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Medieval Ingenuity in Fourteenth Century English Milling in Middlesex, Norfolk, and Northumberland Counties

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MEDIEVAL INVESTMENTS AND POPULATION SHIFTS IN MIDDLESEX, NORFOLK, AND
NORTHUMBERLAND COUNTIES

by

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B.S. University of Central Florida, 2008

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Arts
in the Department of History
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ABSTRACT

This thesis examines the effect of population losses from outbreaks of the Bubonic Plague on capital investment for labor saving technology in England. The cities in Middlesex and Norfolk advance the economy in their surrounding areas. Northumberland's access to Newcastle-Upon-Tyne did not house as much wealth for Coquetdale and Glendale. However, Edward I's constant investment in the recently acquired Scottish territory provided the area with income from the crown. While the decrease in population was catastrophic and presented social turmoil, the surviving population continued to make economic adjustments. The economic adaptations provided relief to a strained population. Trade should have diminished along the same rate as population. Mills, therefore, also should have decreased in a similar manner. However, commerce increased faster than the population in areas of England. As this study has shown, people were extracting loans and maintaining mills in the hundreds and wards. The continued investigations into milling property highlights the interest from local creditors. The number of mills did not decrease at the same rate as the population after the last outbreak of plague. Milling represented an industry of innovation in various areas of England.

I would like to thank my wonderful wife, Kellee Pelham, and my children, Elizabeth Sue Pelham and Charles Arthur Pelham, for keeping me grounded throughout this process. Without my wife, this journey would have been impossible. I would also like to thank my family for their financial support during graduate school.

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CHAPTER 1: INTRODUCTION

This thesis examines the effect of population losses from outbreaks of the Bubonic Plague on capital investment for labor saving technology in England. The fourteenth century was extremely difficult for agrarian England. There were many calamities that affected England. “Great Famine, the result of both ceaseless torrential rains that ruined three back-to-back harvests,” and “the Great Bovine Pestilence, most likely caused by rinderpest, ravaged England in 1319/20, claimed about 62 percent of the bovine population. Apart from the colossal losses of oxen and cows, the pestilence created a widespread scarcity of milk resources, which persevered until at least 1332.”¹ The final straw was the outbreak of the Black Death. All around England, manors were abandoning mills because of the pandemic of the Black Death, as stated by Holt.² Before the drastic loss of life in the era of the Black Death, the expense of mills did not allow for the construction to keep pace with population growth, but afterward milling technology replaced the lost labor until the population of England returned to pre-plague levels. The Bubonic Plague wiped out 1/3 to 1/2 of the population across Europe and England.³

Most of English society could not afford finished wool products that were made in continental Europe because of the superior quality and higher prices, so local milling facilitated

¹ Sharon DeWitte and Philip Slavin, “Between Famine and Death: England on the Eve of the Black Death—Evidence from Paleoepidemiology and Manorial Accounts” in *Journal of Interdisciplinary History*, xlv:1 (Summer, 2013), 37–60, p. 38.

Milk products provided peasants with calories and protein in a form that lasted much longer than milk itself.

² Richard Holt, *The Mills of Medieval England*, (Oxford:Oxford University Press, 1988), Pp. 160-161.

³ Stephen Broadberry, Bruce M. S. Campbell, and Bas van Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence”, *Warwick Department of Economics*. 27 July 2010, <http://www2.warwick.ac.uk/fac/soc/economics/staff/sbroadberry/wp/> Accessed 28 October 2014.
1290-4.7 million people, 1377 -2.5 million

their local economies and necessities. However, building and maintaining mills was expensive too, so nobles, ecclesiastical landowners, or wealthy businessmen were required to pay the initial capital in return for rent. For an agricultural economy, the maintenance of the mills was paramount, providing flour and cheap cloth. This thesis shows both the importance of milling and how people continued to invest in the activity after the outbreaks. Historians have argued that with fewer people around for milling maintenance because of the Bubonic Plague's death rate, there would have been fewer millers and carpenters in a given area. This reduced the workforce available to repair mills. Historians have also argued that profits from farming and milling also fell in relation to the Black Death. Nobility's income was also either stagnant or was steadily declining during much of the 14th century.⁴ My research will show that this simply was not the case. Mills were still being improved upon, investments still made, and businessmen still fought over ownership of mills in court.

To show this, I will be using translated copies of the Domesday Book, Lay Subsidy of 1334, Victoria County Histories, Close Rolls, and Exchequer records. The Domesday Book supplied economic data in both 1066 and 1086 in England for each settlement in Norfolk and Middlesex. The Lay Subsidies of 1290 and 1334 provided wealth for the towns throughout England. Close Rolls show the royal involvement in the local economy. Exchequer records documented court cases of ownership and debts that were accrued improving mills. These records illustrate the change over time and shows that nobles, ecclesiastical landowners, and wealthy businessmen recouped their investment in milling.

⁴ Holt, *The Mills of Medieval England*, p. 159

The Case Studies



Figure 1: Map of England highlighting the three scenarios.⁵

In order to look at the effect of the Black Death, most of the research will focus on the fourteenth century. To illustrate the changes, areas that will be examined are Middlesex, Norfolk, and Northumberland. These three counties were chosen based upon several criteria such as: influence of a major metropolitan area, an agricultural powerhouse that fed most of the

⁵ Original map from Wikipedia.

https://upload.wikimedia.org/wikipedia/commons/3/34/English_counties_1851_with_ridings.svg. Accessed 5/5/2017

nation, and a county riddled by war and Scottish raiding parties. Middlesex was near the economic and political power of London. Middlesex drove economic development and wealthy merchants affected the political involvement, and London's pull of economic and political clout directly impacted the investment in milling. Norfolk was selected because of its rich farmland and access to mainland Europe. Norfolk possessed population levels that required finished products. Northumberland was chosen to provide an outlier case to examine the effect of warfare on economic assets. These case studies illustrate how different variables presented altered milling in the fourteenth century.

Middlesex possessed high land values and access to the capital city of London through rivers and roads; these factors allowed for the construction of mills throughout the counties. As the population of London grew, it became more dependent on the surrounding counties for goods, which in turn were influenced by the needs of the capital. The areas that were nearby, with good transportation options, benefitted. Middlesex benefitted from the proximity of London and of the transportation that was obtainable to the capital city. The wealth available in the city could be invested in the countryside near the city. Wealthy Londoners would loan money earning small amounts of interest already assumed in the loan amount or invest in milling opportunities to earn rental income, which continued after the Black Death.⁶

Norfolk was an agriculturally productive area in England and traded with continental Europe. Merchants received better pricing and transportation through the North Sea and English Channel rather than using overland routes that accessed the rest of England. Excess grain was

⁶ Mark Bailey, "Peasant Welfare in England, 1290-1348" in *The Economic History Review*, New Series, Vol. 51, No. 2 (May, 1998), p. 243.

shipped out to continental Europe where it obtained a higher price. This drove economic growth for the region. Norfolk was not overly affected by demand from London until the seventeenth century, well after the parameters of this study. Their fertile farmland gave the hundreds access to more wealth. Norwich and Yarmouth provided capital needed for local investment. Wealthy inhabitants in these two cities invested in the local countryside with loans and with building mills. This investment continued in all of the hundreds chosen after the loss of life in the 1300s.

Northumberland is on the border with Scotland and suffered from Scottish raiding parties during the 1290's and early 1300's. The Scottish army continued to attack the central administrative area of Newcastle-upon-Tyne because of the representation of British armies and their occupation of Scotland.⁷ This location is far from the demand of London and shows the effects of warfare and raiding as well as the spread of economic technology outside of the English heartland. However, with fewer surviving sources from the region during the period, there are fewer areas to examine in the North. Northern English counties are poorer than their southern counterparts.⁸ The climate and geography of Northumberland are very different from Middlesex and Norfolk.⁹ The arable lands of Northumberland lay in the eastern part of the county on the coastal plains. As one traverses westward the geography moves to highlands with peaks over 1,000 feet.¹⁰ Glendale and Coquetdale Ward are located in the Coastal Plain. Many areas in the north, east, and south are all exposed to high winds, which hurts planting and

⁷ Fiona Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, (United Kingdom: Tuckwell Press, 1998). pp. 63, 75.

⁸ Alan R.H. Baker and Mark Billinge ed. *Geographies of England: The North-South Divide, Material and Imagined* (Cambridge: Cambridge University Press, 2010). p. 14.

⁹ E. Clucas Sykes, "The Agricultural Geography of Northumberland" in *Geography*, Vol. 18, No. 4 (December, 1933), pp. 269-282.

¹⁰ Sykes, pp. 270-272.

harvesting crops.¹¹ In a primarily agricultural society, this impacts the value of the wards in Northumberland. The scenarios in Northumberland showcase how the people who remained continued investing in milling after raids and outbreaks occurred throughout the county.

The size of these counties makes investigating each county an enormous task. To manage the task, hundreds were chosen based upon wealth according to *The Lay Subsidy of 1334* edited by Robin E. Glasscock.¹² The 1334 Lay Subsidy was chosen based upon the efficiency of taxation collected for the English crown.¹³ More taxation supplied for the Lay Subsidy indicated wealth available for investments, including milling. For the county of Middlesex, the lowest threshold for continued investment in milling was £52. I chose Spelthorne Hundred which brought in £52, while Elthorne Hundred contributed £73 to the Lay Subsidy.¹⁴ In Norfolk County, the threshold was lower at £50. I chose Walsham Hundred, Guiltcross Hundred, Humbleyard Hundred, and Earsham Hundred in Norfolk. Northumberland's threshold for investment in milling was the lowest of threshold for any scenario chosen at £48. I chose Coquetdale Ward which brought in £52 and Glendale Ward £48 in Northumberland for the 1334 Lay Subsidy.¹⁵

¹¹ Sykes, p. 272.

¹² Robin E. Glasscock, *The Lay Subsidy of 1334*. (Oxford University Press: London, 1975).

¹³ Glasscock, *The Lay Subsidy of 1334*, p. xvi.

¹⁴ The lowercase "d" in medieval English money represents pence. The etymology of the symbol comes from the Roman term *denarius*. After William the Conqueror, it took 240 pence to equal one pound (£). The "s" symbol represents the shilling but actually comes from the Roman word *solidus*. These abbreviations for shillings and pence were in the *Oxford English Dictionary* in 1387. It seems safe to assume that these two symbols came to be applied to the English shillings and pence as their Latin counterparts became obsolete.

<http://www.royalmintmuseum.org.uk/british-coinage/currency-systems/the-origins-of/index.html>

¹⁵ Wards are similar to hundreds. However, they are implemented in northern counties of England that were acquired after the invasion of William the Conqueror and when the Domesday book was compiled.

| Middlesex | Norfolk | Northumberland |
|-------------------------------|------------------------|-----------------------|
| Spelthorne Hundred £52 | Walsham Hundred £50 | Coquetdale Ward £52 |
| Elthorne Hundred £73 | Guiltcross Hundred £52 | Glendale Ward £48 |
| | Earsham Hundred £59 | |
| | Humbleyard Hundred £60 | |
| | Henstead Hundred £65 | |
| | Loddon Hundred £72 | |
| | Depwade Hundred £76 | |
| | Clavering Hundred £76 | |

Figure 2: Taxation from the Lay Subsidy of 1334 for Middlesex, Norfolk, and Northumberland¹⁶

| County | Pop. Levels 1086 | Pop. Levels 1290 | Pop. Levels 1377 |
|-----------------------|-------------------------|-------------------------|-------------------------|
| Middlesex | 39,851 | 77,399 | 62,476 |
| Norfolk | 148,085 | 486,920 | 176,844 |
| Northumberland | 12,300 | 148,084 | 30,389 |

Figure 3: Population Comparison of Middlesex, Norfolk, and Northumberland¹⁷

¹⁶ Glasscock, *The Lay Subsidy of 1334*, pp. 189-190, 194-197, 206-207.

¹⁷ Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence" p. 25.

Models

Various models have been employed to showcase how people lived and how the economy functioned. The Population Model shows that the growth of the economy is directly affected by demographic growth and decline. Thomas Malthus was one of the main proponents of this concept by stating that there would be diminishing returns in agriculture as it expanded into new, uncultivated lands.¹⁸ When the population level becomes excessive, the growth is restricted by the lack of available resources. More recently, other historians have put forward the Commercialization model to explain the development of the English economy. The Commercialization Model explains how England's economy developed and grew, based on trade and marketing. As population rises, agricultural and economic adjustments must take place to increase food supply.¹⁹ The increase in population spurs economic and technological growth through the system of markets, trade networks, and innovation. Richard Britnell examines how Colchester became a major commercial city in Essex County before, during, and after the Black Death by using the Commercialization model to show Colchester gaining influence in the local market.²⁰ The wealth of the town grew and used local wool to supply fulling mills with raw materials that were turned into finished goods. Another historian who uses this model is Maryanne Kowaleski.²¹ Her examination of Exeter showed that even in a dire situation of Bubonic Plague, individuals continued to trade and make profits in the town and surrounding

¹⁸ John Hatcher and Mark Bailey, *Modelling the Middle Ages: The History and Theory of England's Economic Development*. (Oxford: Oxford University Press, 2001), pp. 24-25.

¹⁹ Hatcher and Bailey, *Modelling the Middle Ages: The History and Theory of England's Economic Development*, p. 125.

²⁰ Richard Britnell, *Growth & Decline in Colchester, 1300-1525*, (Cambridge: Cambridge University Press. 1986).

²¹ Maryanne Kowaleski, *Local Markets and Regional Trade in Medieval Exeter* (Cambridge: Cambridge University Press 1995).

region. The population loss was offset by innovation and trade with towns that provided specialized goods. My research will follow the Commercialization model because of the adaptability of people to make the best of their economic circumstances regardless of time period.

Looking specifically at milling, research has shifted from counting mills and examining which laws affected them, to asking how technology spread across Europe and into England. In Richard Bennett's and John Elton's *History of Corn Milling*, mills, and the laws concerning them, are covered in four volumes.²² This work was published in 1898 and is frequently referenced in contemporary scholarship. Bennett and Elton set out to prove that milling was the world's oldest industry and technology had not changed significantly from ancient times.²³ However, future historians contested this assumption.

