had not corrected in that the lands of each farm were scattered over the whole township. As the agent wrote in the Report quoted above:

> the fields and common allotments are certainly verry [sic] inconvenient, being too remote, this land would have been of considerable more value had one of the Sandall homesteads been erected here.

The Report went on to discuss the costs of reorganisation which was recommended to the Corporation although it was not until 1879 that it took place and Common Farm was erected at the eastern extremity of the township. The suggestion of rationalising the lands of the farms appears to negate one of the chief advantages claimed for the tenants; the variety of soils 'which together make the complete farm'. Also the Report claimed too much for the quality of the Sandall lands. Much of the land near the river was still regularly flooded and although this was of advantage to the 'dairy pasture' in winter, flooding occurred in summer also when it was not. The sands of the township also differed in quality as they did in all the adjacent townships. Long Sandall had a belt of poor blowing sand which is still indicated in

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[14] Doncaster Archives, AB 7/3/4/5. Long Sandall reports are included in the Rossington file.

the name Brecks Lane. In the neighbouring Kirk Sandall township of Streetthorpe [now Edenthorpe] one of the fields was called Hunger Hill. These names amply underline the poverty of some of the sands. A recent study of similar poor brecklands on the borders of medieval Norfolk and Suffolk has shown the difficulty of making these lands productive.[15] The application of large quantities of bone fertilizer was a nineteenth-century solution to the problem, but it was a very expensive one.

Despite these criticisms of some aspects of the reports on Rossington and Long Sandall farming they are almost an agricultural textbook in themselves as they emphasise the requirements necessary for one of the greatest shifts in agricultural history: the movement of grain production from the midland clays to light soil areas. The disadvantage of the easy exhaustion of light soils was overcome by the extension of the traditional sheepfold and fodder turnips on the fallow, plus the recuperative qualities of the new grasses and the newly recognised importance of the long-lasting effect of bones as fertilizer. South-east Yorkshire with its large quantity of sandy soils and its river communication with Hull, an important port in the bone trade, was an obvious area for the new grain culture to spread. The advantages of easy ploughing, relatively good drainage and ease of harvesting in a wet autumn especially in the difficult conditions of the post-war period allowed the area to make use of its favourable market position. The markets which the Doncaster area supplied had long encouraged the production of grain, hence the relatively early use of turnips and clover to reduce the area required for hay and pasture and devote more land to arable. Also, although Hatfield was an exception, all the sandland villages in the region had long used the sheepfold and by the time the value of the bone system was recognised the traditional markets for Doncaster grain had increased as the towns to the west and north west rapidly increased in population.

The costs of artificial fertilizer fell upon the tenant and it is significant that Rossington was in the centre of a swathe of land, west and east of Doncaster where the system of tenant right existed. It spread from north Lincolnshire where it is said to have originated at least as far as the Earl of Scarborough's Estate at Sandbeck, near Maltby. The system encouraged the tenant to invest in fertilizer on the

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[15] M. Bailey, *A Marginal Economy? East Anglian Breckland in the Later Middle Ages*, 1989

understanding that he would on leaving the farm be compensated for the unexpired value of his investments.

Strangely, the reports on these two estates make no reference to the distress from which farmers were likely to be suffering in the difficult post-war period. Even in the very bad years of 1821-22 there is no suggestion that times were difficult and, indeed, there is no mention of arrears except for the report to the Estates Committee in 1827 that two tenants were in arrears in Rossington. Also in 1830 when Rossington Grange had to be re-let it was reported that the two men bidding for it would not consider it without a considerable rent reduction which the committee did not believe to be justified.[16] When the Corporation sold Rossington in 1838-39 arrears only amounted to £56-17-6. Eleven tenants were in arrears one of whom owed £33 which had arisen over many years from a rent of only £15-10-3 but the rest were cottage tenants.[17] This is possibly an indication of the effect of enclosure on the cottagers. However, none of the large farms which had been reported on until 1826-27 were indebted, which might show the emergence of farming from the post-war depression as well as the cost-benefits which light land arable farming brought despite the heavy outlay on fertilizer bought outside the farm.

The relatively large farms in Rossington, Long Sandall and Finningley were the result of the policy of the dominant landlords, Doncaster Corporation and the Harveys of Ickwelbury. Even so they were not large by the standards of those who believed that only large farms could contribute to agricultural progress. There was, however, no consensus on what constituted a large farm. Arthur Young believed that 300 acres was the minimum for a large farm and 'could not conceive of any good farms being less than 100 acres', William Marshall considered farms of 100 to 500 acres as 'middling'.[18] Young and Marshall, the agricultural writers, were engaged in their debate on farm size in the eighteenth century at a time when they were anticipating the disappearance of small farms with the progress of parliamentary enclosure. They were to be disappointed, for although parliamentary enclosure

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[16] Doncaster Archives, AB/2/2/4/1, Doncaster Corporation Reports
[17] Doncaster Archives, AB/7/2/14, Rossington Audit, 2 August 1839
[18] J.V. Beckett, 'The Debate over Farm Sizes in Eighteenth and Nineteenth Century England', *Agricultural History*, LVII, 3, 1983, p 312

contributed to an increase in the size of farms, small farms proved to be very persistent. Also it is now recognised that the growth in farm sizes was a process that had started before the surge of parliamentary enclosure from c. 1750 and continued after 1750 without an act of parliament in some townships. It is now common to put parliamentary enclosure into the context of earlier piecemeal or non-parliamentary enclosure and to consider the reasons for the survival of small farms in spite of the prejudice of influential agriculturalists against them.[19]

The 1851 Census was the first to give details on size of farms and it occurred at a time when almost all parliamentary enclosure had taken place. It showed that 62.76% of all farms in England and Wales could not be good farms in Young's terms as they were under 100 acres. Another 20.49% were under 200 acres and only 2.28% could be considered large by Marshall's standard.[20] Nevertheless, the overwhelming majority of farms, those under 200 acres, occupied a minority of the land at 49%. Even in the 1870s and 80s agricultural writers were still commenting on the number of small farms. Caird thought that 70% of farms were under 50 acres and only 18% above 100. Craigie concluded from the 1885 agricultural holdings data that 71% were under 50 acres with hardly one per cent being over 500 acres.[21] In view of these figures Charnock's explanation of the reasons for the smallness of farms in the West Riding of Yorkshire was not really necessary as the Riding was, in fact, typical of most of the country even though the reasons for the small size might have been different. Charnock wrote:

> Remembering how considerable a portion of the West Riding is within the influence of several large towns, it will readily be conceived that the average size of holdings will be small. In their immediate vicinity the occupations seldom exceed from 10-50 acres; and throughout the manufacturing portion of the Riding generally, from 30-50 acres are occasional, but more commonly they run from 100-200 acres, the majority however being from 80-100 acres.[22]

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[19] J.A. Yelling, *Common Field and Enclosure in England 1450-1850*, 1977, chaps 4 and 5
[20] A.H. John, 'Statistical Appendix' in Mingay (ed.), A.H.E.W., VI, p1116
[21] J.V. Becket, *op cit*, p 309 citing James Caird, *The Landed Interest and the Supply of Food*, 1878, and P.G. Craigie, 'The Size and Distribution of Agricultural Holdings in England and Abroad', *Journal of the Royal Statistical Society*, 50, 1887
[22] J.H. Charnock, 'On the Farming of the West Riding of Yorkshire', *Journal of the Royal Agricultural Society* IX 1848, p 301

Charnock implies that the close proximity and high prices of ready markets and ample supplies of town manure freed farmers from the normal practices of agriculture in that they could ignore cropping routines to grow the crops which were in the greatest demand and specialise in the production of vegetables, milk and poultry which suited the very small farmer. As Doncaster did not begin to grow as a manufacturing town until after 1850 it did not, at the time that Charnock was writing, have the same type of impact on its agricultural hinterland that the rapidly growing towns to the west and north had on theirs. Even so, Doncaster's influence as a market, which had always been great, had grown as demand, particularly for grain and wool, had increased in the Riding as a whole. The eastern part of the Doncaster area was, in Charnock's phrase, one of the 'more agricultural parts' of the Riding but little of his assessment fits the situation in the research area. The 1851 Census figures show that there were 113 farms of 200-400 acres and 44 above 300 or 15.36% and 6.12% respectively. There were 170 farms or 23.12% in the 100-200 acre range but in the 80-100 acre range, which Charnock supposed to be the most common acreage in the more agricultural areas, there were only 38 or 5.17% of farms. By far the greatest majority of the farms in the research area were under 80 acres, 403 out of 735, or 54.82%. Of these, 207 were of 30 acres or less. The majority of this group of very small farmers described themselves as such on the enumeration form though some added another occupation such as innkeeper or blacksmith, some called themselves 'agricultural labourer and farmer' and some, possibly more realistically, simply called themselves 'agricultural labourer'.