Nearly 100 years later, Richard Holt examines the history of mills in England that were powered by water, wind, and horses.²⁴ Holt's thesis challenges the dates of creation for these types of mills put forth by Bennett and Elton. He also challenges the idea that nobility used milling to take surplus crops away from peasant farmers, and he showed how the English nobility invested in improvements to their mills. To support his thesis, Holt uses reeves' accounts to showcase what was purchased and how those materials were used in the mills. This allows Holt to examine what was being improved and maintained in milling. David L. Farmer believed that millstones are not addressed adequately by Holt in his section on investment in

²² R. Bennett, and Elton, J. *History of Corn Milling: Volumes 1-4*, (London: Simpkin, Marshal, and Company LTD, 1898).

²³ Bennett and Elton, Vol. IV, p. VII.

²⁴ Holt, *The Mills of Medieval England*.

milling by the nobility.²⁵ According to Farmer, the best mills received their stones from France, which were shipped down the Rhine River and then across the channel to be installed at the mill location.²⁶ Farmer illustrates how wealth influenced the quality of mills that were constructed by following the Commercialization model. Mill owners were purchasing the best mill stones they could afford, according to Farmer's research. This research follows the Commercialization model with people purchasing better materials to improve the finished product of meal. John Langdon covers the adaptations of mills to rivers or tides.²⁷ Throughout this book, Langdon shows the changes that were occurring to milling and the effects on the economy. He adds to the discussion by highlighting that there were more than river mills and wind mills that were implemented throughout England, which shows people using their environment to benefit themselves. Christopher Dyer wrote that both upper and lower social classes benefitted from the implementation of milling technology.²⁸ Dyer's research shows that the upper class could increase rents and the lower class had finished products. He believes that all improvements, social ramifications of adopting technology, and economic consequences are included in what he called packages. These packages are key to understanding how a technology moved across various regions to be adapted by new people. Farming and milling therefore are interconnected.

²⁵ David L. Farmer, "Millstones for Medieval Manors", *The Agricultural History Review*, Vol. 40, No. 2 (1992), pp. 97-111.

²⁶ Farmer, p. 98.

²⁷ Robert Langdon, *Mills in the Medieval Economy*, (Oxford: Oxford University Press, 2004).

²⁸ Christopher Dyer, *Medieval Farming and Technology: The Impact of Agricultural Change in Northwest Europe*. (New York: Brill, 1997).

Methods and Sources

Historians have examined the technology behind mills and their effect on the economy. I examine how many people it took to support a mill in a given area. Also, I analyze whether higher land values increased the likelihood of mills being constructed and maintained. While most historians focus on the wealth that technology brings to an area, I examine how the size of population and wealth influenced the technology of milling. These are the two most important factors in the development and maintenance of the milling industry.

I will approach these questions using three case studies (discussed earlier in this section). In each case study, I will locate the mills and their types, determine the wealth and population of areas served by these mills, and then analyze why mills were constructed in those areas. To locate the mills, I will use translated copies of the Domesday Book, Lay Subsidy of 1334, Victoria County Histories, Close Rolls, and Exchequer records for taxation purposes to illustrate the investments in milling. These records give a more detailed picture of the economic developments in milling.

Because population estimates fluctuate between sources, I will be using the latest estimate by Stephen Broadberry, Bruce M. S. Campbell, and Bas van Leeuwen in the article “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence.”²⁹ These authors provide estimates for each county at 1086, 1290, 1377, and 1660. For the wealth of each county, I will use Schofield’s “The Geographical Distribution of Wealth in England, 1334-

²⁹ Broadberry, Campbell, and Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence” in *Warwick Department of Economics*. 27 July 2010, <http://www2.warwick.ac.uk/fac/soc/economics/staff/sbroadberry/wp/> Accessed 28 October 2014.

1649.”³⁰ He examines how the wealth of counties have changed throughout the fourteenth century. “A detailed study of the 1334 assessments has shown a close correlation between high lay assessments and the production of wheat.”³¹ The agricultural production serves as an indicator of the health of the milling industry. In addition to these broader estimates, I will use returns from the Lay Subsidies and Exchequer records to look at specific communities. The Lay Subsidies records illustrate the wealth available in the hundreds (or wards) and breaks down which communities provided the most toward the tax. The Exchequer reveals the court cases and inquiries involving mills. This allows for examining who was interested in obtaining mills and what they were worth.

I will use the Domesday Book and Victoria County Histories in each county during the fourteenth century. The Domesday Book provides a list of everything that was possessed by William the Conqueror in England. However, Langdon and other researchers have found discrepancies in the number of mills erected. To deal with the problems, I will be using the historiography of milling to examine the relationship between population and milling. The Lay Subsidies provide information on population and wealth taken at different times down to the hundred’s level in counties. The Calendar of Close Rolls will be used to show royal influence on mills. The Close Rolls are the records of royal letters and show what the king wanted to happen on various matters including the economy and mills. Court records will illustrate the changes

³⁰ R. S. Schofield, “The Geographical Distribution of Wealth in England, 1334-1649” *The Economic History Review*, New Series, Vol. 18, No. 3 (1965), pp. 483-510.

³¹ Schofield, “The Geographical Distribution of Wealth in England, 1334-1649,” p. 507

that were implemented to the mills when debts could not be paid and who was requesting the value or transfer of the mill.

The Spelthorne Hundred and Elthorne Hundred in Middlesex County will be examined first. In Chapter 2, the records available show how London's wealth impacted the milling industry. Surviving court records will also indicate the wealth of mills in the hundreds and the turnover of ownership after the Black Death. This shows the importance of milling by highlighting their monetary worth.

The hundreds in Norfolk possess the most surviving records. Chapter 3 emphasizes the relationship of agriculture and milling. The hundreds in Norfolk show economic benefit of being close to wealthy towns, individuals, and fertile land. Norfolk had a similar experience to that of Middlesex. After the drastic reduction in population, investment still occurred in the milling industry.

Northumberland's hundreds will show how warfare and raids affected economic development. The constant raids throughout the fourteenth century ruined several manors throughout the county and left them in disrepair. The decrease in population in the county also hurt the economic growth. However, Chapter 4 will illustrate that even with the constant raids and outbreaks of disease, mills were still maintained showcasing their importance.

CHAPTER 2: SPELTHORNE AND ELTHORNE HUNDRED IN MIDDLESEX

The capital city of London is in Middlesex County. The county itself provided £1,000 to the 1334 Lay Subsidy, including London.³² The metropolis's wealth is vital to this study and provides the variable of what money can provide for the milling industry. Merchants continued to invest in property located outside of the city from the 1200's through the 1300's. Investments in milling during the fourteenth century primarily occurred due to the prosperity of the merchant class or nobility throughout England. London and Middlesex exemplified this relationship. Spelthorne and Elthorne hundreds benefitted from their proximity to investing capital as shown by the growth of milling opportunities in relationship to population from the conquest to the end of the 1300's. While some mills fell into disrepair, the drastic decrease in population created more mills to people ratio.

³² Glasscock, *The Lay Subsidy of 1334*, p. 189.

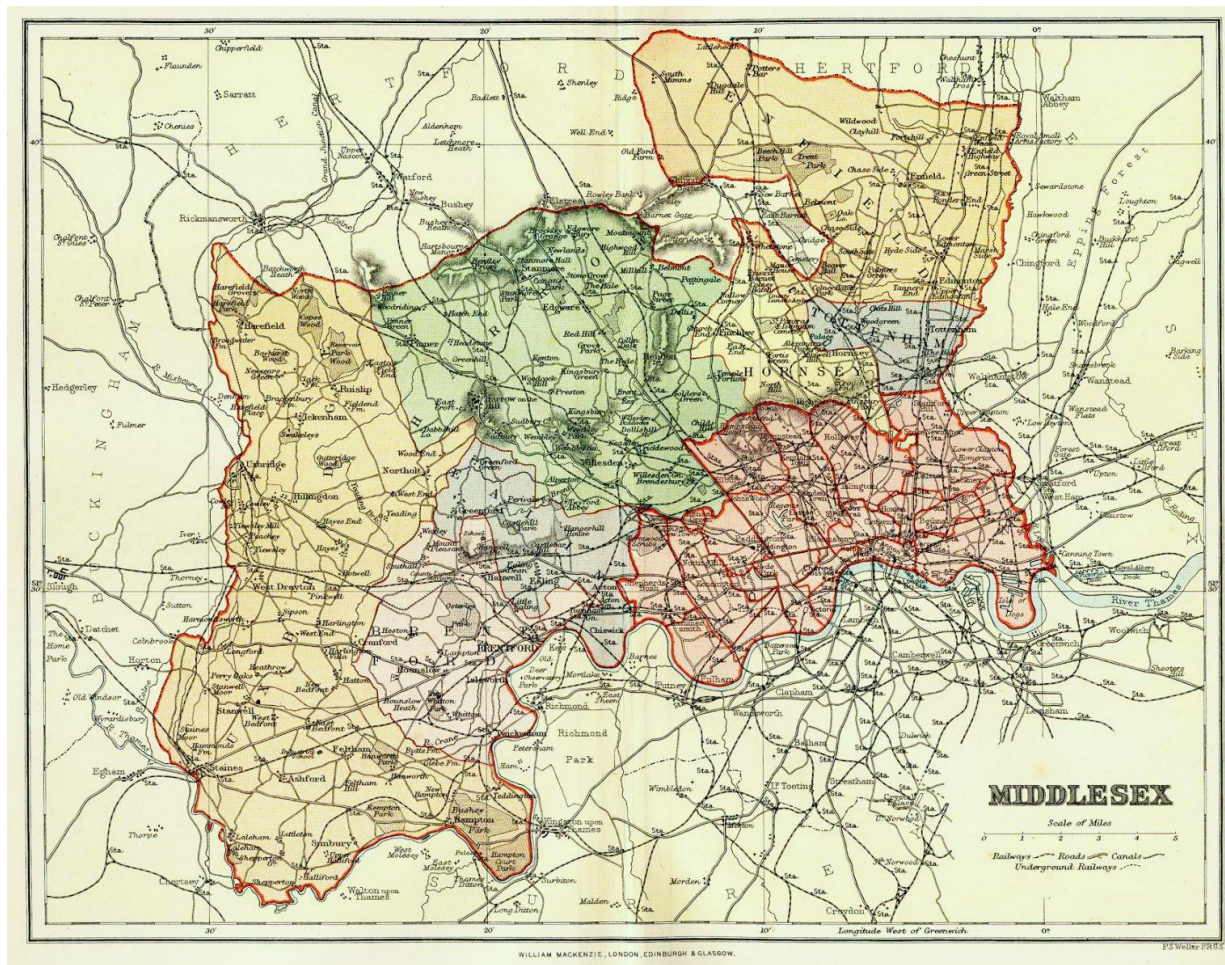


Figure 4: Map of Middlesex Hundreds³³

In addition to investing capital, the geography of Middlesex provides several rivers integral to milling activity, especially the Poyle, Wyrardisbury, and Colne.³⁴ These rivers provided sites to erect mills. They also provided areas with transportation for goods. The River Thames runs through the middle of the county and provides the capital a highway to introduce

³³ Courtesy of Wikipedia https://upload.wikimedia.org/wikipedia/en/5/59/Map_of_Middlesex.jpg

³⁴ Ed. Susan Reynolds, *A History of the County of Middlesex: Volume 3: Shepperton, Staines, Stanwell, Sunbury, Teddington, Heston and Isleworth, Twickenham, Cowley, Cranford, West Drayton, Greenford, Hanwell, Harefield, and Harlington*. 1962. British History Online. <http://www.british-history.ac.uk/report.aspx?compied=22241>. Accessed May 10, 2017.

new goods throughout the county. The River Thames was used to transport goods into the capital and it was too important by the time it reached Middlesex County to build watermills on its banks. Road networks provided the ability to send goods long distances to new markets.

The most desirable market was London. Kowaleski's examination of Exeter's hinterland demonstrates how outlying markets were dependent on one another. While Exeter is only a small town in 1377 with a population of about 3,100, their specialization did attract merchants to their city. However, "it is unlikely that Exeter consumer demand ever exercised a fraction of the impact of a large metropolis like London."³⁵ A larger metropolis pulled in merchants of all types. Likely, London's impact would have been exponential when compared to Exeter based on wealth available.

The population of London in 1086 was around 25,000.³⁶ This number is based upon the Domesday Book and the average household size of England being about 4.5 persons, which is a reasonable average to use based upon other historians' work.³⁷ By 1300, the city was the center of an international trade network that involved traders from the land and sea. London boasted a very diverse economy by the turn of the fourteenth century.³⁸ This created a market for finished goods. However, the larger the town, the more "the provision of food and drink by a wide margin constituted the single most important sector of local commerce."³⁹ Drawing in food

³⁵ Kowaleski, *Local Markets and Regional Trade in Medieval Exeter*, p. 323.

³⁶ Andrew Hinde, *England's Population: A History Since the Domesday Survey*, (London: Oxford University Press, 2003) p. 17.

³⁷ Hinde, pp. 16-17.

³⁸ Barney Sloan, "Chapter 5: The Social Consequences of the Plague" In *The Black Death in London*. (Stroud, Gloucestershire: The History Press, 2011). p. 18.

³⁹ Kowaleski, *Local Markets and Regional Trade in Medieval Exeter*. pp. 174-175.

supplies became an endeavor to feed London's populace. Campbell also agrees with Sloan's assumption of a diverse economy during the turn of the 1300s. "For most of the twelfth and early thirteenth centuries England's economy, along with that of much of the rest of Europe, expanded and grew."⁴⁰ This drove the surrounding areas to support London's economy, including Spelthorne and Elthorne hundreds. The urbanization of the city caused by immigration created a demand that Spelthorne and Elthorne supplied.

The growth of mills in Middlesex had difficulty keeping up with the rapid growth of London from the eleventh century until the end of the thirteenth century. Both Langdon and Holt state there were six mills in all of Middlesex County in 1086, all of which were water mills.⁴¹ This was disproportionately small for the population size of Middlesex.⁴² Four of those mills were at Stanwell Manor in Spelthorne. The other two mills were found in Elthorne Hundred.⁴³ These mills were still in use by the end of the fourteenth century, which illustrates the importance of the mills and the hundreds where they were located.

Growing population during the 1200's allowed for more mills to be constructed. Population expanded from 39,851 in 1086 to 77,399 in 1290.⁴⁴ Additional people needed supplementary services provided to them. While the number of mills increased, construction could not keep up with exponential population growth, therefore lords "charged as much as they

⁴⁰ Bruce M. S. Campbell, "The Agrarian Problem in the Early Fourteenth Century" in *Past & Present* No. 188 (Aug, 2005) pp. 3-4.

⁴¹ Langdon, *Mills in the Medieval Economy*, p. 12.

⁴² Holt, *The Mills of Medieval England*. p. 17.

⁴³ VCH County of Middlesex: Volume 3.

⁴⁴ Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence" p. 25.

could.”⁴⁵ This coupled with farming guaranteed income for the upper class. It also gave the farmers access to the power of nature converted into work. Likely, the mills recorded in the Domesday Book were used and repaired countless times as constructing new mills were expensive. Very few fell into disrepair and disappeared throughout England, including Middlesex. Increasing population created an environment where the upper class profited from the technology, even if the returns were minimal after repairs were made.

The constant growth of population during the thirteenth century encouraged people to invest in the economy.⁴⁶ However, the prosperity did not last. The Great Famine, with poor agricultural harvests, and silver inflation caused agricultural prices to increase exponentially.⁴⁷ “From 1305 to 1310 the price of all commodities in England, including wheat, wool, and livestock, rose significantly. People complained to the king that merchants were selling goods at double their value or more, and Edward II tried repeatedly, but unsuccessfully, to resolve the problem.”⁴⁸ With the limited actions available to the king to deal with the economy, there was not much that Edward II could do to reign in out-of-control prices. Karakacili states that “population strain on food resources was therefore at its peak, and the mainstream view is that a Malthusian crisis was either in progress or threatened and so the average output of a farm worker did not suffice or scarcely sufficed to feed him or herself.”⁴⁹ The average output could not keep up with population demands. However, while farmers could feed themselves but had trouble

⁴⁵ Holt, *The Mills of Medieval England*, p. 50.

⁴⁶ Campbell “The Agrarian Problem in the Early Fourteenth Century” pp. 3-4.

⁴⁷ Mavis Mate, “High Prices in Early Fourteenth-Century England: Causes and Consequences” in *The Economic History Review*, Vol. 28, No.1 (Feb, 1975), pp. 6-8.

⁴⁸ Mate, “High Prices in Early Fourteenth-Century England: Causes and Consequences” p. 1

⁴⁹ Eona Karakacili, “English Agrarian Labor Productivity Rates before the Black Death: A Case Study” in *The Journal of Economic History* Vol 64, No. 1 (Mar 2004) p. 26.

supplying enough food for the entire county resulting in a rise in prices. The English monarchy also began experimenting with methods that impacted the economy during the early part of the fourteenth century.⁵⁰ This serf labor was under control of the nobility and most of the decision making for that labor occurred in the local area.

Similar local decisions on labor were implemented to improve the economic output, as stated in Stone's *Decision Making in Medieval Agriculture*.⁵¹ Stone continually shows how, no matter what the situation that was imposed upon medieval farmers and nobility, they implemented the best farming practices that were achievable at Wysbeth Barton in Cambridgeshire County, England. This can be applied to the court records of milling throughout Spelthorne and Elthorne as they illustrate the value of mills and improvements in milling by revealing the worth of mills and the fights over ownership. Millers were continuing to make investments and implementing the best practices that the owners could afford. Milling had to support the population of the surrounding area even through the difficult times of the fourteenth century, which included bustling London.

The construction of mills was not keeping pace with the growth of London from the creation of the Domesday Book until the end of the thirteenth century. By using a Malthusian point of view, the Black Death allowed for the construction of mills to catch-up to population. The Victoria County Histories identified that there were thirteen mills that were still in working

⁵⁰ W.M. Ormrod, "The Crown and the English Economy, 1290-1348." Ed. Bruce M.S. Campbell in *Before the Black Death: Studies in the 'Crisis' of the Early Fourteenth Century*, (Manchester University Press: Manchester, 1991), p. 151.

⁵¹ David Stone, *Decision Making in Medieval Agriculture*, (Oxford: Oxford University Press, 2010).

order with only two fallen into disrepair before 1377, a quarter century after the first outbreak of plague.⁵²

In 1300, the population of London would have been no more than 60,000.⁵³ These findings are based on the amount of grain imported into the city and the poll tax of 1377. Barney Sloan believes that the population of London would have been around 39,000 by the end of the fourteenth century.⁵⁴ Sloan uses the mortality rate of the Bubonic Plague to help make this assumption. He also uses the Poll Tax of 1377. This drop-off of around 20,000 people would influence the townspeople of London and the surrounding area, including the economies for both the hundreds of Spelthorne and Elthorne. As previously stated, Middlesex County's population levels in 1290 had reached 77,399. The population count in 1377 for Middlesex County was 62,476. This was a reduction of 23.8% throughout the county.⁵⁵ The enormous forfeiture of life in and around London from the outbreaks of disease did not cease economic innovations or court cases over the ownership of mills.

However, "central London was more densely populated in 1300 than on the eve of the Black Death."⁵⁶ Between the Great Famine and diseases that struck and killed livestock, population centers around Europe had felt the effects of extreme loss of life. The populace had encountered three major outbreaks of the plague in the first half of the 1300s and three minor

⁵² VCH County of Middlesex: Volume 3.

⁵³ Pamela Nightengale, "The Growth of London in the Medieval English Economy" in Richard Britnell and John Hatcher ed, *Progress and Problems in Medieval England: Essays in Honour of Edward Miller*. (Cambridge: Press Syndicate of the University of Cambridge, 1996), p. 96.

⁵⁴ Sloan, Barney. "Chapter 5: The Social Consequences of the Plague"

⁵⁵ Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence" p. 23.

⁵⁶ Richard Britnell, *The Commercialisation of English Society: 1000-1500*, (Manchester: Manchester University Press, 1996), p. 127.

outbreaks in the second half of the 1300's, spanning over seventy years. The hundreds of Spelthorne and Elthorne illustrate that although the loss of life was drastic, economic decisions continued to be enacted. Mills were erected and maintained to offset labor loss from calamities including that of the Black Death during the 1300s. The records indicate how investments were enacted throughout the hundreds even though the outbreak struck the entire country.

Also, it is difficult to determine exactly when the threat of the Bubonic Plague was in Londoner's minds.⁵⁷ It is clear that across the twenty years of outbreaks there was an increase in wills that were filed. There were even cases of people leaving property to unborn children.⁵⁸ Edward III postponed January Parliament indefinitely "whereas lately, by reason of the deadly pestilence...is increasing with more than its usual severity, in Westminster and in the City of London and the surrounding districts, whereby the coming of the magnates and other of our faithful lieges to that place at this time would probably be too dangerous."⁵⁹ The disease was contracted more often by males than females by a ratio of 2 to 1 in the city of London based upon the burial records in churches. This would have been detrimental to the male-driven agricultural society.⁶⁰ It would seem that the people of the capital and the surrounding area would stop investing in new improvements to their mills because of the loss of population. However, people who survived were still financing for investments in their mills, businesses, and economic ventures, as seen in Spelthorne and Elthorne Hundreds.

⁵⁷ Sloan, "Chapter 5: The Social Consequences of the Plague," p. 22.

⁵⁸ Sloan, "Chapter 5: The Social Consequences of the Plague," p. 104.

⁵⁹ Sloan, "Chapter 5: The Social Consequences of the Plague," p. 54.

⁶⁰ Sloan, "Chapter 5: The Social Consequences of the Plague," p. 94.

Spelthorne (£52)

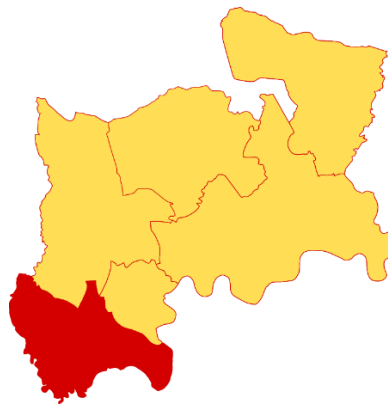


Figure 5: Map of Spelthorne⁶¹

London felt the effects of the hundreds of Spelthorne and Elthorne in Middlesex County. Any disruption to goods produced in these counties directly impacted the capital city. Spelthorne Hundred runs from where Hampton Court Palace had been erected in the late fifteenth century to the north and where Harefield manor rests. Modern-day Heathrow Airport sits in the middle of this historic hundred. Its distance from London provides the ability to trade with the city and still gain access to the money available. However, the hundred of Spelthorne does not possess direct borders with London. In the hundred of Spelthorne, the continued investment in milling was apparent.

There were four water mills located in Stanwell Manor during the last account of the Domesday Book in 1086. Of the four water mills, three locations have been determined at

⁶¹ Map courtesy of Wikipedia.
https://en.wikipedia.org/wiki/Spelthorne_Hundred#/media/File:Spelthorne_Hundred_in_Middlesex.svg Accessed 5/29/17

Poyle, Wyrardisbury, and Colne.⁶² These rivers were used the most often for milling. The Colne River was important to Middlesex County and other nearby counties including Essex. This river provided the needed power for milling. There were five mills built along the Colne River in Middlesex County, including one that was established before 1086 in Stanwell Manor.⁶³ Gapes Mill was built along Colney Stream, a subsidiary stream of the Colne River. The flow of the river seemed to be too strong for ships to travel upstream with fewer markets to make the expedition worthwhile. It would have been easier to unload the cargo and transport goods across land to the desired market. The original four mills that were documented in the Domesday Book needed continual investment and maintenance by the fourteenth century.⁶⁴

| Year | Middlesex Population Levels |
|-------------|------------------------------------|
| 1086 | 39,851 |
| 1290 | 77,399 |
| 1377 | 62,476 |

*Figure 6: Middlesex Population Levels*⁶⁵

The examination of the atte Mill family in Spelthorne and their struggles at the Stanwell Manor illustrate how others benefitted financially from their misfortune. Their family had

⁶² Reynolds, *A History of the County of Middlesex: Volume 3: Shepperton, Staines, Stanwell, Sunbury, Teddington, Heston and Isleworth, Twickenham, Cowley, Cranford, West Drayton, Greenford, Hanwell, Harefield, and Harlington*.

VCH County of Middlesex: Volume 3.

⁶³ Stanwell Manor is located in the Spelthorne Hundred.

⁶⁴ VCH County of Middlesex: Volume 3

⁶⁵ Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence" p. 25.

worked the mill for generations by the 1300's.⁶⁶ These mills became hereditary in nature. There were fewer renters who took on the lease for a full year.⁶⁷ Renters supplied mill owners with income. With populations continuing to grow at an exponential rate through the thirteenth century, finding someone to inherit the mill was not a tasking endeavor. However, Thomas and William atte Mill fell into debt in the early 1320s before the original outbreaks of the Bubonic Plague.⁶⁸ This can be explained by inflation. England experienced several instances of price inflation that hit both merchants and farmers, which would explain why both Thomas and William were not able to repay their debts that were accrued from earlier in the decade. As previously stated, agricultural products' prices increased substantially.⁶⁹ This illustrates Bubonic Plague was not the only cause of economic issues, as these same economic problems overwhelmed medieval Europe. "The high wheat prices of 1310 and 1311, for example, were primarily the result of the poor harvests of those years, although prices might not have risen as much as they did without the influx of silver" coming from the European continent.⁷⁰ This incoming silver decreased the value of the English currency as the coins were worth only what the metal content was worth. These poor harvests were occurring all over England. "These were undoubtedly hard times for English farmers. Smallholding peasants must have suffered in particular, but the period before the Black Death was also a cheerless time for landlords. The

⁶⁶ Reynolds, *A History of the County of Middlesex: Volume 3: Shepperton, Staines, Stanwell, Sunbury, Teddington, Heston and Isleworth, Twickenham, Cowley, Cranford, West Drayton, Greenford, Hanwell, Harefield, and Harlington*.

⁶⁷ Langdon, *Mills in the Medieval Economy*. p. 17.

⁶⁸ PRO SC 6/1146/20

⁶⁹ Mate, "High Prices in Early Fourteenth-Century England: Causes and Consequences" p. 1

⁷⁰ Mate, "High Prices in Early Fourteenth-Century England: Causes and Consequences" p. 8.

expansive policies of the thirteenth century were coming to an end.”⁷¹ Across England, agriculture and society faced challenging times. The atte Mill family showcases the difficulties that the economy brought throughout England.

Thomas atte Mill continued to face trying economic times. As registered in the *Calendar of the Close Rolls* “on Jan 18th 1337, Thomas atte Mulle (atte Mill) of Stanwelle and Gilbert North of Sonnebury owe the prior of the Hospital of St. John of Jerusalem in England 20l to be levied in default of payment, of their lands and chattels in co. Middlesex.”⁷² Thomas continued to struggle while repaying his family’s debts. The high prices of agricultural products hampered their ability to pay back their newly acquired debts. On the eve of the Bubonic Plague, it seems unlikely that the atte Mill family would ever be able to pay off their debts, even with their mills providing income. McIntosh’s research in the manor at Havering in Essex County comes to a similar conclusion: people were using loans “to improve their long-term financial situation, borrowing for investment purposes. Others, however, fell into economic distress.”⁷³

Most investors had to seek property in towns before the outbreak of the Black Death. Britnell shows how the nobility had lost land in confiscations from the crown.⁷⁴ Even though the standard of living was increasing for peasants, life for the lords was perilous. However, the lords who maintained power had begun to encourage markets to provide themselves with money and

⁷¹ Stone. *Decision Making in Medieval Agriculture*, p. 46. The expansive policies refer to nobles that were continuing to build out their agricultural enterprises in order to feed and supply an ever-growing population.

⁷² *Calendar of the Close Rolls: Edward III 1333-1337*. PRO. 1898. London: Mackie and Co., pp. 734.

⁷³ McIntosh, Marjorie K. “Money Lending on the Periphery of London, 1300-1600” in *Albion: A Quarterly Journal Concerned with British Studies*, Vol. 20, No. 4, 1988. p. 564. McIntosh examines the relationship between London and the manor of Havering in Essex County. It is a similar geography and distance away from London

⁷⁴ Britnell, *The Commercialisation of English Society: 1000-1500*, pp. 134, 138-139.

acquiring property in towns.⁷⁵ Tenants also began paying rents in coin, another break from the pre-plague economy.⁷⁶ Agriculture laborers were in short supply and were needed throughout the country. Milling was implemented to replace lost labor that could not be acquired. If assembled in the proper area, milling also provided income for the owners.