The census figures for the Manor of Hatfield show an even greater variation from Charnock's assessment. In the Manor there were only seven farms above 300 acres, 46 or 19.12% of 100-199 acres and just half of that number of 200-299 acres. 166 or 69.17% of all farms were below 100 acres with only ten in the 80-100 range. Below 80 acres there were 158 farmers; 65.29% of the total. There were 71 very small farmers of below 30 acres, 29.33% of all the farmers in the Manor. The Manor townships were not the only ones in the research area to show this strong bias towards very small farms. Twelve townships had over 50% of their farms under 80 acres and in the marshland townships in the east of the Peculiar of Snaith 61.9% were in this category. In Ousefleet and Adlingfleet 29 or 28.43% were of 30 acres or below. On the other hand Loversall and Rossington had no farms below 100 acres

and several others had very few. Long Sandall had only one and Cantley had four, of which two were below 30 acres. Adlingfleet which had such a high proportion of small farms also had 22 over 100 acres with ten of them over 250. There was, therefore, a tremendous variation in farm sizes in the research area as a whole and a considerable difference from Charnock's view of the situation in the agricultural parts of the Riding. Charnock was writing, however, before the census was taken and before it became obvious that the small farm had been suprisingly resilient in the face of the enclosure movement of the previous 100 years, as Table IX(1) shows.

Table IX(1)
The Size of Farms in England and Wales compared with the Research Area taken from the 1851 Census

Acreage	England and Wales	Research Area	Research Area less Hatfield	Manor of Hatfield
Under 100	14,2358	431	265	166
Percentage	*62.76*	*58.64*	*53.75*	*69.17*
100-200	45,752	170	124	46
Percentage	*20.45*	*23.12*	*25.12*	*19.12*
200-300	18,401	90	67	23
Percentage	*8.24*	*12.24*	*13.57*	*9.58*
300-400	8,061	23	21	2
Percentage	*3.61*	*3.12*	*4.26*	*0.83*
400-500	3,585	12	10	2
Percentage	*1.60*	*1.63*	*2.03*	*0.83*
500-600	1,971	4	2	2
Percentage	*0.88*	*0.54*	*0.41*	*0.83*
600-900	2,372	3	2	1
Percentage	*1.06*	*0.41*	*0.41*	*0.42*
Over 1,000	771	2	2	0
Percentage	*0.34*	*0.27*	*0.41*	*0*

Although in sheer numbers the small farmer was dominant in the marshlands, as he was in the country as a whole, the majority of the farm land, or 79.89%, was in the

hands of middling and large farmers who farmed above 100 acres. Just over half the land was farmed in units of 200 acres or less, 50.07% compared with a national figure of 49%. However, the research area figures appear very differently when the acreages for the Manor Hatfield are subtracted. Then the marshland figure is 47%, 2% below the national figure, whereas the percentage for the Manor is nearly 11% above.

Table IX(2)
Farm Acreages in Marshlands and Manor of Hatfield from the 1851 Census

	Acreages in Research Area	Research Area less Hatfield	Manor of Hatfield
Under 100	16,361	9,686	6,675
Percentage	*20.11*	*16.33*	*30.28*
100-200	24,378	17,930	6,448
Percentage	*29.96*	*30.33*	*29.25*
200-300	20,850	15,592	5,258
Percentage	*25.62*	*26.29*	*23.85*
300-400	8,373	7,323	1,050
Percentage	*10.29*	*12.35*	*4.76*
400-500	5,162	4,284	878
Percentage	*6.34*	*7.22*	*3.99*
500-600	2,140	1,050	1,090
Percentage	*2.66*	*1.77*	*4.95*
600-900	1,498	850	648
Percentage	*1.84*	*1.43*	*2.94*
Over 1,000	2,600	2,600	0
Percentage	*3.20*	*4.39*	*0*

The Tithe Award of 1841 shows how complex the pattern of landowning and tenanting was in Hatfield parish.[23] The preamble to the award estimated the parish acreage as 16,203 of which 15,350 acres were liable to tithes. Hatfield Great Park

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[23] Doncaster Archives, ENC 17

was omitted from the award as it was tithe free; it does not, therefore, appear in the statistics derived from it. The preamble estimated the Park as 852 acres and it was now an important part of the agricultural land of the parish despite the difficulties which accompanied its development as arable in the seventeenth century which were described in chapter V. The award shows two very large owners, J.H. Gossip with 3,387 acres of largely useless moorland and Lady William Gordon, the Lady of the Manor, with 1,149 acres [plus the untithed Great Park]. It also shows two fairly large owners, the Rev. Cornelius Rodes with 753 acres and the tithe owner, Lady Coventry, with 557 acres. There were 261 other owners, 25 of whom owned between 113 and 392 acres. The majority held below 100 acres with 179 of them owning less than 20. These figures only include land described as moor, arable, grass or wood. Owners of cottages, yards and gardens and the acreages they represent are not included. Only a minority of owners occupied all or some of their land. J.H. Gossip was the only one of the four largest owners to occupy any of his land and was the only one resident in the parish. Twelve out of the 25 in the next group were occupiers and so were 81, or 48.25% of owners below 100 acres.

Obviously, with so much land in the parish being owned by absentees or non-occupying landlords there was a great deal of land available for rent and a very complex tenanting structure resulted. Forty-nine of the owner-occupiers rented land from other owners. This number included owners over the whole range from J.H. Gossip down to owners of less than ten acres. Many of the owner/tenants also had tenants of their own, a phenomenon partly explained by the fact that enclosure had not brought much consolidation of estates. A pre-enclosure tradition was thus maintained, in that owners of very small areas could have several tenants and very small tenants could have more than one landlord. Including the 49 tenants who were also owners there were 219 tenants in the parish. Four rented over 200 acres; 18 over 100 acres. One of the latter, John Bladworth of Stainforth, rented 143 acres and occupied 96 of his own. Another, Redmond Pilkington, rented 110 acres, occupied 140 of his own and rented his mansion, Park Lane House, and its grounds to Dr Matthews the owner/occupier of 270 acres in the parish.

However, the Tithe Award, as Tables IX(3) and IX(4) show, even more clearly than the Census Enumerators' Returns for 1851 do, that Hatfield was a parish of very

small owners and very small tenants. Unfortunately, as the Award does not give the occupations of owners and tenants, it is not possible to tell whether or not these small plots were farmed although its purpose is obvious in some cases where the land included a smithy or a mill.

Table IX(3)
Acreages owned in the Parish of Hatfield – Tithe Award 1841

Acreage	Number	Occupier of all or part of land	Owners who were also tenants	Owner/Farmers in 1841 Census	Owner/Ag Labs in 1841 Census
Under 1	20	12	5	3	0
1-5	67	26	6	4	5
5-30	115	51	25	20	0
30-100	36	18[24]	8	12	0
100-200	12	5	2	2	0
200-400	13	6	2	1	0
400 plus	4	1	1	0	0
Totals	267	109	49	42	5

Table IX(4)
Tenancies in the Parish of Hatfield – Tithe Award 1841

	Number of Landlords						Tenant/ Farmers in 1841 Census	Tenant/Non -Farmers in 1841 Census	Tenant/Ag Labs in 1841 Census
Acreage Number		1	2	3	4	6			
Under 1	9	9					1	0	2
1-5	56	53	3				7	11	14
5-30	94	65	18	11			29	8	8
30-100	38	29	4	3	0	2	21	2	0
100-200	18	12	2	2	4		13	0	0
200-400	4[25]	4					3	0	0
400 plus	0						0	0	0
Totals	219						74	21	24

In tables IX(3) and IX(4) an attempt is made to relate ownership and tenancy in the Tithe Award with the description 'farmer' or 'farm labourer' in the Census of the

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[24] Geo Markham was 'farmer' in the 1841 Census, but 'agricultural labourer, in 1851 John Rogers was 'agricultural labourer' in 1841 but 'farmer' of 12 acres in 1851.
[25] Jane Askren farmed 478 acres in the levels in 1851. Her four sons were also recorded as 'farmers' of the same 478 acres.

same year, 1841. Only 15.7% of owners appear as 'farmer' on the Census with another 1.9% as 'agricultural labourer'. As the largest number of owners by far held very small acreages and many of them were not resident in the parish the question of their occupations and their domicile arises. Obviously some lived in the other parishes of the Manor or over the county border in Lincolnshire and farmed their Hatfield lands from there. An example of this is Peter Cranidge who appears in the Tithe Award as the owner-occupier of three acres called Crook o' the Moor. The name of this small owner-occupier is known because he, or his father of the same name, kept a diary from 1780-1817 which is used by Joan Thirsk to comment on the wide range of Axholme farming at that time. Dr Thirsk estimated the size of his farm at Crowle as 150 acres, of which three acres of moor obviously extended over the border into Hatfield and as farms do not respect county or parish boundaries there must have been many similar cases.[26] Three of the small owner-occupiers who were not in the 1841 Census for Hatfield were in the 1851 Census, five were in the Stainforth Census and two were in Armthorpe. One of the latter farmed 850 acres, but most of the owners, large and small, did not occupy their land. In the case of the smaller holdings the absentee owners were possibly the descendants of the many copyholders who had not sold their copyholds in the run up to enclosure and carried on letting the new allotment, as they had let the previous copyhold land. Some small owner-occupiers who were not named as farmers used their land in connection with other occupations, especially those in Stainforth who were involved in river transport.