The Bubonic Plague reduced the population throughout England but it hit Middlesex County and London with a vengeance. The loss of 20,000 lives, a drop of 39%, over the course of the fourteenth century should have decimated the economy because of the decreased labor throughout England. With people going into debt and unable to pay, others could take advantage of the situations presented in the countryside. While debts had been accrued, farming, and therefore milling, was still a valuable resource in fourteenth century England. Others continued to take advantage of those families who had come to hardships during the fourteenth century. Mills were a valuable asset for the nobility or churches to possess. Holy Trinity Church obtained the “messuages, mills, lands, fisheries, and rent in Stanwell (Middlesex) and Kingston (Surrey)” in 1362-1363.⁷⁷ Entities that could obtain milling sites also gained wealth.

Britnell’s research shows that “falling population released potential that had been held back before 1330.”⁷⁸ He shows that standards of living had risen.⁷⁹ Trade should have diminished along the same rate as population. However, commerce increased faster than

⁷⁵ Britnell, *The Commercialisation of English Society: 1000-1500*, pp. 128, 149

⁷⁶ Britnell, *The Commercialisation of English Society: 1000-1500*, p. 192.

⁷⁷ PRO C 143/346/2

⁷⁸ Britnell, *The Commercialisation of English Society: 1000-1500*, p. 168.

⁷⁹ Britnell, *The Commercialisation of English Society: 1000-1500*, p. 171.

Hatcher and Bailey, *Modelling the Middle Ages: The History and Theory of England's Economic Development*, pp. 126-127.

population in areas of England.⁸⁰ People began specializing in work and preferred using coinage.⁸¹ Lords also preferred the introduction of cash into new areas of the economy.⁸² Mills provided another opportunity to gain rents and cash for the owner. The milling industry could substitute work that had been taken away by disease and famine. It also created finished products that possessed more calories for people's consumption.

These investments allowed for improvement in the economy. Even the king had to occupy manors when minors inherited their father's land. The land needed to be maintained for not just the minor himself, but also for the surrounding area and all of Stanwell would benefit from the maintenance of the farming.⁸³ Interference by the crown highlights the importance of milling. This industry required management by experienced hands. Milling could not fall into disrepair because the local populace required it.

The examination of the Wyndesore family's experience in the second half of the century illustrates what frequently took place. In 1361, on October 2nd Richard de Wyndesore passed away. Miles, his son, aged 16 years and more, was his heir. For six years, the king has had possession on account of the minority of the heir.⁸⁴ Edward III possessed and ran the manor until Miles came of age, which was allowed by the Magna Carta in 1215.⁸⁵ The importance of milling was imperative to the surrounding area. Someone was needed who understood the

⁸⁰ Britnell. *The Commercialisation of English Society: 1000-1500*, p. 184.

⁸¹ Britnell. *The Commercialisation of English Society: 1000-1500*, p. 192.

⁸² Holt, *The Mills of Medieval England*, p. 71.

⁸³ PRO SC 8/148/7394

⁸⁴ A. E. Stamp, J. B. W. Chapman, M. C. B. Dawes and D. B. Wardle. "Inquisitions Post Mortem, Edward III, File 217," in *Calendar of Inquisitions Post Mortem: Volume 13, Edward III*, (London: Her Majesty's Stationery Office, 1954), pp. 31-44. *British History Online*, accessed August 17, 2016, <http://www.british-history.ac.uk/inquis-post-mortem/vol13/pp31-44>.

⁸⁵ Carpenter, David. *Magna Carta*, (New York: NY. Penguin Classics, 2015), pp. 39-40.

importance and the implications of maintaining the manor, not only for minors inheriting the mill and manors but also for the people who depended upon the machines. Miles de Wyndesore gained control of the manor of Stanwell in 1374 when he came of age. The mills at Stanwell were still being utilized after being maintained by the crown and then turned back over to the private sector.

Another mill that adapted to the difficult economic times after the Black Death was the Mill at Poyle Manor. It was attached to the manor house during the thirteenth and fifteenth centuries. Another mill was also created under the same roof.⁸⁶ This shows the technological resourcefulness and the diverse ideas of the population that was living in the area. It also illustrates the technological need of milling for the population in the area. Although Lynn White and Carus-Wilson incorrectly stated that milling was a medieval industrial revolution, it did replace lost labor after the extreme loss of life during the fourteenth-century calamities.⁸⁷ Without the support of powerful rivers, the milling industry would have to adapt to the geography of the area.

In the early fourteenth century, windmills were added to supplement the watermills in areas where the distance was too great to travel.⁸⁸ In 1311, a windmill was added in Sunbury manor that was still standing at the end of the seventeenth century.⁸⁹ Watermills were more

⁸⁶ VCH County of Middlesex: Volume 3.

⁸⁷ Carus-Wilson. "An Industrial Revolution of the Thirteenth Century," *Economic History Review*, XI (1941) pp. 39-60.

Lynn White Jr. *Medieval Technology and Social Change*, (Oxford University Press, 1962), p. 89. White also highlighted how mills had a transformative power on a community, which is certainly true in these case studies.

⁸⁸ Holt, *The Mills of Medieval England*, p. 34.

⁸⁹ Reynolds, *A History of the County of Middlesex: Volume 3: Shepperton, Staines, Stanwell, Sunbury, Teddington, Heston and Isleworth, Twickenham, Cowley, Cranford, West Drayton, Greenford, Hanwell, Harefield, and Harlington*

consistent and reliable with the continuing power that was supplied to the machine.⁹⁰ Sunbury had only one other mill recorded in the manor. The other mill belonged to Merton Priory, which was only built in 1291.⁹¹ The adaptation of humans to use the power supplied by nature increased opportunities to collect rents. Nevertheless, windmills did suffer from small rents obtained and more maintenance was required “for at least some watermills were cheaper to keep in good repair.”⁹² This showcases economic adaptability of medieval man.

The Victoria County Histories mention at least five windmills by the 1300’s.⁹³ Donet’s Mill, also known as North Mill, was added in 1385. Another mill was added in the fourteenth century; however, it was not named. Windmills faced similar repairs as they all dealt with the same wind throughout an area. They also brought milling to areas that had no access to waterpower. While normally less powerful and consistent, windmills show the inventiveness of medieval people by providing technology to areas that were previously unable to benefit from milling.

Spelthorne did not possess as much wealth as Elthorne but its location on the Thames and the survival of sources makes it vital to understanding the agricultural implications surrounding the city of London. The records that were chronicled by the court illustrate the importance of

⁹⁰ Holt, *The Mills of Medieval England*, p. 34.

⁹¹ Reynolds, *A History of the County of Middlesex: Volume 3: Shepperton, Staines, Stanwell, Sunbury, Teddington, Heston and Isleworth, Twickenham, Cowley, Cranford, West Drayton, Greenford, Hanwell, Harefield, and Harlington*.

⁹² Holt, *The Mills of Medieval England*. pp. 46, 87.

⁹³ Langdon used the manorial accounts for his figures. Langdon’s focus on technology of milling while examining England in its entirety does not always account for the mills available in each county that were not on a manor. The Victoria County Histories used the Domesday Book along with archeological evidence. Since Langdon used the manorial accounts and there were fewer manors as London’s size grew ever larger, his numbers cannot be used for this section of the research.

milling and who was willing to invest in obtaining mills. Milling represented power and wealth. Once the damage was inflicted from the Great Famine and Bubonic Plague, property in the countryside became available for ownership. Families that faced difficult times were often exploited by others who were more fortunate. The new owners of the mills benefitted from owning machines that produced finished products and that provided rent to their owners. The owners continued to reap the benefits of milling throughout the rest of fourteenth century.

Elthorne Hundred (£73)

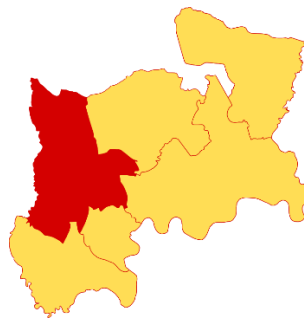


Figure 7: Map of Elthorne⁹⁴

Elthorne Hundred possessed more wealth than Spelthorne (about 25% more) but there are fewer records pertaining to milling that have survived the ravages of time.⁹⁵ With the wealth in the hundred and with other records that are available, this area will showcase how commercialization of England had taken hold even though the fourteenth century brought catastrophic calamities throughout the land. Elthorne Hundred, with the city of London directly to its east, felt the effects of the city directly on their economy. The town of Brentford, located

⁹⁴ Courtesy of Wikipedia.

https://en.wikipedia.org/wiki/Spelthorne_Hundred#/media/File:Spelthorne_Hundred_in_Middlesex.svg Accessed 5/29/17

⁹⁵ According to Glascock's Lay Subsidy, Spelthorne was worth about £52, while Elthorne was worth about £73.

in Elthorne, was wealthy, possessing many markets, the King's Highway, and access to the Thames.⁹⁶ Merchants would have to travel through the Elthorne Hundred to gain access to London and the Thames River.

The value of Elthorne though was not lost on the king. Brentford manor must have benefitted from the King's Highway. This highway's maintenance was paid for six times from 1375-1381.⁹⁷ Clearly, the monarchy viewed the town of Brentford as important and vital to the economic success of the surrounding area. There were also several markets that were registered in the city of Brentford during the fourteenth century.⁹⁸ The market and fair for Brentford was established in 1306. The 1334 Lay Subsidy valued the town at £37.3.⁹⁹ The ability to ship goods to London was very beneficial to the town and additionally to milling. The more customers that an industry has access to bring supplementary monetary gains to one's business.

Also located on the King's Highway, Isleworth manor was important to the local economy of Elethorne, as shown in the Domesday Book. "In 1086 there were two mills in

⁹⁶ "Middlesex," in *Gazetteer of Markets and Fairs in England and Wales To 1516*, ed. Samantha Letters (Kew: List and Index Society, 2005), *British History Online*, <http://www.british-history.ac.uk/list-index-soc/markets-fairs-gazetteer-to-1516/middlesex>. Accessed September 23, 2016.

⁹⁷ Hannes Kleineke, "Market Privileges 1386-1390," in *Borough Market Privileges: the Hinterland of Medieval London, C.1400*, (London: Centre for Metropolitan History, 2006), *British History Online*, <http://www.british-history.ac.uk/no-series/borough-market-privileges/1400/1386-1390>. Accessed September 25, 2016.
Hannes Kleineke, "Market Privileges 1381-1385," in *Borough Market Privileges: the Hinterland of Medieval London, C.1400*, (London: Centre for Metropolitan History, 2006), *British History Online*, <http://www.british-history.ac.uk/no-series/borough-market-privileges/1400/1381-1385>. Accessed September 25, 2016.
Hannes Kleineke, "Market Privileges 1371-1380," in *Borough Market Privileges: the Hinterland of Medieval London, C.1400*, (London: Centre for Metropolitan History, 2006), *British History Online*, <http://www.british-history.ac.uk/no-series/borough-market-privileges/1400/1371-1380>. Accessed September 25, 2016.

⁹⁸ "Benedictine nuns: St Helen's, Bishopsgate," in *A History of the County of London: Volume 1, London Within the Bars, Westminster and Southwark*, ed. William Page (London: Victoria County History, 1909), 457-461. *British History Online*, <http://www.british-history.ac.uk/vch/london/vol1/pp457-461>. Accessed September 26, 2016.

⁹⁹ "Middlesex," in *Gazetteer of Markets and Fairs in England and Wales To 1516*

Isleworth manor. In 1297, the lord of the manor owned a mill 'of Isleworth' and a mill 'of Brentford', and by 1300 there was a mill at Oldford, on the Crane in Twickenham. The Brentford mill was presumably driven by the Brent and was probably that which was granted about 1235 with land by the Brent from Henry de Stoke to his daughter Maud.”¹⁰⁰ The concentration of milling from the eleventh century to the thirteenth century shows the importance of milling to the economy of the area of Elthorne. This was remarkably like Spelthorne hundred and throughout England, as shown by Holt.¹⁰¹ In both hundreds, it does not necessarily cause the economy to flourish but per evidence, there is a mutual relationship and it is a characteristic of a well-performing medieval economy. The town of Brentford was bustling with commercial activity from the end of the thirteenth century until the middle of the fourteenth century. However, not all economic participants in the area were benefitting before the outbreak of the Black Death or the release of potential commercial possibilities after the decrease of population. St. Helen's, located near the town of Brentford, required the intervention of a Londoner's investment to begin succeeding.

At St. Helen's, “the nunnery, either through misfortune or mismanagement, could not have been very prosperous for some years before the Black Death, or the church would not have been reported in 1350 as in danger of going to ruin, a state of things which the pope tried to remedy by the grant of another indulgence.”¹⁰² The nuns were worried about their access to the

¹⁰⁰ "Heston and Isleworth: Mills," in *A History of the County of Middlesex: Volume 3, Shepperton, Staines, Stanwell, Sunbury, Teddington, Heston and Isleworth, Twickenham, Cowley, Cranford, West Drayton, Greenford, Hanwell, Harefield and Harlington*, ed. Susan Reynolds (London: Victoria County History, 1962), pp. 112-114. *British History Online*, <http://www.british-history.ac.uk/vch/middx/vol3/pp112-114>. Accessed October 12, 2016.

¹⁰¹ Holt, *The Mills of Medieval England*, p. 50.

¹⁰² "Benedictine nuns: St Helen's, Bishopsgate"

market of Brentford, where they could increase their funds that were desperately needed. During the second half of the fourteenth century, St. Helen's fortunes changed. "In 1374 the priory received an important bequest of lands and tenements in the parishes of St. Martin Outwich, St. Helen, St. Ethelburga, and St. Peter Broad Street, from another London citizen, Adam Fraunceys, mercer, charged with the maintenance of two chantries in the chapels of St. Mary and of the Holy Ghost in the church."¹⁰³ Adam Fraunceys was part of the original mercery council in London, which lost about one-third of their members during the Black Death.¹⁰⁴ Fraunceys, like many others, inherited money in the aftermath of the disease in 1349.¹⁰⁵ Many businessmen wanted and now could afford to invest in opportunities outside of London.¹⁰⁶ Fraunceys invested in St. Helen's by building shops in these areas. All parties involved benefitted from the arrangement.¹⁰⁷ Lending was important in the commercialized zones of England, especially "the major cities and their economic hinterlands."¹⁰⁸ Once the arrangement was put into action other parts of the economy were affected.

Money put into the Brentford market allowed for other investments to take place. After these monetary contributions were instituted for St. Helen's, others also sought to capitalize on the economic improvement and other milling investments that took place in Brentford. John

¹⁰³ "Benedictine nuns: St Helen's, Bishopsgate"

¹⁰⁴ Anne F. Sutton, *The Mercery of London : Trade, Goods and People, 1130-1578*, (Aldershot, Hants, England; Burlington, VT, Ashgate Pub., 2005), p. 76.

¹⁰⁵ Sutton, *The Mercery of London : Trade, Goods and People, 1130-1578*, p. 99.

¹⁰⁶ McIntosh, Marjorie K. "Money Lending on the Periphery of London, 1300-1600" pp. 557-571.

¹⁰⁷ Sutton, *The Mercery of London : Trade, Goods and People, 1130-1578*, p. 100.

¹⁰⁸ McIntosh, Marjorie K. "Money Lending on the Periphery of London, 1300-1600" p. 557

Tornegold built a horse-mill, which was erected in the town.¹⁰⁹ When Tornegold died, the mill was passed down to his widow and then ownership was transferred to his children when they came of age. The story of the revival of St. Helen's nunnery after the Black Death illustrates the consequence of continued investment and the influence of London during the period.¹¹⁰ These investments in one aspect of the economy directly impacted other phases.

Even after the very first outbreak of the Black Death, manors were still adding mills. In Brackenbury's land, a mill was added by 1349.¹¹¹ The severe loss of life from the Bubonic Plague did not discourage economic ingenuity. Investing in the construction of a new mill after the devastation of the plague was a huge undertaking. The Brackenbury family believed that the investment would bring returns. This is another mill that indicates economic ingenuity by adopting technology to replace lost labor.

By 1370, there were two watermills erected in Isleworth manor, with one in dire need of being rebuilt. However, "the Bourne (river) seems to have had defects as a mill-stream in the 14th century, and by 1463 the Isleworth mill was totally in decay and disused."¹¹² The lack of a suitable mill stream at Isleworth created circumstances where a windmill was assembled. This

¹⁰⁹ "Wills: 1 Richard II (1377-8)," in *Calendar of Wills Proved and Enrolled in the Court of Husting, London: Part 2, 1358-1688*, ed. R R Sharpe (London: Her Majesty's Stationery Office, 1890), pp. 197-201. *British History Online*, <http://www.british-history.ac.uk/court-husting-wills/vol2/pp197-201>. Accessed September 12, 2016.

¹¹⁰ McIntosh, Marjorie K. "Money Lending on the Periphery of London, 1300-1600" p. 563.

¹¹¹ "Harefield: Manors," in *A History of the County of Middlesex: Volume 3, Shepperton, Staines, Stanwell, Sunbury, Teddington, Heston and Isleworth, Twickenham, Cowley, Cranford, West Drayton, Greenford, Hanwell, Harefield and Harlington*, ed. Susan Reynolds (London: Victoria County History, 1962), 240-246. *British History Online*, <http://www.british-history.ac.uk/vch/middx/vol3/pp240-246>. Accessed August 19, 2016.

¹¹² "Heston and Isleworth: Mills," in *A History of the County of Middlesex: Volume 3, Shepperton, Staines, Stanwell, Sunbury, Teddington, Heston and Isleworth, Twickenham, Cowley, Cranford, West Drayton, Greenford, Hanwell, Harefield and Harlington*, ed. Susan Reynolds (London: Victoria County History, 1962), pp. 112-114. *British History Online*, <http://www.british-history.ac.uk/vch/middx/vol3/pp112-114>. Accessed October 12, 2016

windmill was constructed at Whitton, no later than 1362.¹¹³ The modifications of milling illustrate the adaptability of medieval man. When the Bourne was unable to provide a stable supply of power for milling, the people of Isleworth assembled a windmill to complete the work needed to be done. This windmill showcases economic and technological ingenuity coming together and providing a solution to expand possibilities of capturing new market share before the term had been invented. There were only two other mills that were available to provide milling work at the manor, the Oldford and Imbury mills. Both were located on the Crane.¹¹⁴ The River Crane was located near Twickenham and Brentford. These latter two mills benefitted from their proximity of two towns in the Elthorne hundred.

Despite the hardships facing many during the fourteenth century, there were many opportunities for farmers and millers to take advantage of a government and populace that was already stretched thin and vulnerable. Charged on August 21, 1365, William Strete of Southall and William Aunger were arrested on conspiring to “enhance the price of corn.”¹¹⁵ Since William Strete was vowed by “reputable men in the City and Middlesex,” he was questioned and sworn to “give information of any dishonesty or collusion to raise the price of corn, which he might discover.”¹¹⁶ Millers were often frequently accused of taking more meal than was agreed upon before the process of milling began.¹¹⁷ As Holt states, “temptation constantly placed before

¹¹³ "Heston and Isleworth: Mills,"

¹¹⁴ "Heston and Isleworth: Mills,"

¹¹⁵ "Roll A 10: (ii) 1365 ," in *Calendar of the Plea and Memoranda Rolls of the City of London: Volume 2, 1364-1381*, ed. A H Thomas (London: His Majesty's Stationery Office, 1929), pp. 29-50. *British History Online*, <http://www.british-history.ac.uk/plea-memoranda-rolls/vol2/pp29-50>. Accessed August 16, 2016.

¹¹⁶ "Roll A 10: (ii) 1365 ,"

¹¹⁷ Holt, *The Mills of Medieval England*, p. 103.

them, made it inevitable that many took more in multure than they should have done.”¹¹⁸

However, full-blown theft appears to be rare in the form of millers. It was still not enough to shake the description of the miller in Chaucer’s *Canterbury Tales*.¹¹⁹ For Middlesex County, there are no recorded court cases referring to millers and their alleged theft. It seems as though it had become an accepted practice that some small amount of extra multure may be taken by the miller or it may have been too difficult to prove in a medieval English court of law.

Before the Black Death, the Great Famine also caused massive mortality and economic hardships throughout England. After the Great Famine in the 1320s, many manors were subject to inquisitions about the value of the manors themselves. These inquisitions were requested by creditors who wanted debts repaid or by family members who inherited the property but had never visited the area. Merchants from London who had loaned or were going to loan money to others outside of the city were interested in their investments. This allows us to examine the worth of the manor and its mills. The drastic uptick in prices for products was caused by the lack of agricultural goods available.¹²⁰ This increase in prices created an environment for millers to borrow heavily on the assumption that these prices were here to stay, even when agricultural production was in decline because of uncontrollable reasons. Unfortunately, for both creditors and English millers this was not going to be the case.

Creditors needed to recoup their investments to stay solvent. Clearly these inquisitions focused on mills and milling activity because of their importance. Creditors did not believe that

¹¹⁸ Holt, *The Mills of Medieval England*, p. 103.

¹¹⁹ Chaucer, *The Canterbury Tales*. p. 14.

¹²⁰ Mate, “High Prices in Early Fourteenth-Century England: Causes and Consequences” p. 1

the Great Famine would last forever. They believed that eventually the struggles would come to an end and that either they would be paid or they would receive property in return. The poor weather from 1315-1317 and the agrarian crisis from 1315-1322 hurt farmers throughout England and hurt their ability to raise income to pay debts.¹²¹ Creditors' interest in milling activity showcases their view on gaining revenue quickly and making a worthwhile investment. The debt of Roger de Brok, a knight, illustrates how heavy borrowing during a time of high prices is detrimental when paying back the same debt during a period of deflation.

In 1327, Roger de Brok owed a debt of £167 to Peter Jacobi.¹²² De Brok owned several mills in which Jacobi showed interest in, including three water mills. One was called Crouch Mill, worth 40s. a year; another called Wood Mill, worth 32s. a year; the last one, called Town Mill, was worth nothing because it was in ruins. Under the same roof was a mill called Fishing Mill worth 10s. a year. Fishing Mill, again, illustrates the economic adaptability of milling in the Middle Ages. With Town Mill in disrepair, instead of spending extra money on replacing the older mill, de Brok invested in a new mill utilizing the existing structure and area for construction. This shows the adaptability that existed throughout England during this time period, which has been shown by Kowaleski and Stone.¹²³ Peter Jacobi was interested in milling as the easiest way to recoup his losses. Milling could provide stable income to the debtor, who in turn could pay the loaner.

¹²¹ Stone. *Decision Making in Medieval Agriculture*. pp. 46-47.

¹²² PRO C 131/3/3

¹²³ Kowaleski, *Local Markets and Regional Trade in Medieval Exeter*.

Stone, David. *Decision Making in Medieval Agriculture*. Oxford: Oxford University Press, 2010.

By the end of the fourteenth century, the town and manor of Colham had unquestionably come out of the pestilence and regained its footing by the reign of Richard II. On January 23, 1386, an inquiry was taken at Brentford for the manor after Roger Lestraunge's death. According to this inquiry, which was taken on behalf of his son, John Lestraunge, the manor "includes 2 watermills on the bank of the river Colneye, rent from tenants in Colham and Woxebregge."¹²⁴ Watermills and rents provided John Lestraunge with income. Nearby fairs that occurred "at Woxebregge every year on the feasts of St. Margaret and St. Michael" and markets that appeared "every week on Monday and Thursday" allowed for finished goods to be sold in spite of limited transportation.¹²⁵ While the impact of the Black Death on population levels is unmistakable, people moved on with their lives despite the grief. Families dealt with the heartbreak of losing loved ones. However, economically the survivors continued to collect rents and fought over who inherited the mills and used them to satisfy debts that were owed to merchants in London.

Conclusion

The loss of life was devastating to the people in fourteenth-century England and economic decisions were affected by the dramatic loss of life. Sutton's research illustrates with the mercers of London that "many aspects of life returned to normal remarkably quickly, and above all, people soon forgot the trauma."¹²⁶ This was seen throughout the sources for milling.

¹²⁴ M. C. B. Dawes, M. R. Devine, H. E. Jones and M. J. Post, "Inquisitions Post Mortem, Richard II, File 40," in *Calendar of Inquisitions Post Mortem: Volume 16, Richard II*, (London: Her Majesty's Stationery Office, 1974),

¹²⁵ Dawes, Devine, Jones and. Post. "Inquisitions Post Mortem, Richard II, File 40," in *Calendar of Inquisitions Post Mortem: Volume 16, Richard II*,

¹²⁶ Sutton, *The Mercery of London : Trade, Goods and People, 1130-1578*, p. 100.

London experienced almost a 50% mortality rate, however population levels rebounded by the end of the 1300s to represent only a 33% decline.¹²⁷ Middlesex County experienced a decline of a quarter of its overall population from 1290 until 1377.¹²⁸ The loss of life was detrimental to the economy, but emigration to Middlesex offset this decline. People were moving to where there were more economic opportunities. The influence and wealth of London were attractive to families. Areas near the River Thames and roads, would benefit from the opportunities.¹²⁹ Both of these hundreds profited from their location on the Thames and their road system, including the King's Highway. This shows the economic growth that the hundred had sustained toward the end of the fourteenth century even after the outbreaks of plague and the effects of the Great Famine.

Possessing large towns helped sustain economic growth during a time when there should have been stagnation or decline in Middlesex because the loss of population represents loss of labor and consumers. Elthorne Hundred was sustained by both London and Brentford. Spelthorne was aided by proximity to London and Windsor. With economies that were thriving for centuries and access to strong rivers, milling activity was already significant by the fourteenth century. Providing finished products for the populace was a vital need before the Bubonic Plague. Agricultural production was at its utmost potential providing for the growing population.¹³⁰ After the outbreak, milling replaced lost labor. For Middlesex County, there were

¹²⁷ Sloan, Barney. "Chapter 5: The Social Consequences of the Plague"

¹²⁸ Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence," p. 23.

¹²⁹ Willard, James Field. "Inland Transportation in England During the Fourteenth Century" in *Speculum: A Journal of Mediaeval Studies* Vol 1, No. 4 (Oct 1926) University of Chicago Press. p. 361.

¹³⁰ Karakacili,. "English Agrarian Labor Productivity Rates before the Black Death: A Case Study" p. 26.

few fulling mills because of the lack of wool supply nearby. However, corn mills in both hundreds were plentiful. Processing harvested crops into flour allowed for farmers to sell their product, provided the miller with income to collect rent and gave him excess corn-meal to sell, and created a product for others to purchase. Involving one's self in the milling industry was a personal choice that continually brought in rents throughout the century, even though after 1350 it became more difficult to guarantee profit.¹³¹ London businessmen were interested in obtaining mills through debt repayment. Their investments in markets created new business ventures that could support more milling in the area. New concepts, like the windmill that had come from continental Europe, brought forth the technology to areas that depended on either horse or manpower, thus highlighting economic decisions made by medieval man.

| Hundred | 1086 | Before 1300 | 1300-1330 | 1331-1400 |
|-------------------|-------------|--------------------|------------------|------------------|
| Spelthorne | 5 | 12 | 4 | 1 |
| Elthorne | 5 | 3 | 3 | 7 |

Figure 8: Addition of Mills in Middlesex from 1086-1400

Milling demonstrates the adaptability of the fourteenth century. Before the outbreak of the Black Death, “the number of mills remained relatively unchanged from 1300 to the advent of the plague. Some new mills were certainly built during the period, but almost as many mills fell out of operation.”¹³² With the excess population, milling was needed to produce more goods for the surplus population. After the calamities of the fourteenth century, milling was implemented

¹³¹ Holt, *The Mills of Medieval England*, p. 68.

¹³² Langdon, *Mills in the Medieval Economy*, p. 26.

to offset the loss of life. “It seems obvious that milling investment had reached a peak by the beginning of the fourteenth century and was, at best, only holding its own in the half-century leading up to the Black Death.”¹³³ New mills were not needed in Spelthorne and Elthorne. However, they needed to stay maintained to offset the loss of life. “Holding their own” allowed for more mills per person.

The land was still able to provide for the large population changes. The productivity of the land supplied England with food before the outbreak of the Black Death and the Great Famine. There were no “Ricardian declines to land productivity” before a population correction occurred.¹³⁴ The milling industry was a sure way to make money and provide income for the upper class in the thirteenth and the first half of the fourteenth centuries. However, “1348 marked a clear divide: the point when all at once the high profits of the previous century came to an end. Thereafter milling was to be a more hazardous venture, with profits increasingly uncertain.”¹³⁵ Merchants continued to battle over mills and their ownership through the fourteenth century, especially when debts were owed. This will continue to be shown in Norfolk and Northumberland.