There are similar problems with tenancies as the number of tenants who were described as 'farmer' in the census was only 33.8% and another 11% were 'agricultural labourer'. Also there were another 9.6% in various occupations which were related to farming or to transport, giving a total of 54.4%. A majority of tenants of over 30 acres were named as 'farmer' but of those below 30 acres two-thirds appear to have no direct contact with farming. Some of the reasons advanced to explain the existence of landlords who were not farmers obviously apply to tenants also: such as residence out of the parish and other land requiring occupations, but they do not seem to be adequate. There were 126 farmers listed in the 1841 Census

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[26] J. Thirsk, *English Peasant Farming*, 1957, pp 231-2

and 26 agricultural labourers who also farmed. This is only 34.8% of the 267 owners and 219 tenants (less the 49 owner/tenants who appear twice) which is a very small proportion in a parish where, except in Stainforth, there was almost no alternative occupation to agriculture. The alternative in Stainforth was, of course, the Dun navigation which, as Table IX(5) shows, occupied 22.3% of the male heads of household in the township. These occupations included watermen, boat-builders, mariners and various related crafts and services, but over a third were occupied in hauling boats along the navigation by horse-power. There is no suggestion in the Census that boat haulers were employees using their masters' horses. If they were, as this implies, self-employed, they would require pasture for their animals. Before the enclosure this would be available cheaply on the commons if they had no common rights but after the enclosure they would have to rent land. Only two of the hauliers appears to have done so which suggests that the majority held sub-tenancies which do not appear on the Tithe Award. Before enclosure the Manor had a long tradition of sub-tenanting, even when it was forbidden in tenancy agreements, and there is no reason for the practice to have disappeared after an enclosure which produced so many small owners and so many apparently non-resident and non-farming tenants.

Much of the land which does not appear to be farmed by tenants was probably used by sub-tenants but there is no indication who they were. The assumption must be that they were agricultural labourers and other employees who used them as allotments or potato patches which were being widely suggested in the early nineteenth century as a way of alleviating rural poverty.[27]

The evidence of the census and the Hatfield Tithe Award makes it clear that the agriculture of the Manor of Hatfield and much of the rest of the research area was dominated numerically by small, possibly even peasant, farmers and consequently it must be asked if this domination provided an obstacle to the penetration of the modern light land farming already observed in Rossington, with its larger farms and improving land agents. Fortunately there are available for parts of the research area valuable comments relating to the beginning of the decade in which High Farming began to be advocated in the shape of the surveys of the Commissioners appointed

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[27] A. Armstrong, *Farmworkers, A Social and Economic History 1770-1980*, 1988, p 68

under the Tithe Commutation Act. The Commissioner for Rossington confirmed the quality of the light soil farming there. He wrote in 1838, the year that Doncaster Corporation sold the estate: 'The whole of the Parish is the property of the Corporation...and great pains have been taken to improve the state and condition of it. The land is very well cultivated...' He also gave an additional reason for this:

> great encouragement has been given to the Tenants to effect improvements by the liberality of the Landowners and of the Tithe-owner. The Corporation appears for a long series of years, to have taken the Tithes of the Rector and have let their lands Tithe free. Had the Tithes been taken in kind or had the value of them been vigorously exacted there is no doubt but it would have operated as a great check to the outlay of capital and checked the spirit of the occupiers of the land.[28]

It also, no doubt, helps to explain why there was so little indebtedness among the tenants when the Corporation came to sell the estate. Farmers in the other parishes surveyed by the Tithe Commission were not so fortunate but, nevertheless, the Commissioner for Snaith and Cowick was impressed by what he found. He wrote,

> Some part of the waste inclosed is very unproductive, requiring a great application of skils [sic] and capital to improve it. The arable lands mostly cultivated have been well managed and evince evident proofs of good husbandry.

He also commented on the 'great many' of the 134 landowners who were 'assessed at £1 only'.[29] The Commissioner for Thorne similarly commented on the number of 'small farms', adding that on most of them the cultivation 'is inferior'. Surprisingly the same Commissioner does not comment on the smallness of the farms in Hatfield.[30]

In all four of these reports the difficulty of valuing the parishes is recognised because of the variety of soils within them, but the Commissioners comment on the suitability of the crop rotations used on the different soils. The Commissioners for Hatfield and Thorne and Snaith/Cowick were understandably rather overwhelmed by the size of the parishes and the variety of soils, though the Commissioner for Snaith and Cowick

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[28] PRO. IR 18/12787
[29] PRO IR 18/12835
[30] PRO IR 18/12882 and PRO 18/12507

simplified his task by dividing the soil into three parts. The sandy part, about one quarter of the area or 755 acres, which he again divided into quarters of turnips, barley, clover and wheat. The warp land made up another quarter which he also divided into four quarters of potatoes, wheat, beans (sometimes oats) and clover. The clay he divided into thirds of fallow, wheat and beans. He estimated also 454 acres of meadow, 90 acres of pasture and 82 acres of moorland 'yielding no tithable produce'. the Commissioner for Hatfield and Thorne attempted to describe the different cropping regimes and reached the following conclusions. For Hatfield, he divided the arable into eighths: one eighth or 952.5 acres of each of wheat, rye, turnips, fallow and seeds. three-sixteenths or 142.75 acres of oats, one thirty-secondth of barley and beans another sixteenth of seeds fed to animals and one sixteenth of hay. He estimated 1,734.25 acres of grassland, half depastured and half mown. The Thorne assessment contained some rather less rough and ready estimates: 1,045 acres of wheat, 261.35 acres of beans, 1,306.75 acres of oats, 261.25 acres of beans and turnips, 784.09 acres of fallow, 1,025.4 acres of one year seed, 2,116.35 acres of two year seeds, 606 acres meadow and 1,886 acres of pasture. Hatfield and Thorne farmers were given no praise for their good husbandry but in both cases the Commissioner commented that the cropping courses were adapted to the different soils. On Hatfield the Commissioner also commented on the fundamental importance of the weather. He wrote:

> The whole Parish is much dependent on seasons: the sands requiring an open season the clay lands much favoured by a Dry one: owing to the extreme wetness of the last Autumn, not one fourth of the clay lands was sown with wheat, a person who has valued the tithes for 20 or 30 years, says he has never known the wheat on this part so bad; on the other hand, owing to their having had a favourable Spring and summer, the sand lands are unusually good.

The Commissioner wrote that the number of sheep in Hatfield and Thorne was 'comparatively few' which he explained by the 'unfitness for overwintering'. presumably he was referring to the winter wetness of the lower lands. Sheep were, of course, an essential fertilising element of best light land farming. Rossington, a much smaller parish than either Hatfield or Thorne, had many more sheep than either and Thorne had almost twice as many sheep as Hatfield in spite of having a much smaller acreage of sandland. Cattle and horses were said to be of great importance in both

parishes. In Hatfield cattle were as essential in fertilising the light lands as sheep were in other parishes and had been used in this way since the early eighteenth century when the new crops were first introduced.[31] The Commissioner also commented on the amount of dairying in Thorne but thought that it did not go beyond what was needed for local consumption. It seems to be clear, therefore, that, in spite of a certain coolness in the comments for Hatfield and Thorne, the light land farming practised in Rossington was general further east by c. 1840 and that the research area was in a position, given the co-operation of the larger landlords, to adopt the ideas associated with the phrase 'high farming' which began to grip agricultural writers about this time.

The phrase 'high farming' is generally attributed to the Scottish agriculturalist James Caird although there are possible sources the claims of which are discussed by B.A. Holderness.[32] Holderness also discusses the different emphases which the various supporters brought to the concept but for all it included high investment aiming at high production as a way of defeating the threat from the repeal of the Corn Laws. Consequently it included all of the elements evident in Thomas Gee's observations on the Rossington farms of 1810 and the subsequent reports to the Doncaster Corporation: tenant investment in bought fertilizer and the further preservation of soil fertility by growing turnips, clover and other seeds which were not sold but fed to a full stock of animals all of whose manure was to be returned to the soil. In addition tenants were expected to buy in manufactured animal foods such as oil or seed cake. The landlords' contribution was to improve drainage and the quality of the farm buildings. Many remained wedded to the idea that corn production, especially of wheat, must be the main aim of agriculture and that drainage and the new fodder crops such as swedes and mangels would bring to the heavier lands the advantages of light land farming. Others, more realistically, saw no future in merely increasing grain production by increasing the acreage devoted to it and hoping that the Corn Laws would be retained even though they had not had much effect on British wheat prices. This group believed that the acreage devoted to grain should be reduced and

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[31] Even in the late twentieth century sheep were used to fertilise the lower and wetter townlands and cattle the dry higher sand.

[32] B.A. Holderness, 'The Origins of High Farming,' in Holderness and Michael Turner (eds), *Land Labour and Agriculture, 1700-1920. Essays for Gordon Mingay*, (1991), pp 149-150

that the land thus freed should be devoted to hay, pasture and fodder crops to increase grain yields by better fertilising, particularly by increasing the number of stock to provide much more manure. At the same time, farmers' incomes would benefit from the rising demand for meat in the rapidly growing towns.

The differences between these two groups became a central area of political debate in the middle years of the century; the protectionists tended to be rural Tories while the freetraders tended to be Whig or Liberal and urban. There were, however, protectionist Whigs and free-trading Tories. Free traders were very influential in the research area and adjacent parts. One of the most influential was Earl Spencer who farmed the Wiseton Estate in Nottinghamshire which was five miles from Bawtry and separated from the Nottinghamshire part of the seventeenth century drainage by Gringley Hill. Spencer was instrumental in negotiating the political truce which enabled the two sides to agree to the founding of the Royal Agricultural Society and was its first President.[33] He was an important politician and had served in Grey's reforming Whig ministry of the 1830s but farming was his main interest, especially the Wiseton herd of pedigree shorthorns. He was seen by many farmers of the time in much the same light as Coke of Holkham had been earlier, though his popularity was lessened when he supported repeal of the Corn Laws.

The protectionist laws were repealed the year after Spencer's death by the Tory Prime Minister, Sir Robert Peel. This was seen by most Tories as political treachery and D.C. Moore argues that historians have been guilty of treating it as giving in to industrial and urban pressure. He argues that this view is mistaken and that Peel's motive was to force backward farmers to adopt the principles of 'high feeding', the term, which Philip Pusey the influential writer and supporter of the Earl Spencer, preferred to 'high farming',[34] to make a living and not to rely on the blunt instrument of the Corn Laws. Moore also argues that the concentration on the political implications of repeal has led to the ignoring of the important changes in the farming situation that accompanied repeal which was to come into force in 1849.

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[33] E.A. Wasson, 'The Third Earl Spencer and Agriculture, 1818-1845', *A.H.R.*, Vol 26 1978, part II. pp 89-99

[34] E.L.Jones, 'The Changing Basis of Agricultural Prosperity, 1873-96', *A.H.R.*, X (1962) Reprinted in Minchinton, *Essays in Agrarian History*, Vol II, pp 221

Moore writes that Peel introduced other measures which were to come into force immediately; they included a sharp reduction of import duties on grass and clover seeds as, he claimed, clover seed was only produced in a few counties and was needed 'where agriculture is most advanced'. Therefore, the removal of import duties should not be seen as a 'removal of protection, but a benefit to agriculture'. Similar arguments explained the reduction of duties on maize, buckwheat, linseed cake and rape cake which were used for fattening cattle. He pointed out, 'There is nothing more important than the fattening of cattle to an improved system of agriculture because no other fertilizer is as good as manure'. He also introduced a government loan to encourage the draining of land and proposed an alteration of the Poor Law to reduce the burden of the rates on the land.[35] Peel was using Corn Law repeal as an opportunity to tell the largely land-owning M.P.s where the agricultural future lay.

These measures left many landlords and their tenants depressed by the loss of protection and unimpressed by high feeding and, of course, many were still reluctant to change even in the last quarter of the century, when the cereal slump really occurred. In the major grain growing areas many were still, in Thomas Gee's phrase, 'visiting their land too often with the plough'. In fact repeal had little effect on British wheat prices which fluctuated in response to the quality of the harvest, as they had done before 1849. There was no great influx of continental grain, the threat of which had been, according to S. Fairlie, a result of two outstanding harvests in Europe in the 1830s. This threat to British prices was over by 1838 and thereafter increasing population in Europe, as in Britain, made large surpluses unlikely.[36]

By the mid-nineteenth century British farming had been changed enormously. Two remnants of medievalism had gone with the final stages of the parliamentary enclosure movement and the end of the payment of tithes in kind; and the protectionism of the post-Napoleonic War period had also gone with Corn Law repeal. Science was beginning to increase knowledge of plant growth and the keeping of pedigree animals and the winning of prizes had become an aim of many

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[35] D.C. Moore, 'The Corn Laws and High Farming', *Ec.H.R.* 2nd Ser., Vol XVIII, No 3, Dec 1965, p 554

[36] S. Fairlie, 'The Nineteenth-Century Corn Law Reconsidered', *Ec.H.R.*, 2nd Ser. Vol XVIII, No 3, Dec 1965, p 568

landlords. In parallel with these changes agricultural societies had been founded in many parts of the country. For the Doncaster area the most influential societies were the Doncaster Agricultural Association, the Yorkshire Society and the Royal. Local landlords played an important part in the foundation and running of all three of them. Earl Spencer was elected the first president of the Yorkshire and the Royal at their inaugural meetings. The Doncaster Association had been the first society in England to conduct 'enquiries into local practice and reporting thereon'.[37] Spencer and other local committee men tried to ensure that the Yorkshire Society did the same and to encourage a scientific interest in farming. This group also tried to alter the standards by which animals were judged at agricultural shows by removing the emphasis on over-fat animals beloved by many wealthy hobby breeders and replacing them by criteria related to the market such as milk yield in cattle and high quality meat in cattle, pigs and sheep. They also attempted to make the Royal Society follow the same lines and among the ten founding objects of the Royal Society, object number IV was:

> By the distribution of prizes... to encourage men of science to exert themselves in the improvement of agricultural implements, the improved and economic construction of farm buildings and cottages, the application of chemical knowledge to the food of plants, and in the suggestion of the means of destruction of insects and animals injurious to vegetables, and the eradication of weeds.[38]

Within a few years chemists were investigating plant nutrition, great figures such as Liebeg and Laws were emerging, and in 1844 the Yorkshire Society appointed its first soil analyst to answer farmers' questions. Goddard queries whether the Royal Society made much scientific impact on the ordinary farmer and Wright in his essay on Yorkshire farming of 1861 bemoans the lack of scientific knowledge. However given the early interest of the Doncaster Association in the value of new fertilizers, the importance of local landowners in the Yorkshire and the Royal, the long struggle of local farmers to cope with land that was naturally too wet or too dry and the early adoption of bones, guano and artificial manures it is reasonable to assume that the new information was of interest in the research area. Importers and retailers of these

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[37] V. Hall, *A History of the Yorkshire Agricultural Society 1837-1987*, (1987), p 48
[38] N Goddard, *Harvests of Change, The Royal Agricultural Society of England 1838-1988*, (1988), p 26

products are found in considerable numbers in Hull, Goole and Doncaster in the commercial directories of the middle years of the century.

Another local landowner of importance in the foundation and conduct of the two large societies was Earl Fitzwilliam, owner of the huge Wentworth Woodhouse estate on the concealed coalfield 15 miles west of Doncaster. He was a founder vice-president of both societies and in 1813 he was elected first president of the Doncaster Association. He owned land in the Doncaster area and had a tremendous importance as an improving farmer and chairman of the Yorkshire Liberal party.

J.W. Childers of Cantley Hall was a Fitzwilliam supporter who owned 3,000 acres in the Chase and adjacent parts. His main local estate was at Cantley and he also owned land in Finningley and a small amount in Hatfield. He also owned 5,000 acres in Cambridgeshire and was M.P. there for a few months. Later he was M.P. for Malton, a Fitzwilliam pocket borough normally held by the eldest Fitzwilliam son. He too was heavily involved in the foundation of the two societies, was on the committees for many years and held the important position of secretary of the Publications Committee in the Royal Society. Two other local landowners of importance in the foundation and early management of the Yorkshire and the Royal Societies were W.B. Cooke of Wheatley, who had in the 1820s and 30s spent a fortune on the enclosure of Bentley with Arksey and on a failed attempt to prevent constant flooding by the Don, and W.B. Wrightson M.P. of Cusworth, an estate on the magnesian limestone overlooking Doncaster, though he also owned land in the adjacent lowland of Bentley.