¹³³ Langdon, *Mills in the Medieval Economy*, pp. 26-27.

¹³⁴ Karakacili, “English Agrarian Labor Productivity Rates before the Black Death: A Case Study,” p. 26. Bruce M. S. Campbell, “Agricultural Progress in Medieval England: Some Evidence from Eastern Norfolk” in *The Economic History Review New Series*, Vol. 36, No. 1 (Feb. 1983), pp. 26-46

¹³⁵ Holt, *The Mills of Medieval England*, p. 159.

CHAPTER 3: WALSHAM HUNDRED, GUILTCROSS HUNDRED, EARSHAM HUNDRED, HUMBLEYARD HUNDRED, HENSTEAD HUNDRED, LODDON HUNDRED, DEPWADE HUNDRED, AND CLAVERING HUNDRED IN NORFOLK

Norfolk provides a more agricultural setting to compare milling to the urban areas of Middlesex, which explains the importance of milling to the populace. The hundreds of Norfolk chosen possessed similar levels of wealth to Middlesex, while illustrating the correlation between wealth and milling. However, the agricultural abilities between Middlesex and Norfolk were vastly different. Norfolk's geography blessed its people with fertile soil and access to rivers and the North Sea. The many rivers that flowed through Norfolk provided ample opportunities for milling since the Anglo-Saxon settlements.¹³⁶ Trading inland was beneficial, but the prices on continental Europe drew in merchants selling goods.

| Norfolk Hundreds | Taxation from the Lay Subsidy of 1334 |
|----------------------------|--|
| Walsham Hundred | £50 |
| Guilthcross Hundred | £52 |
| Earsham Hundred | £59 |
| Humbleyard Hundred | £60 |
| Henstead Hundred | £65 |

¹³⁶ H. C. Darby, "The Domesday Geography of Norfolk and Suffolk" in *The Geographical Journal* Vol. 85, No. 5 (May, 1935), p. 432.

| | |
|--------------------------|-----|
| Loddon Hundred | £72 |
| Depwade Hundred | £76 |
| Clavering Hundred | £76 |

Figure 9: Norfolk Hundreds and Wealth Supplied to the 1334 Lay Subsidy¹³⁷

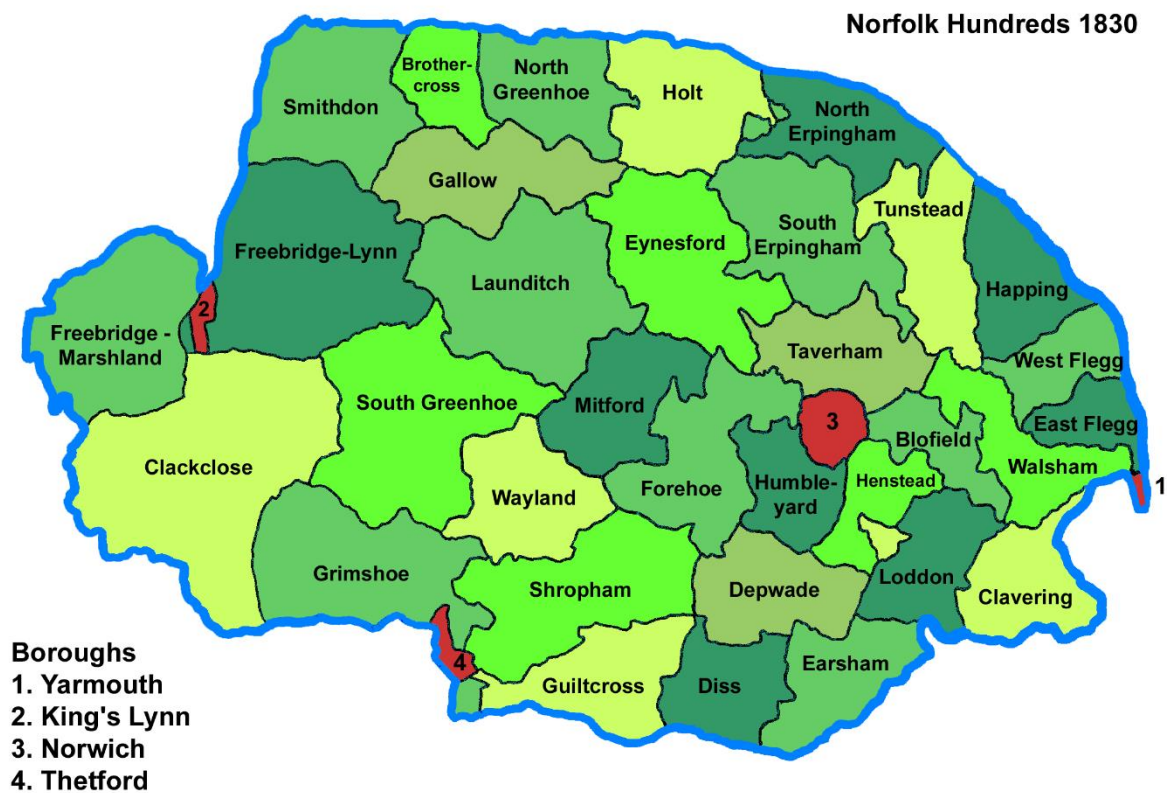


Figure 10: Map of Norfolk Hundreds¹³⁸

¹³⁷ Glasscock, *The Lay Subsidy of 1334*, pp.194-207.

¹³⁸ Original Map from Wikipedia.

https://upload.wikimedia.org/wikipedia/commons/9/90/Norfolk_Hundreds_1830.png

According to Stephen Broadberry, Bruce M. S. Campbell, and Bas van Leeuwen in the article “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence,” Norfolk had a population of 148,085 in 1086.¹³⁹ “By the time of the Domesday Inquest, Norfolk and Suffolk were the two most densely peopled counties in England.”¹⁴⁰ By 1290, their study shows that the county’s population had exploded to 486,920. Bruce Campbell also agrees with these findings and concludes that in “the early fourteenth century the density probably approached 500 persons per square mile.”¹⁴¹ This large population density needed the sustenance of the industry of milling.¹⁴²

The fertile soil produced grain and barley for the region through the fourteenth and into the fifteenth century. These hundreds are in eastern Norfolk where “there were extensive natural pastures in the marshes of the rivers Waveney, Yare, and Bure.”¹⁴³ The large tracts of fertile land created a wealthy county. This wealthy area needed the support of the milling industry. Without the constant impact of London, other entities used their affluence to gain control of the local economy. There were several large land-owning entities in Norfolk, which affected the economic climate there. The Earl of Norfolk owned large amounts of land and therefore many mills. By 1270, the Earl of Norfolk owned eighteen manors.¹⁴⁴ Norwich Cathedral also played a major role in the economy of the county as they owned five manors. The Bishop of Ely owned

¹³⁹ Broadberry, Campbell, and Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence,” p. 25.

¹⁴⁰ Darby, “The Domesday Geography of Norfolk and Suffolk,” p. 435.

¹⁴¹ Bruce M. S. Campbell, “Agricultural Progress in Medieval England: Some Evidence from Eastern Norfolk” in *The Economic History Review New Series*, Vol. 36, No. 1 (Feb. 1983), p. 28.

¹⁴² Holt, *The Mills of Medieval England*, p. 11.

¹⁴³ R.H. Britnell, “The Pastons and Their Norfolk” in *The Agricultural History Review*, Vol. 36, No. 2 (1988), p. 134.

¹⁴⁴ Holt, *The Mills of Medieval England*, pp. 26-27.

nine manors.¹⁴⁵ These manors produced food and wool for the county and also possessed mills, which brought in more wealth for their owners. Adapting to raising sheep required fewer male laborers and allowed them to continue to profit.

While milling is an important venture, the expense of building a mill would take years to recoup the initial capital required. As previously stated, installing the highest quality millstones required shipment from continental Europe.¹⁴⁶ These shipments required coordination throughout both England and Europe with money changing hands multiple times in order to obtain the necessary materials to install at the mill. Therefore, the upper class needed to continue investments in the industry. Maintenance of milling also required large upfront capital. However, as mills became a part of people's routine they were more likely to survive.

Norfolk was hit extremely hard by the Black Death and the mercers suffered greatly as well.¹⁴⁷ After the calamities of the Great Famine and Bubonic Plague, Norfolk's population had decreased almost to Domesday Book levels at 176,844 in 1377. This was a decrease of 310,076 or 63.68%.¹⁴⁸ "After the Black Death, there was a comparatively brief period of recovery, and then a major expansion of the English woolen cloth industry, perhaps facilitated by the high incidence in the industry of female labor, which may have better survived the plague."¹⁴⁹ This shows the county of Norfolk as a whole made adaptations to the loss of life. They shifted their production from grains to wool because it requires fewer people to raise sheep which is shown in

¹⁴⁵ Holt, *The Mills of Medieval England*, pp. 26-27.

¹⁴⁶ Farmer, "Millstones for Medieval Manors," pp. 97-111.

¹⁴⁷ Sutton, *The Mercery of London: Trade, Goods and People, 1130-1578*, p. 97.

¹⁴⁸ Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence" p. 25.

¹⁴⁹ Sutton, *The Mercery of London: Trade, Goods and People, 1130-1578*, p. 99.

the increase in exports of woolens after 1350.¹⁵⁰ The uptick in exports with a smaller population shows that more people were raising sheep. This industry was still dependent on milling to full wool into usable cloth. Similar to the experiences in Middlesex County, Norfolk's loss of life was detrimental to the overall economy, although milling still allowed for the people to replace lost labor. According to a Malthusian view of the economy, rents overall should have declined regardless of the industry. However, as shown in this chapter, the milling industry continued to thrive, while the populace became dependent on the labor saving technology.

Norfolk was certainly included in areas that had lost population but were still performing well economically. The nobility in Norfolk had to work together before the Black Death to bring milling throughout the county because of the lack of streams suitable for milling, which included adding expensive windmills.¹⁵¹ While the rivers of Waveney, Yare, and Bure were important, they did not flow through all the hundreds in this case study. The importance of milling after the Black Death is exemplified in the example of the Bishop of Norwich's manor of Honingham. When finding tenants for the mill there "each pay sixpence in 1325 for release from suit of his mill there; forty-five years later there were two men paying a shilling each for permission to do the same."¹⁵² The loss of life required machines to replace the labor which increased the price of the same mill. With an agricultural society that was male-based, the decrease of this population should have been detrimental to the economy.¹⁵³ Similar to the hundreds in Middlesex County,

¹⁵⁰ Sutton, *The Mercery of London: Trade, Goods and People, 1130-1578*, p. 99.

¹⁵¹ Holt, *The Mills of Medieval England*, p. 11.

¹⁵² Holt, *The Mills of Medieval England*, p. 45.

¹⁵³ Sloan, "Chapter 5: The Social Consequences of the Plague," p. 94.

the eight hundreds in Norfolk will show the innovations and adaptations of medieval man to their predicaments.

The continued effect of milling on the economy will showcase its importance throughout Norfolk. More hundreds in Norfolk were wealthier than Spelthorn or Elthorne, including the wealthiest hundreds of Freebridge Hundred (£446).¹⁵⁴ However, London clearly provided a much needed influx of wealth into the surrounding area for Middlesex. The people of London rarely interfered economically in Norfolk, while kings were more likely to be involved against rebellions that occurred in the northern regions.

While Middlesex County possessed London, Norfolk had two cities that impacted investments in the county. One of those towns was Norwich, which provided an important influence on the local economy. It had a similar impact to that of London and the impact of the influential people on the medieval economy cannot be understated as they controlled the capital for major investments. For the 1334 Lay Subsidy, Norwich provided just over £94.¹⁵⁵ Another city which influenced investments was that of Yarmouth. Yarmouth provided £100 for the Lay Subsidy.¹⁵⁶ When compared to London, which brought in over £733 at a lower rate, it is clear that Norwich and Yarmouth lacked the overall resources of the nation's capital.¹⁵⁷ However, proximity to the capital of the county still provided coinage that would flow through the economy. The wealth available for taxation represents an ability to invest in economic

¹⁵⁴ Glasscock, *The Lay Subsidy of 1334*, p. 197.

¹⁵⁵ Glasscock, *The Lay Subsidy of 1334*, p. 192.

¹⁵⁶ Glasscock, *The Lay Subsidy of 1334*, p. 192.

¹⁵⁷ Glasscock, *The Lay Subsidy of 1334*, pp. 187-188.

endeavors. Both Norwich and Yarmouth possessed individuals who supplied investments throughout the century in the scenarios chosen to show medieval investments.

Walsham Hundred (£50), Guiltcross Hundred (£52), Earsham Hundred (£59), Humbleyard Hundred (£60)

Walsham, Guiltcross, Earsham, and Humbleyard are all located on the southern and eastern border of Norfolk within the hinterlands of Norwich and Yarmouth. Walsham Hundred possessed the lowest level of wealth for this study in Norfolk. Walsham also possesses the fewest mills in the county. While this certainly shows correlation, it does not guarantee causation. Milling activity that occurred in Walsham could not keep up with the growing demand of the ballooning population within Norfolk County by the end of the thirteenth century. While being worth only £50 when compared to Spelthorne's £52, Walsham Hundred only possessed one mill.

Guiltcross Hundred, located on the southern border of Norfolk, became important because the road that led out of Suffolk County into the town of Bridgeham was used by pilgrims to travel to Our Lady of Walsingham.¹⁵⁸ The importance of this hundred was clearly derived from its location. Guiltcross also possessed more mills than that of Walsham and also sent in more money to the collection for the lay subsidy. This hundred possessed the same amount of wealth as Spelthorne at £52.¹⁵⁹

¹⁵⁸ Francis Blomefield, "Hundred of Giltcross," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 1*, (London: W Miller, 1805), pp. 213-227. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol1/pp213-227>. (accessed November 2, 2016)

¹⁵⁹ Glasscock, *The Lay Subsidy of 1334*, p. 189.