Other figures of importance in the area included the Earl of Beverley who owned Airmyn and was famous for his liberality as a landlord and an improver of the estate although he left he district in 1860 for Alnwick when he succeeded to the Duchy of Northumberland.[39] The Creykes of Cowick, Admiral Sotheran of Darrington Hall and the Cookes of Owston were all heavily involved in warping or draining or both. Of the 18 large estates in the area mentioned in Bateman's *The Great Landowners of Great Britain and Ireland* (1879 edition) many were known as improvers. There was,

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[39] J. Caird, *op cit*, p 301

therefore, a very considerable pressure on Chase farmers to adopt modern agricultural practices. There were also many lesser men locally famed for their contribution to better farming. Two of the better known are Makin Durham, the warper and engineer of Thorne Hall, and Mr Wells who was eulogised by Caird for his warping, building, cropping and rearing of horses, cattle and pigs on land recently drowned and adjacent to the Aire at Airmyn.[40] The survival of documents indicates other individuals who were of only local significance but are an indication of good farming. One such was Thomas Askren of Drain Farm, Hatfield Level who wrote a farming diary which passed to his descendants who lent it to Dr J.S. Taylor a local G.P. and keen local historian who edited it and published it under the title *Works and Days 1835-1872*[41] c. 1960. Askren is named in the 1841 Census as the eldest of the three sons of a farming widow. He was 19 when his father died and 29 when he began to keep the diary. During the years covered by it the 478 acres of 1841 expanded to eight farms in the Levels amounting to 1,443 acres and one of the three Park Farms in the former Hatfield Great Park. He writes as if he controlled the whole but in the 1881 Census he is recorded as farming 800 acres and his surviving brother, Michael, 292 acres. The reasons for this variation in acreages is not suggested in the edited version of his diary but the implication is that, like the large farmers in the seventeenth century, the better land was kept but the wetter land was surrendered. Nevertheless the acreage was large and the range of agricultural activities was very great. The main crops were wheat, oats, maslin and beans, also white top turnips, rape and swedes were grown regularly, along with red clover, mustard, chickory and apples. The diary extracts refer regularly to the buying, selling and breeding of cattle, horses, sheep and pigs. In 1850 the sale of fat beasts and horses brought in £168-3-8 and fat pigs, £49-14-5. He regularly bought lime (worth £37 in 1839) and bone meal and sometimes paid neighbours to graze their sheep on his land. Most of his fertilizer was manure produced on the farm. He was keen to buy or borrow new machinery and enthused about a thrashing machine called a 'thaick' or 'thack' he acquired in 1847/8; he borrowed a steam thresher in 1852 and 1853. In 1868 he acquired a new type of reaper from a firm in Ripon. His entries indicated that his chief anxiety (apart

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[40] *Ibid*, pp 297-301

[41] J.S. Taylor, (ed), *Works and Days, 1835-1872* (Printed privately c. 1960, copy in Doncaster Local History Library)

from low wheat prices) was the wetness of the land; rain always led to standing water and often made farm work impossible and he was constantly moving his pumping engine to the wettest areas and paying bills to Makin Durham and other experts to improve the drainage.

Possibly the most interesting aspect of his modernity was his enthusiasm for rail travel. He visited the Great Exhibition in 1851 and went to learn in areas famous for their agriculture such as the Lothians in Scotland. He visited agricultural shows regularly, both local ones such as Doncaster, Thorne, Epworth and Howden and also further afield to Hull, Derby, Lincoln, Chester and Beverley. He regularly exhibited at local shows and was pleased to win prizes. The diary ended just before the Agricultural Depression hit the cereal farmers but there is sufficient evidence in the extracts to show that even in the difficult conditions of the wetlands the mixed farming advocated by the leading agriculturalists could be successful.

The agricultural reformers of the nineteenth century were keen to produce a more educated class of farmers who could read the literature and keep proper accounts. There is no indication that Askren read the literature but, judging from the occasional extract, he was certainly careful in his accounting. The establishment of an educational structure for farmers and landlords was one of the objects of the founders of the Royal Society and one of the immediate results of its foundation was the creation of the Royal Agricultural College at Cirencester. Although the College was important to the increase of scientific knowledge it had little effect on the education of the ordinary farmer and little occurred to alter this until the last quarter of the century. Young farmers looking for instruction had to reside with a farmer of good reputation. This appears to have been a rare occurrence in the Chase and its environs although there were two such students recorded in the 1851 Census but there were none in later censuses. The career of Isaac Wells of Hatfield indicates, however, that education was available although there is no mention of it in the Census. Wells was born in Belton in the Isle of Axholme in 1815 and moved to Hatfield before 1841 to start a boarding school for children. He married into the Newsome family who farmed on a large scale in Hatfield, Armthorpe and Barnby Dun. In the Censuses of 1841 and 1851 he is simply called 'schoolmaster' but in 1861 he is called 'schoolmaster and farmer' and in 1871, 'farmer'. Farming had become the main

interest of his life but as the following letter shows, not exclusively. The letter was sent by the Selby branch of the N.F.U. presumably to another family member. It was dated 10 January 1879:

> Isaac Wells was a steward for a prominent Landowner between Hatfield and Stainforth; and looked after all the farms, including Lings Farm. At one time he farmed at Dalemont Farm, Hatfield Levels where he had a reputation for keeping some excellent working horses.
>
> It is also known that he established a type of large Heavy Weight sheep, which can be compared with the modern Cross Scotch Half Breed on a Suffolk tup.

The letter also states that he 'had a school for boys and girls believed to be on the main street of Hatfield opposite the Victoria Hall' and that he

> also boarded and instructed at Westfield Farm, Hatfield, the sons of Farmers and Gentlemen in the Art of Farming, with special attention to sheep, in which, apparently, he was something of an expert.[42]

His eldest son was the agent for the Lady of the Manor well into the twentieth century.

In the 30 years after the information in the Tithe Files a number of sources are available which give a fuller view of the agriculture of the area. The first of these is Charnock's previously quoted 1848 survey of the West Riding in the Journal of the Royal Society. Charnock deals mainly, of course, with parts of the Riding which are very different from the south-east corner, but occasionally singles out the research area for comment. He quotes Brown's 1799 Survey of the Riding which claimed the area east of Doncaster to Thorne and Snaith was the most intensely cultivated of the whole Riding with three quarters of it devoted to 'tillage' and where grass is 'only considered as a means of bringing the corn husbandry to perfection'. This was a view central to the high feeding argument of the mid-nineteenth century. The Tithe Files for the two largest parishes in the area indicate that Brown was exaggerating on both of these points. Much of the area was unfitted for arable farming when Brown was writing and although Charnock commented on how much improvement had been

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[42] Doncaster Archives, DD HAN/16

made since Brown's survey by the Hatfield Enclosure Act of 1811 and the consequent Commons Drainage Act of 1814 which had 'brought approximately 150,000 acres into profitable cultivation', there was still much land under grass. Charnock does, however give a much fuller picture of the range of crops grown in the area than the Tithe commissioners had earlier in the decade. He writes that on the lower drained land:

> in addition to the usual corn and green crops, flax, teasles, woad and carrots enter largely into the rotations. Mustard is also frequently grown... [it] is an excellent preparation for the succeeding wheat crop. (These crops were also grown on the higher townlands.)

Potatoes were important on the 'better warp soils'. On the sands the 'ordinary four-course turnip culture is followed' and he mentions that turnips have to be grown every fourth year to eradicate the couch grass which was a particular problem on the townlands. He stresses the quality of the barley of the area which he describes as being 'much esteemed by better maltsters'. Charnock was very dismissive of the quality of the animal farming in the Riding as a whole though he specifically exempts the research area which he praises for the quality of its horses, especially the hunters which he thought were 'of good breeding and power'. Also the 'middle and eastern parts' of the Riding had a distinct breed of shorthorns though the cattle were largely cross-breeds in the rest of it. He thought increased attention was being given to the breeds of sheep 'particularly in the turnip districts of the Riding' as a result of the introduction of the Leicester, the improved Lincolnshire and South Downs'. He considered the breed of pigs throughout the Riding to be 'particularly good'.[43]

In 1861, 13 years after Charnock wrote, the Royal Society published in its journal a long essay on Yorkshire farming by William Wright who farmed in Holderness in the extreme south-east of the county. Written 15 years after the Repeal of the Corn Laws and 12 years before the tentative beginnings of the slump in cereal farming which was caused initially by several very wet seasons followed by increased competition from overseas, Wright was reporting in the middle of what was called from the perspective of 'The Great Depression', the 'golden age of English farming'.

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[43] J.H. Charnock, *op cit*, pp 298-302

Wright's essay was an eulogy on the tenets of high farming. He wrote on the duties of the landlord such as drainage, especially of pasture, and good quality farm buildings, especially cattle shelters. He considered that many Yorkshire landlords were inadequate but wrote that there were many who responded to the improving mood of the period, 'Suffice it to say Yorkshire is proud of her landlords, and their tenants respond to their efforts'.[44]

Wright's essay covered the whole county, whereas Charnock dealt only with the West Riding and, as befits the size of the county and the importance of the subject, Wright's essay is very long (43 pages) and it is divided into high and low land sections. Presumably because of the amount he had to cover detail is mostly sparse and based on individual farms. Doncaster as a centre of lowland farming is referred to several times as an area of good practice though he has little to say on the Chase and the eastern parts. He wrote of the duties of landlords and tenants in terms similar to the high feeders and stressed particularly the importance of farm manure and of the drainage and fertilisation of pasture land. He cited the increase in the importation of linseed cake into Hull by nearly two thirds since 1848 as a result of the increase in the price of bones and guano and claims that the bulk of it was not fed to cattle but broken up and used as fertilizer for wheat; rapeseed cake imports had increased similarly. He noted the growing importance of flax growing particularly in the northern purlieus and over the Lincolnshire border in Crowle. Crowle was exceptional as Thirsk has written that after the flax growing subsidy ended in 1832, flax 'disappeared almost completely in Lincolnshire'[45]; Wright also noted the advantage taken by the flax growers in the purlieus of the easing of the route to Leeds by the Goole-Knottingley Canal. Wright considered that the rest of the county had caught up with the east in the quality of its animals but not in its use of machinery as the steam plough had only been adopted 'on the strong lands of the level district'.

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[44] W. Wright, 'On the Improvements in the Farming of Yorkshire since the date of the last Reports in the Journal', *Journal of the Royal Agricultural Society of England*, Vol 22, pp 87-131, (1861)
[45] J. Thirsk, *English Peasant Farming*, p 228 footnote and other references

Within a year of Charnock's survey a tentative beginning was made to the collection of national agricultural statistics. In 1853 a pilot scheme was inaugurated for the collection of statistics for two counties. In the following year it was extended to a further 11 counties including the West Riding of Yorkshire. On the whole farmers and landowners were very suspicious of what they regarded as prying by the Board of Trade with the result that the statistics have been considered to be unreliable, but in the West Riding the two inspectors reported that, 'in most instances both landlords and tenants rendered effective assistance in the conduct of the enquiry' and that 'it is as perfectly and satisfactorily completed as its great importance deserved.'[46] Dodd claims, indeed, that the 1854 returns for the West Riding afford a reliable statistical assessment of land use which in many ways is greatly in advance of later collections.[47] Unfortunately the basic unit of the inquiry was Poor Law Unions which included within their boundaries parishes with different agricultural emphases and some were outside the county. Goole Union had two Lincolnshire townships and most of the old Peculiar of Snaith. Thorne included much of the Isle of Axholme and Doncaster, which was a huge Union, with 56 townships, of which only 22 were in the research area, with the rest on the magnesian limestone or even further west on the concealed coalfield. In his analysis of the West Riding results Dodd divides it into five regions of which the Vale of York relates most directly to the research area. The Vale he sub-divided into three, the second of which is south of the Escrick moraine, and of this area he wrote:

> the importance of the plough steadily increased but the significance of the various crop rotations changed as the heavier soils were displaced by the lighter types. This is to be remarked in the instance of barley and turnips as the proportion of free draining sands and gravels became a greater factor. Livestock densities likewise increased... Farms were medium-sized holdings and as far as their livestock enterprises were concerned the emphasis was on store cattle which comprised 42-50% of the total stock, and on producing lambs for the spring market, these forming 41% of the flocks. Farm size varied slightly from 52 acres in Elmet to 63 acres along the Nottinghamshire border.[48]

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[46] J. Philip Dodd, 'The West Riding Crop Returns for 1854', *Y.A.J.*, Vol 51, 1979, p 112
[47] *Ibid*, pp 120
[48] *Ibid*, pp 124-5

Dodd's third region was the 'warpland loams in the triangle formed by Selby, Goole and Thorne'. Not only did this area differ from the rest of the Vale but he showed the difference between the Selby and the Goole/Thorne area. Goole had the highest arable acreage per 1,000 acres of the Riding with 737 acres and the highest proportion of wheat and also the alluvial soils which suited potato cultivation and were manured by the keeping of winter-fattening bullocks. Half the cattle kept were used in this way though livestock numbers were low. There was also evidence of the importation of sheep into the area and pigs were more important than elsewhere in the Riding.

The information given in the two essays and the 1854 survey give an indication of the strengths of the region by the mid-century. The basis had been laid in the early part of the century with better light land farming and some (but not enough) improvement in the drainage area. Change was stimulated by population growth especially in the main areas of industry. In the case of the Doncaster region, the growth of Sheffield and the West Riding textile towns was very important. The population of Sheffield Parish grew from 45,162 in 1801 to 380,793 in 1901 and the Borough of Leeds from 53,162 to 428,572. In Doncaster too the population grew from 5,697 in 1801 to 12,052 in 1851 and 28,932 in 1901. Doncaster had not been affected by the industrial revolution except for a brief flirtation with weaving in the 1780s when three local gentry built a steam cotton mill to use the new invention of the Doncaster curate, Edmund Cartwright. Cartwright himself built a mill for woollen weaving but both mills soon failed and in the early nineteenth century Doncaster only had a small flax mill and several manufacturers of agricultural machinery. By the 1840s it had even lost its coaching trade as traffic rapidly moved from coaches to the new railways and the town even missed out on the early railway age.

Despite this the Doncaster market grew and was modernised in the 1840s. The Corporation spent a great deal clearing old buildings from the market place including the Magdalens church and the Town Hall which had been built round it. Land was bought for new sheep and cattle pens and new shambles and a market hall were also

built.[49] Clearly the main cause of this was urban population growth and Holland describes it also as 'a response to several decades of growing agricultural trade' centred on the town.[50] In the earlier years of the century the economy of the area had been stimulated by the creation of the new Goole and the extension of the Thorne market to include cereals. The most important stimulus was, of course, the coming of the railway connecting London to Doncaster in 1848. The London line following the course of the Great North Road through Doncaster was promoted by E. Becket Dennison, a director of the Great Northern Railway, who had been brought up in the town. Even more importantly for Doncaster's expansion was his successful campaign to remove the railway works to the town. Becket claimed at a celebratory dinner in 1848 that 'Had I not fought to bring hither the G.N.R. (especially the locomotive works) the town would not have been known for anything but its market and its races'.[51] This was probably true and the town began to industrialise and expand in all directions as its population rose. Outside the western boundary in Balby-Hexthorpe the railway works were built and most of the workers were housed; Wheatley, to the east of the market place, also housed workers. These two areas added to the town's growth although they were not included in the borough until 1914. Population growth in these areas indicates the importance of these developments. In 1841 the joint population was 765, by 1871 it had grown to 1,375 and by 1901 it was 10,472. In the 1850s and 60s new lines centring on Doncaster were built and the market place began another period of expansion as speedy links developed with many places. Sheardown claimed in 1872 that 38 towns were within an hour's journey or slightly more, from Doncaster and it:

> ...will be seen that the market trains now running from and to those places have necessarily given a great impetus to the market traffic of the borough, and have completely established Doncaster as the great *entrepot* of the corn, cattle and wool produced in the agricultural districts to the east...and the manufacturies of the west.[52]

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[49] Sheardown, *op cit*, pp 20-30
[50] Holland, *op cit*, p 26
[51] P. Ferriday, *Lord Grimthorpe, 1816-1905*, (1957), p 5. In fact the G.N.R. decision to move the works was not taken until 1853.
[52] Sheardown, *op cit*, p 3

In this period also, Goole, Thorne and Hatfield/Stainforth were connected to Doncaster and the west and Bentley acquired a station on the Doncaster-Leeds line. A new trade created by the railways was the carriage of dead meat to London from northern Scotland. The trains left Aberdeen every night and the meat arrived fresh in the morning. Doncaster was on the route of the meat trains and given the expansion of abattoir facilities in the town it had a lucrative new outlet as prime cuts of meat fetched very much higher prices in London than in the rest of the country.[53] In 1865 the General Manager of the G.N.R. claimed that 'his company sent meat [to London] from practically all the 197 stations along its lines'.[54] A similar trade developed with overnight trains carrying forced rhubarb from the sheds of the Wakefield district. Despite the increasing emphasis on animal husbandry meat was very dear even after the ban on foreign imports was lifted in 1842. Both Sheardown and Wright comment on meat prices but Wright offers no explanation. Sheardown after comparing prices from 1864 to 1872 wrote that 'There are three causes of meat being dear – increased consumption, inadequacy of supply, and the depreciated purchasing power of money'. He also blames the effect of the rinderpest of the mid-1860s but still considers the prices of beef and veal to be 'maintained unaccountably'.