Earsham's wealth is slightly higher than Spelthorne and was located in the southeastern corner of the county. The mills erected throughout the hundred benefitted the economy, the owners, and the users. The Earls of Norfolk owned several manors in this hundred and also spent money in the area improving and erecting mills. Their influence in the county was immense and the impact of their actions in the hundred affected people's lives.

Humbleyard Hundred is located on the southern border of the town of Norwich. This location affected the money flowing into the hundred. Norwich only provided £94 12s for the Lay Subsidy of 1334.¹⁶⁰ When compared to London, which paid £733 6s, the influence on the surrounding area was more limited.¹⁶¹ The wealth from the main city of Norfolk County still held influence as two of the most influential residents of the county, Earl of Norfolk and Norfolk Cathedral, which were housed in Norwich. This was beneficial to nearby hundreds, including Humbleyard.

In Walsham, the manor of Acle was referenced in the Domesday Book and was owned by the king for several generations.¹⁶² It continued to pass down through the Earl of Norfolk. By the time of Edward I's reign, there was still only one mill built including several cows and 120 sheep on the land and was worth £8 to £12.¹⁶³ This was the only mill in the entire hundred. Roger Bigot, Earl of Norfolk, possessed the land until his death in 1305. It then became part of the Crown's estates once again until Thomas de Brotherton became the Earl of Norfolk in 1312.

¹⁶⁰ Glasscock, *The Lay Subsidy of 1334*, p. 198.

¹⁶¹ Glasscock, *The Lay Subsidy of 1334*, p. 188.

¹⁶² *The Domesday Book* Online. <http://www.domesdaybook.co.uk/norfolk1.html#acle> (Accessed on 12/28/2016).

¹⁶³ Francis Blomefield, "Walsham Hundred: Acle," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 11*, (London: W Miller, 1810), pp. 90-95. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol11/pp90-95>. Accessed October 13, 2016.

It then passed to his two daughters, Alice and Margaret (or her daughter Elizabeth), who became the Duchess of Norfolk before the end of the century.¹⁶⁴ Incidentally, it provided the most income in Walsham Hundred for the Lay Subsidy of 1334 at £7 16s.¹⁶⁵ This demonstrates a correlation of wealth with milling.

In Earsham, there was another manor that possessed the same amount of wealth as Acle in the Domesday survey and only possessed one mill by the end of the fourteenth century. Redenhall Manor was worth £3 in 1066 and £8 in 1086.¹⁶⁶ On October 20th, 1283, “the king (Edward I) before his accession granted the manor [Redenhall] to Nicholas de Yattingden and Alina de Bathonia, his wife.”¹⁶⁷ Redenhall Manor was seized by Richard I after the rebellion.¹⁶⁸ By 1390, it is recorded that there were “384 acres of land, 8 acres of meadow, 8 of pasture, 62 acres of wood and a water-mill belonging to it.”¹⁶⁹ Redenhall was worth £13 in 1334, the most of any manor in Earsham Hundred.¹⁷⁰ The land that was available for the manor contributed to its wealth. Both of these areas showcase the relationship of milling and wealth for a hundred. Acle and Redenhall both showcase similar experiences. The affluence of an area grew around the mill in the area. However, Redenhall was located near more prosperous areas. Their wealth grew along with their neighbors.

¹⁶⁴ Blomefield, "Walsham Hundred: Acle."

¹⁶⁵ Glasscock, *The Lay Subsidy of 1334*, pp. 194-195.

¹⁶⁶ *The Domesday Book* Online. <http://opendomesday.org/place/TM2684/redenhall/>. Accessed on 1/7/17

¹⁶⁷ *Calendar of the Close Rolls: E. D. W. A. R. D. I. A.D. 1279–1288*. 1902. London: Mackie and Co. p. 224.

¹⁶⁸ Francis Blomefield, "Hundred of Earsham: Redenhall," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), 355-372. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp355-372>. (accessed October 30, 2016).

¹⁶⁹ Blomefield, "Hundred of Earsham: Redenhall."

¹⁷⁰ Glasscock, *The Lay Subsidy of 1334*, p. 207.

In Earsham, Pulham was owned by St. Audry and possessed over 1,000 animals, a mill “and at the Conquest was risen to 15 pounds a year.”¹⁷¹ By the fourteenth century, there were two more windmills added near the town of Pulham and “every acre was worth 15*d.* a year.”¹⁷² Pulham was the second wealthiest settlement in Earsham Hundred.¹⁷³ The additional windmills helped to offset demand at the older mill and continued to provide rent for the manor. The location and the ability to add additional mills created a positive economic environment. As Pulham possessed the second most wealth in Earsham, they had more to invest.¹⁷⁴ The new windmills provided income to the owners and could complete work for the people in town.

Other areas of Earsham were more fortunate only a few miles south of Redenhall. There were several small manors located in the Mendham area. Nedham in Mendham possessed a mill by the 1200’s.¹⁷⁵ The name of Kingshall Mill was referenced by 1363.¹⁷⁶ With a mill in the area, interference by outsiders in the area was to be expected. This was especially true after the outbreak of plague. Rivers that provided milling opportunities were important. This allowed for others with capital to intervene and invest. While most investments improved lives, others continued to harass residents. Towards the end of the 1340s, Ranulph de Hales continued to interfere in the area and was ordered by the king to cease all operations.¹⁷⁷ These two additional

¹⁷¹ Francis Blomefield, "Hundred of Earsham: Pulham," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 387-405. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp387-405>. (Accessed October 30, 2016)

¹⁷² Blomefield, "Hundred of Earsham: Pulham."

¹⁷³ Glasscock, *The Lay Subsidy of 1334*, p. 207.

¹⁷⁴ Glasscock, *The Lay Subsidy of 1334*, p. 207.

¹⁷⁵ Francis Blomefield, "Hundred of Earsham: Mendham," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 372-387. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp372-387>. (Accessed October 30, 2016)

¹⁷⁶ Blomefield, "Hundred of Earsham: Mendham,"

¹⁷⁷ *Calendar of the Close Rolls: EDWARD III. VOL. VI. A.D. 1346-1349. PRO. 1905.* London: Mackie and Co. p. 90.

mills in Mendham added to the net worth of the area. These mills were available to the population of Redenhall, as well. Only a few miles separated Mendham from Redenhall. With the excess wealth in Redenhall, Mendham was in a prime location to capitalize. The late addition of a watermill to the area by 1363 is an interesting event. This watermill was added very late in the period after the massive loss of life. This building illustrates how people still believed it was a good business venture. Owners would recoup their investment and increase rents available in the manor like the manors of Acle, Redenhall, and Pulham. All the owners for these mills believed that milling was a good investment. All four manors possessed mills that benefitted their populaces and continued to improve their economic situations.

The town of Keswick is situated on the River Tare about four miles southwest of Norwich in the hundred of Humbleyard. This river is powerful enough to be a mill-stream as Keswick possessed two mills by the writing of the Domesday Book.¹⁷⁸ Keswick the Prior and Convent in Norwich took possession of the property and owned a watermill there called Old Mill, which must have referred to one of the previously erected mills.¹⁷⁹ The manor was owned for generations by the de Vaux family. The property brought in enough money for de Vaux to become a small lender in 1305 as he loaned out £6 to Simon de Croxton.¹⁸⁰

Unlike Walsham, Guiltcross possessed more mills and wealth. Part of this hundred was the manor of Kenninghall, which was owned by William the Conqueror during the assembly of

¹⁷⁸ *Open Domesday*, <http://opendomesday.org/place/TG2104/keswick/>. Accessed 2/24/17

¹⁷⁹ Francis Blomefield, "Hundred of Humble-Yard: Keswick," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 43-46. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp43-46>. (Accessed November 1, 2016)

¹⁸⁰ PRO C241/46/209

the Domesday Book. Kenninghall was worth £10 in 1066 and in 1086 was worth £30 to the lord.¹⁸¹ The manor was “situated in the midst of a large park, which contained 700 acres, well stocked with deer, the north side guarded with woods and groves, being distant at least a mile from the town, which lies westward.”¹⁸² Kenninghall also supported a windmill, which was worth 13s. 4d. by the fourteenth century.¹⁸³ Blomefield’s research also indicates that “there is a market kept every *Monday*, which is let at 20s. a year, and also a fair, let at 2s. a year.”¹⁸⁴ This town and windmill benefitted from the market. Possessing more wealth in the area shows these factors provided Kenninghall and Giltcross with an advantage over Walsham. The addition of a windmill in the manor also illustrates investment in the manor’s economy.

In the hundred of Giltcross at East-Thorp (Berdwell's) Manor, “all the tenants were obliged to grind at the lord's mill.”¹⁸⁵ The ability to create a monopoly on milling helped increase profits for the lord. This also was not unknown for the time period. The nobility could demand that their peasants use the mill on property, which was a standard practice. This continues to demonstrate a difference between Walsham and Giltcross. This provided a more income to the upper class in Giltcross and also culture for the peasants in the area.

¹⁸¹ *The Domesday Book* Online. <http://opendomesday.org/place/TM0485/kenninghall/> Accessed on 12/28/2016.

¹⁸² Blomefield, "Hundred of Giltcross."

¹⁸³ Blomefield, "Hundred of Giltcross."

¹⁸⁴ Blomefield, "Hundred of Giltcross."

¹⁸⁵ Francis Blomefield, "Hundred of Giltcross: West-Herling," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 1*, (London: W Miller, 1805), pp. 297-312. *British History Online*, 2016, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol1/pp297-312>. (Accessed November 2, 2016) It is also known as Hackford Hall Manor, afterward Seckford, or Westthorp, and now Herling-Thorp.

Another manor inside of Giltcross that showcases economic adaptability was Lopham. Lopham manor is located to the south of Kenninghall.¹⁸⁶ By 1305, when John Bygod inherited the manor, it had “335 acres of land, 15 of meadow, and 20 acres of pasture, with a park, 2 windmills, and the fourth part of *Harling* mill.”¹⁸⁷ The outbreak of plague led to the massive turn-over for ownership of Lopham. The manor was transferred from King Edward II to Thomas de Brotherton, who died in 1338. The manor passed to Thomas de Brotherton’s daughters Alice and Margaret, who were already married. Margaret’s husband, John de Segrave, became patron until his death in 1351. Lopham was to pass to de Segrave’s daughter Elizabeth, who was married to John Mowbray. However, Margaret still maintained some control of the manor and was named Dutchess of Norfolk by Richard II in 1397. She died two years later in 1399.¹⁸⁸ Her grandson, Thomas Lord Mowbray, became the Duke of Norfolk. The turnover in ownership interrupted any new grand plans for the area. The outbreak of Bubonic Plague in the hundred would have brought to a halt any further investment from the nobility owning the manor itself. The two windmills added by 1305 indicate economic investment and ingenuity before the loss of life and quick turnover of ownership.

There were two mills, Schadewell Mill and Berdewell’s Mill, that were separated by a fishery at Rushworth in Giltcross.¹⁸⁹ Both were erected around by the twelfth century.

¹⁸⁶ Francis Blomefield, "Hundred of Giltcross: Lopham," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 1*, (London: W Miller, 1805), pp. 228-241. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol1/pp228-241>. Accessed October 13, 2016.

Blomefield, "Hundred of Giltcross: Lopham."

¹⁸⁸ Blomefield, "Hundred of Giltcross: Lopham."

¹⁸⁹ Francis Blomefield, "Hundred of Giltcross: Rushworth," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 1*, (London: W Miller, 1805), 284-293. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol1/pp284-293>. Accessed August 23, 2016.

Berdewell's mill was exchanged several times. By 1411, James de Brettenham sold it to Thomas Gardiner, a clerk, and in 1411, when it was conveyed to Thetford priory.¹⁹⁰ The eventual acquisition by a priory indicates that Thetford was able to afford the repairs to the mill and also increase its income.

Earsham is the chief manor of Earsham Hundred. By the time of Edward the Confessor (1042-1066), there were already 2 watermills and several hundred animals. By the beginning of fourteenth century, it had added another mill and was under the ownership of Roger Bigot, Earl of Norfolk.¹⁹¹ The addition of milling benefitted a growing population. Once population levels were in decline, the mills provided labor needed in the hundred. The lack of labor needed to be replaced and medieval man chose to use machines. Mills provided the missing work that was lost because of the Black Death.

Another manor in the Earsham Hundred was Thorp-Abbots. In 1271, Robert of Thorp purchased a lease for life from the abbot, which is where the name was derived. Robert of Thorp added "two messuages, a mill, 120 acres of land, 4 acres of meadow, 10 acres of wood."¹⁹² As many other manors added milling to their holdings during the 1200's, the high population levels in the county created a situation that was conducive to build and operate more mills. In 1285, Roger Bigot, the Earl of Norfolk, acquired the property in Thorp-Abbots. The earl's influence

¹⁹⁰ Blomefield, "Hundred of Giltcross: Rushworth."

¹⁹¹ Francis Blomefield, "Hundred of Earsham," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 313-318. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp313-318>. Accessed November 7, 2016.

¹⁹² Francis Blomefield, "Hundred of Earsham: Thorp-Abbots," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 324-326. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp324-326>. Accessed November 6, 2016.

was immense. As he was acquiring new property, Bigot gained valuable land, including mills, for his family. Acle and Earsham also possessed mills that the Earls of Norfolk owned. These manors brought wealth to the earls. Possessing mills across a large geographic area aided the Earls of Norfolk as poor harvests in one area were weathered by possessing properties in other areas.

Another manor located in Earsham is Brockdish, located on the main road to Yarmouth. The Domesday Book states that there were 39.5 households in 1066.¹⁹³ The first entry states that the wealth provided to the lord was worth £4 in 1066 and 20 years later it had grown to £5.1. England possessed 5,624 mills in 1086 and continued adding more in new areas.¹⁹⁴ During Henry I's reign, William Bigot gave his property to the priory at Brockdish including a watermill.¹⁹⁵ The addition of a watermill shows adaptation and diffusion of technology in an area during the 1100's. However, other manors in the area were able to erect more mills. The more established mill at Brockdish was providing more money to the Lay Subsidy than Thorp-Abbots.¹⁹⁶

Humbleyard Hundred provided another interesting economic decision between two manors in Colney. There were two separate manors, West-Hall and East-Hall. The manor of West-Hall was worth 30s during the Confessor's survey in 1066 and 40s during the Conqueror's in 1086. In 1309, the manor was owned by Sir Ralf Malherbe and his wife Elizabeth and possessed "a manor-house, mill, 240 acres of land, 12 acres of meadow, and 14 of pasture in

¹⁹³ *Open Domesday*. <http://opendomesday.org/place/TM2179/brockdish/>. Accessed 1/1/17.