The 20 years between the coming of the east coast railway line and 1872 when Sheardown was writing were marked by some important changes in the national economy; along with the population rise there was a rise in the proportion of people with greater purchasing power. In the countryside agricultural workers continued to exist on a bare minimum but their numbers began to decline. Poverty continued to be a huge problem in the towns also but it was declining between 1850 and 1873. Burnett writes of the improvements to the working conditions of the urban worker as a result of Factory Acts and trade union pressures but 'above all, a brisk demand for labour was providing employment, a rising standard of life, and – what was new for the majority of wage-earners – some margin of income over necessary expenditure'. He adds that it was a period when food prices rose less than wages and led to increasing consumption of tea and sugar and other 'luxuries'. Two of the latter were

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[53] R. Perrin, *The Meat Trade in Britain 1840-1914*, (1978), p 25
[54] Perrin, 'The Meat and Livestock Trade in Britain, 1850-70' *Ec Hist Rev*, Second Series, Vol XXXVIII, No 3, 1975, p 395

meat and beer. Beer consumption grew particularly as, after its long period of stagnation in the first half of the century, 'it rose to an all-time maximum in 1876 at 34 gallons a head per year'.[55] The large breweries of Leeds, Sheffield, Barnsley and Tadcaster prospered greatly. Locally, the importance of the increase in brewing and of the demand for the quality malting barley of the research area is shown in trade directories. White's Directories for 1837 and 1862 show the following growth figures for Sheffield: Brewers of Ale and Porter from 22 to 28, 11 of the latter were also maltsters; maltsters, 18 to 30; hotels, inns and taverns, 327 to 512 and beerhouses, 313 to 448. For Doncaster in the same years, brewers and maltsters increased from 2 to 6, but maltsters fell from 14 to 11 as a result of amalgamations, hotels, inns and taverns fell from 68 to 66 and beerhouses increased from 28 to 33. There were, of course, many village public houses, and a large number of small maltsters in the rural area and most of the larger villages and small towns had their own breweries, including Thorne and Hatfield and late in the century two very large maltings were built in Barnby Dun.

The third quarter of the century also brought the first attempts to quantify agricultural production nationally. After the preliminary attempt in 1854 and another one in 1866 the 1870 statistics marked the beginning of an annual collection which has continued ever since. The 1870 statistics show that in the Manor of Hatfield wheat was still the dominant cereal at 4,925 acres, barley and oats were second and third with a combined total of 4,065. Rye had disappeared except for 140 acres in Hatfield township. Fodder crops were headed by turnips and swedes and these, with beans (984 acres), vetches and tares (389 acres) and small amounts of carrots, cabbage and mangolds, amounted to 3,204 acres. Potatoes were also important at 1,449 acres. The continued importance of stock is indicated by a combined total of permanent and temporary grass at 9,639 acres with approximately one third of it under hay. This huge area of grazing is reflected in the number of animals recorded: cattle 3,518, sheep 8,772 and pigs 1,859. Caird had remarked on the number of sheep in the area but it is surprising to find that the bulk of them, 4,630, were in Hatfield itself. Askren mentions them but 30 years earlier the Assistant Tithe Commissioner who surveyed Thorne suggested that the few sheep were a result of the wet conditions in the

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[55] J. Burnett, *Plenty and Want* (1966), pp 123-4

Levels. The change is possibly a result of the breeding of sheep more able to cope with wet conditions by men like Isaac Wells and the Lincolnshire breeders who had produced the New Lincolnshire. This breed, which began to spread in the mid-century, had many good qualities especially high quality meat and fine wool in addition to its hardiness.[56]

The townships of the Peculiar of Snaith from Snaith to the start of the Humber are similar in their cropping to the Manor of Hatfield with one great difference. In eight of the 11 townships, to the east of Rawcliffe, all with extensive warplands, the main crop was potatoes, in total 5,232 acres. Wheat was a close second at 5,032 acres, with beans, turnips, swedes and barley, in that order, totalling 3,458 acres. A few peas were also grown in three townships and in seven, mangolds. All 11 townships had a large acreage of grass with 5,337 acres of permanent and 2,501 acres of temporary grass in total. In the central townships of Snaith, Cowick and Rawcliffe, wheat dominated with potatoes close behind, barley and oats were important crops with turnips, swedes and beans less so. Clearly the Peculiar was dominated by wheat and potatoes but another crop important in the area, flax, is not mentioned. Cattle numbered 3,310, sheep 4,762 and pigs 1,872.[57]

There were no statistics for horses, the breeding of which had long been important in both the Manor and the Peculiar, according to the probate inventory evidence of the seventeenth and eighteenth centuries. The huge demand for horses created by the railways, growing city transport and the adoption of horse-powered machinery on farms led eventually to the collection of horse statistics in the later 1870s, but horse keeping and breeding remained a fairly obscure aspect of agricultural history until recently. Sheardown gives some indication of the smallness of the trade in Doncaster from 1865-69 which averaged 400 a year although the annual figure varied from 642 in 1866 to 279 in 1869. The smallness of the horse trade is underlined by the figures for other animals. Cattle sales averaged 51,157 for the five years and this included only 570 in the rinderpest year of 1866. Calves averaged 643 over four years as there

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[56] J.A. Perkins, *Sheep Farming in Eighteenth and Nineteenth Century Lincolnshire*, (Occasional Papers in Lincolnshire History and Archaeology, (1977), pp 52-3

[57] The Agricultural Statistics are taken from Metcalfe, M.A. Thesis, appendix 38

were none in 1866. Sheep averaged 124,726 and pigs 11,441. Sheardown considered the statistics after 1869 to be so unreliable that they were not worth quoting.[58] The small number of horses sent to Doncaster for sale is partly because farmers bought them from neighbours or neighbouring fairs such as Thorne and Howden but mainly because of the small scale of horse breeding. Thompson writes that 'it was a very risky business to commit one's fortune to' as foals had a very high infant mortality of around fifty per cent and often they did not develop the qualities necessary for farm work and also there was a wait of three or four years between birth and sale.[59] Moore-Colyer confirms this and Thomas Askren's Diary gives an example of the difficulties when he records the death of five foals within a year.[60] Nevertheless as prices of horses increased in the second half of the nineteenth century so did their quality especially with the great improvement of the shire horse in the area. In the last part of the century Thompson writes that shire horse foals were known as 'the rent payers' and Moore-Colyer cites a source of 1905-6 that 'a young Shire' was 'always as good as a Banknote'. In this period the Doncaster and District Shire Horse Society shared an office and a secretary with the Agricultural Society and in Hatfield the Hatfield Shire Horse Stud offered the services of 'the celebrated Shire Stallions, Lincolnshire Lad, The Friar, Shire Oak and Engineer'.

Thompson also draws attention to the neglected subject of hay, which along with oats, was an essential item in the maintenance of the town horse population. Farm horses were fed on local home supplies but very large towns had to draw on a very wide area for supplies, via canal and rail. Small towns, like Doncaster, drew on the farm surplusses of the locality and the Doncaster directories do not refer to hay dealers but for Sheffield, White's Directory of 1862 records 28 'Hay and Straw Dealers'. Much of their supply probably came from the meadows of the high Pennines in the west.

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[58] Sheardown, *op cit*, p 38
[59] F.M.L Thompson, 'Nineteenth-Century Horse Sense', *Ec.H.R.*, Sec Ser. Vol XXIX, No 2, 1976, p 78
[60] R. Moore-Colyer, 'Aspects of Horse Breeding and the Supply of Horses in Victorian Britain', *A.H.R.*, Vol 43, 1995, Part 1, pp 48-49

Meat and wool were major interests in the Doncaster area. The wool market had been the greatest in the north for many years and the amount of wool coming into it by the mid-nineteenth century was so large that the market area was enlarged in the extensions of the 1840s and a new covered market was opened in 1866.[61] The great importance of mutton and lamb in particular had grown as spring lamb was, according to Sheardown, a delicacy that earned a premium of twopence or threepence a pound even on best beef in city markets. The New Lincolnshire breed of sheep was, therefore, a great asset to the Chase. Although it was a New Leicester cross its wool was finer than the Leicester and was, therefore, suitable for worsteds; also its meat was more plentiful and of better quality.[62]

However, the Doncaster market was dominated by cereals, particularly wheat, and in 1870 the foundation stone was laid for a large and elegant Corn Exchange but during the final years of the century the price of cereals dropped sharply, especially wheat prices, and the major corn markets moved to the ports which imported the mainly New World and Russian grain. Wool prices also fell. The effect of the price falls caused a great deal of debate at the time and agricultural historians have debated it ever since. At one extreme it was believed that British farmers were ruined by free trade; on the other it was argued that ruin was a result of the refusal of farmers to follow the advice of the advocates of more balanced farming and give more attention to stock rearing. It is also suggested that farmers were not ruined and that 'The Great Depression' existed only in their minds (particularly cereal farmers) as a result of what Thompson called 'the money illusion' which argued that though income fell during the period so did farmers' expenses and that though they were vividly aware of the former, they were unaware of the latter.[63] Turner argues, however, on the basis of a large survey of output, prices, rents and wages that 'the Depression was real enough... with clear regional implications for farming profits.'[64]

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[61] Sheardown, *op cit*, pp 58/9
[62] Perkins, *op cit*, pp 45/6
[63] F.M.L. Thompson, 'An Anatomy of English Agriculture, 1870-1914', in B.A. Holderness and M Turner, (eds) *Land, Labour and Agriculture, 1700-1920*, p 212
[64] M. Turner, 'Output and Prices in UK Agriculture, 1867-1914, and the Great Agricultural Depression Reconsidered', *A.H.R.*, Vol 40, 1992, Pt I, p 50

The favoured solution to the problem of declining cereal prices was to move away from over-reliance on wheat to alternatives where foreign competition was less intense and rising living standards were creating greater demands. In the last decade of agricultural prosperity c. 1865-75 farmers on the townland of the Manor of Hatfield and the villages to the west and south of the Manor as well as on the drained levels and the warplands appear to have had a basis of traditional strengths which would enable them to cope with the changes in agricultural emphasis required in the period after 1875. Among these were the high quality of the malting barley grown in the area for which demand grew as the rising population ensured a thriving brewing industry. The demand for high quality meat was met by the Shorthorn beef and New Lincoln mutton and lamb and continued to grow in spite of increased imports of inferior meat. Of great importance to the area was the acceptance of the potato as the main vegetable in working-class diets. Potatoes had moved in little more than a century from being despised as fit only for pigs or the Irish to appearing even on the Queen's table as 'pommes de terre' by the end of the century.[65] Potato growing, like horse breeding, was a risky business as it required a great deal of fertilizer, much of which was night soil brought from Leeds by barge to Goole. The potato was also highly susceptible to blight and constant efforts were made find a blight-free tuber. Potatoes could also be badly affected by weather conditions.[66] It is, nevertheless, a good example of the readiness of the region's farmers to branch out in new directions.

Another area of development awaiting exploitation was the milk trade which became a staple in many areas in the last part of the century. Pasture had long been carefully preserved from the visits of the plough by the landlords of the Chase by heavy fines and there was ample scope for extending the grassland especially in the Levels, Fishlake and Sykehouse. Taylor claims that as the effect of the railways on the supplying of towns increased town dairies declined rapidly and the cattle disease of the 1860s finished them off; afterwards town milk was mainly supplied by the countryside. An essential element in this trade was a railway link and several Chase villages had railway stations and were an obvious source of supply to the West

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[65] Burnett, *op cit*, p 216
[66] Wright, *op cit*, pp 113-115

Riding towns. In the period 1867-71 to 1894-8 Taylor, citing Fletcher, writes that the contribution of wheat to gross output fell from 21.9% to 6.8% whereas that of milk rose from 11.9% to 18.1%.[67] This change was also associated with a great switch from cheese production, which was open to foreign competition, to liquid milk which was not.

In addition to these major farming activities the area had a long tradition of growing minor crops as Charnock pointed out in his essay of 1848; flax, teasels, mustard, carrots and rape were all grown. These were often the products of very small farms but Thomas Askren's diary shows that the large farmers did not ignore them. Charnock could have added fruit and eggs which Askren also produced. Some of these 'minor' crops were of significance to the industry of the area. The transport by water of the flax of the Aireside villages to Leeds has been mentioned before but the linen industry was also significant further south. Both Snaith and Doncaster had flax mills and Barnsley had developed as an important centre of manufacture long before Leeds. There were many references to 'flax dressers' in both town and country directories in the nineteenth century. In 1867 another indication of the significance of the 'minor' crops occurred with the building of a large factory near to the river in Doncaster which produced 'large quantities of table mustard' and other household commodities which were exported all over the world.[68] These minor crops were all grown during the long agricultural depression from 1650-1750 as alternatives to the standard cereals grown in periods of high agricultural demand but they had not been abandoned in the region when prosperity returned. Thirsk, in a detailed examination of the response of farmers to the decline of demand for cereals, writes of four 'experiences' of agricultural depression from 1350 to the present time during which farmers had to innovate to survive,[69] but in the Chase and its environs having to cope with the changing agricultural economy went along with a history of coping with major difficulties in making the land productive such as too many deer and the poor quality of much of the townland as well as the ineffective drainage in the lowlands. Having to deal with these problems over centuries created a reservoir of experience

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[67] D. Taylor, 'The English Dairy Industry, 1860-1930: the Need for a Reassessment', *A.H.R.*, Vol 22, 1974, Part II, p 153

[68] Holland, *op cit*, p 47

[69] J. Thirsk, *Alternative Agriculture, A History* (1997)

which probably helped the area's farmers to cope with the changing agricultural situation in the difficult years of the late nineteenth and early twentieth centuries.

This study has emphasised the fact that the fenlands and marshlands of the Chase did not totally dominate its pre-drainage history. The Chase was not an agricultural unity; there were fens, moors, marshes, fertile heavy lands and various qualities of sand. Though the bulk of the area was not suitable for most agricultural activities much of the land away from the Lincolnshire fens was farmed on a fairly standard midland plain system. This area, although subject to flooding, was not dominated by it as the eastern lands were.

Attempts to improve farming conditions came at different times but the agricultural history of the area has been dominated by Charles I's attempt, with Dutch assistance, to drain the wettest land on either side of the Yorkshire /Lincolnshire border. As a result the history of farming in the Chase has been the history of the attempt to drain it though the problems of farming the drained land has had little attention. The history of the Chase has also been distorted by its close association with the drainage of the Isle of Axholme and much of the early part of the study is aimed at separating the political results of the drainage in the two areas. The post-drainage period in the Chase was relatively peaceful whereas it was a violent and long drawn-out struggle in the Isle.

The other two early parts of the study attempt to assess the results of the drainage on the Chase lands and to assess the nature of agriculture and the changes that were taking place in the large townland area of sand and heavier soil stretching from the Chase purlieus in the north through the Manor of Hatfield and on to the south of the Chase about Bawtry. Early accounts of the farming of this area give an impression of the dominance of pasture, especially cattle. Cattle were, indeed, always of great importance throughout the period of the study though the documentary evidence does not make this clear. The same is true of sheep farming and though there are areas where the sheep fold was very important there are other areas, notably in the Manor of Hatfield where it was ignored. A positive result of the inadequacy of the drainage was that many areas could only grow oats with the result that draught oxen

disappeared early and horse breeding became increasingly important especially as the demand for horses grew on the farm and for urban transport.

A great deal of the available evidence shows the importance of cereal growing even on the poorer sands which can only be explained by the demand for cereals in the colder areas of the County to the west. It is this demand which produces the most significant features of agricultural change in the early adoption of turnips and clover to make the light land productive. As cereal demand increased in the eighteenth century so did wheat production on the light soils and by c.1800 the latest methods of keeping soil fertile were being adopted with the planting of new grasses, the buying of rape and line cake and most importantly in this area the use of imported bones.

For much of this time the drained wetlands had been limited in their agricultural activities by the continued wetness of much of the soil. Improvements began to be made in the second half of the eighteenth century though the most significant improvement came with the introduction of artificial warping which turned the wettest marshland into dry and fertile arable land and which became an important producer of potatoes, cereals and store cattle.

By the end of the nineteenth century the area had avoided the worst features of the long depression in cereal prices by reducing the cereal acreage but maintaining the cereal yield and increasing meat production at a time when demand for it in the towns had much increased and when transport improvements in the area had made the movement of meat much quicker.

Throughout these changes the area had always had a very wide interest in minor crops. Harvests were often small but demand was steadier than for some of the major farm products. Crops such as flax, teasles and mustard served factories in the area and made it less dependent on the swings in demand for some of the major products and probably lessened the impact of the fall in cereal prices in the last quarter of the nineteenth century.

In conclusion it is possible to claim that change in this part of Yorkshire in the nearly 300 years from the beginning of the study was remarkable. In that time the area had

changed from being dismissed as a useless, flooded waste, and its light-land farmers were being recognised as among the leaders of the post-1700 changes. The Dutch drainage, and the enclosure which followed it, was seen as the great improvement of the area in the seventeenth century though its weaknesses prevented much of the anticipated improvement for 200 years. The changes in the wetlands removed a great asset from the natives who farmed the sands of the townland but had forced them to adapt to the new situation and make important innovations in cropping and land management. These led, by the nineteenth century, to the townland being recognised by contemporary agricultural writers such as Caird, Wright and Charnock as the leading farming area in the County.

In the century after 1875 the area underwent even greater changes. The scattered farms on the drained land remained but improved drainage made the land almost as good as warp and produced an open countryside dominated by crops. Socially and economically the change in the townlands was even greater as collieries were opened in all the main villages. The agricultural land around the villages continued to be farmed but the farming acreage declined as the pit villages expanded. As the colliery era ended even more farmland disappeared as new motorways turned the villages into dormitories for the expanding towns of the adjacent counties.

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