¹⁹⁴ White, p. 89.

¹⁹⁵ Ruled from 1087-1135 AD.

¹⁹⁶ Glasscock, *The Lay Subsidy of 1334*, p. 207.

demean; the quitrents were 35s. and 9 quarters of oats.”¹⁹⁷ This was the first reference of a mill in Colney. New milling shows the implementation of technology to help serve labor requirements of a large population of Norfolk, which numbered 486,920 in 1290.¹⁹⁸ The manor of East-Hall was given to Roger Bigot during the Conqueror’s reign and was worth 30s annually.¹⁹⁹ In 1310, it contained “three messuages, one mill, 200 acres of land, 10 acres of meadow, and 32s. annual rent.”²⁰⁰ In March of 1331, Christiana Richer, widow of Thomas Richer, began leasing out property in Colney.²⁰¹ Over the next four years, she would receive money for her property. Early in the fifteenth century both West-Hall and East-Hall were joined.²⁰² With the reduced population in Norfolk (from 486,920 in 1290 to 176,844 in 1377), joining these two manors together would help with administration. The two mills that were present in the newly joined manor would continue to provide a service and replace lost labor.

John Jocelin lived in Norwich during the 1350’s at Swainsthorpe, which is a few miles south of Keswick in Humbleyard. When he fell into debt to Thomas de Drayton for £50, there was an inquisition taken at his property at Swainsthorpe in November 1355 by Thomas de Morieux, the sheriff. The farmland was worth “200 acres of arable, of which 100 are worth 50s. at 3d. an acre.”²⁰³ This was like the events in Spelthorne Hundred with the atte Mille family.

¹⁹⁷ Francis Blomefield, "Hundred of Humble-Yard: Colney," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 2-6. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp2-6>. Accessed November 16, 2016.

¹⁹⁸ Broadberry, Campbell, and Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence” p. 25.

¹⁹⁹ Blomefield, "Hundred of Humble-Yard: Colney."

²⁰⁰ Blomefield, "Hundred of Humble-Yard: Colney."

²⁰¹ NRO, N/MC1/12

²⁰² Blomefield, "Hundred of Humble-Yard: Colney."

²⁰³ PRO C 241/145/142; C 131/185/4 and C 131/185/19 are duplicates; C 241/134/143 and C 241/145/142 are matches

This manor also possessed a “water-mill, worth 6s. 8d. a year.”²⁰⁴ Jocelin was obtaining debts to increase productivity output and faced a similar outcome. He had the ability to pay off his debt based on the property owned.

One who had more difficulty paying off his debts was Thomas de Hoo in Humbleyard. Thomas de Hoo and his son, William, fell into debt with William Gunthorpe in 1373 for an amount of £300.²⁰⁵ The inquisition revealed that their property in Mulbarton possessed “poor wheat worth 40s” and “a broken-down windmill worth nothing and lacking mill-stones.”²⁰⁶ The lack of capital and property made paying off debt nearly impossible and left no funds for the repair of the windmill. The addition of windmills supplemented the work provided by watermills.²⁰⁷ Although, the maintenance costs of a windmill differed depending on wind strength, the windmill breaking down still highlights the expense of owning a mill. If the owner fell into debt, the mill itself would suffer.

Walsham, as already stated, only possessed one mill by the fourteenth century. The geography of the Walsham Hundred prevented the building of watermills because of the absence of proper streams. However, the lack of windmills is alarming. The absence of investment in this hundred illustrates one of two things: one, the nobility of Walsham believed there was no benefit of milling, or two, there was not enough income for investment in milling. One thing is for certain, the least economically developed hundred of Norfolk possessed the fewest mills and

²⁰⁴ PRO C 241/145/142

²⁰⁵ PRO C 131/22/21

²⁰⁶ PRO C 131/22/21

²⁰⁷ Holt, *The Mills of Medieval England*, p. 34.

the lowest wealth obtained from the Lay Subsidy of 1334.²⁰⁸ These two circumstances go hand-in-hand, although it is difficult to determine which was the cause, and which was the effect. However, Guiltcross had more mills available to their people and the hundred supplied more money for the Lay Subsidy than Walsham. This correlates with increased wealth collected during the Lay Subsidy. While worth only £2 more than that of Walsham Hundred, Guiltcross already indicated its ability to grow its own economy and weather economic downturns caused by population loss better than Walsham.

Earsham Hundred possessed more milling and provided more income to the Lay Subsidy. The ability to possess more watermills allowed for the hundred to provide corn-meal. More watermills also created income to increase investment in milling by adding windmills to help supplement work and income. Some mills were erected even after the plague destroyed population levels. The Earls of Norfolk's interest in the manors in this hundred were beneficial. Their income was spread around the hundred as they invested in manor after manor. As they continued to build new mills on recently acquired land, they improved not only their profits but also the lives of the peasants who lived there. Humbleyard Hundred's proximity to Norwich was not as beneficial as Spelthorne or Elthorne's proximity to London. Although Humbleyard was not the most productive hundred in Norfolk County, the influence of Norwich is noted. The ability for the townspeople to invest in agricultural lands was instrumental to the economic health of Humbleyard. The wealth of the town relates more to the dependence of milling and agriculture in Norfolk County.

²⁰⁸ Glasscock, *The Lay Subsidy of 1334*, pp. 194-195.

Henstead Hundred (£65), Loddon Hundred (£72), Depwade Hundred (£76), Clavering Hundred (£76)

Henstead Hundred is positioned on the southeastern border of Norwich and shares a border with Humbleyard to their west. Located to Henstead's east is Loddon Hundred (£72).²⁰⁹ The ability to draw from both Loddon Hundred and Norwich brought wealth into Henstead. These influences included Earl of Norfolk, Norwich Cathedral, and the Bishop of Ely in the hundred. Although, there are fewer records available for this hundred to highlight the influence of milling in the area, the records that are available link wealth and milling together. Loddon Hundred supplied nearly identical payment to the 1334 Lay Subsidy when compared to Elthorne Hundred.²¹⁰ However, the agricultural society of Norfolk supported more milling than Middlesex County. The manors of Loddon were rarely interfered with by London. Only a few quitclaims filed by Richard de la Pole against William Charles on February 5th, 1333, in this hundred showcased minor interference in the area.²¹¹ However, similar to other hundreds, the Earl of Norfolk showed great interest in this area.

Depwade Hundred is south of Humbleyard and north of Earsham. Several of their manors possessed milling. Sir John de Clavering ran the hundred during the early part of the fourteenth century after Edward the III granted it.²¹² He also ran manors in Clavering Hundred. The wealth of Depwade and Clavering are the highest that will be compared in this study at £76.

²⁰⁹ Glasscock, *The Lay Subsidy of 1334*, p. 195.

²¹⁰ Glasscock, *The Lay Subsidy of 1334*, pp. 190, 195.

²¹¹ PRO F(M) Charter/2032

²¹² Francis Blomefield, "Hundred of Depwade," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), 123-124. British History Online, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp1>. Accessed November 2, 2016.

The collection of mills in these two hundreds showcases how the milling industry influenced the areas surrounding them. Clavering Hundred possessed a border by the North Sea. Loddon borders Clavering to the west. It benefitted from ports on the coast connected to the mainland of Europe. The addition of a seaport like Yarmouth created more wealth for the hundred, especially when compared to that of Loddon Hundred, located nearby. Clavering was also near the city of Yarmouth, which provided £100 for the Lay Subsidy.²¹³ Yarmouth provided even more wealth than that of Norwich. The proximity of Yarmouth is like that of London on the Elethorne Hundred as shown in Chapter 2. The location of the North Sea and Yarmouth gave Clavering Hundred an advantage.

In Ashby, inside the Loddon Hundred, Roger Bigot (Earl of Norfolk) had a grant of lands around 30 acres after the conquest.²¹⁴ In 1297, Sir William de Kerdeston purchased most of the manor. By 1300, there were “24 messuages, 3 mills, 320 acres of land, 9 acres and a half of meadow, 4 of wood, 125 of marsh, 3 and a half of pasture, 28s. and 3d. rent.”²¹⁵ Over two centuries, the addition of milling to the manor would have been paramount. With few mills and over one third of the manor marshland, this area provided very little to the Lay Subsidy, £1 8s when compared to other manors in the area.²¹⁶

²¹³ Glasscock, *The Lay Subsidy of 1334*, p. 198.

²¹⁴ Francis Blomefield, "Loddon Hundred: Ashby," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 10*, (London: W Miller, 1809), pp. 93-95. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol10/pp93-95>. (Accessed August 24, 2016).

²¹⁵ Blomefield, "Loddon Hundred: Ashby."

²¹⁶ Glasscock, *The Lay Subsidy of 1334*, p. 195.

In 1066, Bunwell, located in Depwade, “was valued at 40s. and afterwards (1088) at 70s” and it also possessed a mill.²¹⁷ This manor was also run by Roger Bigot, Earl of Norfolk. This was one of the poorest towns to possess a mill in the Depwade Hundred at £6.²¹⁸ There were other locations that were in the Depwade Hundred that provided less than Bunwell. However, none of those sites owned milling. In Loddon, Brome possessed “2 oxen; paunage for 20 swine, 20 acres of meadow, a mill, the moiety of a fishery, 3 cows, and 50 sheep” around the time of the conquest.²¹⁹ Without any additional milling added, Brome only supplied £2 17s to the Lay Subsidy.²²⁰ Adding milling to the area correlates to more wealth. Both Ashby, Bunwell, and Brome continue to illustrate the correlation between wealth and milling. These three areas lacked wealth and significant milling when compared to the surrounding area.

Also located in Loddon, Chatgrave was given to Ralph Bainard because he fought with William the Conqueror.²²¹ It contained “16 swine, 12 acres of meadow, a mill, 2 runci, 4 cows, &c. there were also in [Toret's] time, 200 sheep, always valued at 40s. It was 9 furlongs long and 8 broad.”²²² Sir Robert Baynard took over in 1285 and there were “90 messuages, 2 mills, 400 acres of land, 8 of meadow, 24 of wood, 6 of marsh, 10 of alder.”²²³ By Edward III’s reign

²¹⁷ Francis Blomefield, "Hundred of Depwade: Bunwell," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 131-141. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp131-141>. Accessed November 7, 2016.

²¹⁸ Glasscock, *The Lay Subsidy of 1334*, p. 196.

²¹⁹ Francis Blomefield, "Loddon Hundred: Brome," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 10*, (London: W Miller, 1809), pp. 108-111. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol10/pp108-111>. Accessed November 23, 2016.

²²⁰ Glasscock, *The Lay Subsidy of 1334*, p. 195.

²²¹ Francis Blomefield, "Loddon Hundred: Chatgrave," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 10*, (London: W Miller, 1809), pp. 122-127. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol10/pp122-127>. Accessed August 24, 2016.

²²² Blomefield, "Loddon Hundred: Chatgrave,"

²²³ Blomefield, "Loddon Hundred: Chatgrave,"

(1327-1377), the manor possessed an additional “120 acres of arable land, valued at 60s. per ann. 4 acres of meadow at 4s. a watermill at 6s. 8d. and a windmill at 10s. rents.”²²⁴ The growth of the manor illustrates how the administrators benefited from the wealth. The manor and the people living there also profited. Whether being able to afford to erect new mills or possessing the geography that allows milling to take place, one cannot deny the relationship between milling and wealth in Loddon.

Ditchingham, in Loddon, possessed three mills by the time of William the Conqueror.²²⁵ Roger Bigot became the Earl of Norfolk in 1305 and owned Ditchingham. In 1312, Thomas de Brotherton inherited the property when he became the new Earl of Norfolk thanks to Edward II, who was his half-brother.²²⁶ In 1344, Edward de Montacute came into possession of two of these mills and he fell into debt to Simon, Bishop of Ely.²²⁷ The inquisition was completed in 1347. The return showed Montacute owned “a watermill worth £9 a year; a windmill worth 60s; 420 acres of arable of which 100 lie fallow worth £31 10s. a year at 18d an acre... total value of the manor [was] £105.”²²⁸ The town of Ditchingham was one of the wealthier towns in Loddon Hundred, providing £4 2s for the Lay Subsidy of 1334.²²⁹ Even with the loss of life during the fourteenth century, the wealth of the manors at Ditchingham in Loddon Hundred increased as

²²⁴ Blomefield, "Loddon Hundred: Chatgrave,"

²²⁵ Francis Blomefield, "Loddon Hundred: Ditchingham," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 10*, (London: W Miller, 1809), p. 127. *British History Online*, , <http://www.british-history.ac.uk/topographical-hist-norfolk/vol10/p127>. (Accessed August 24, 2016).

²²⁶ Beth Harland. "English Lords in Late Thirteenth and Early Fourteenth Century Ireland: Roger Bigod and the de Clare lords of Thomond" in *The English Historical Review*, Vol. 122, No. 496 (April, 2007) p. 337.

²²⁷ PRO C 131/6/22

²²⁸ PRO C 131/6/22

²²⁹ Glasscock, *The Lay Subsidy of 1334*, p. 195.

seen by the debt of Robert Curzon.²³⁰ His debt gives insight into the worth of the manor. He owed £220 to Alfred Rawson, citizen and mercer, of London and was arrested before an inquisition could be completed. Curzon owned a small manor in Ditchingham worth £6 a year in 1499. The manor's value had increased by the end of the next century illustrating economic growth into the fifteenth century.

Roger Bigot was also put in charge of Pirnhow after the conquest. By 1272 (reign of Edward I), it possessed "half a carucate of land, 6 borderers, half a carucate in demesne, and half a one among the tenants, a mill, 2 saddle horses, and 5 cows, with 60 sheep."²³¹ In Clavering, Kirkeby-Kam possessed "14 acres of meadow, paunage for 6 swine, the moiety of a mill, &c.; a church endowed with 20 acres in free alms, and 2 parts of a church endowed with 14 acres; 4 runci belonged to the lordship, 4 cows, &c. and 100 sheep."²³² Chatgrave, Ditchingham, and Kirkeby-Kam possessed many sheep, which allowed them to weather the economic storm that was coming from the Black Death, since herding required fewer workers than other agricultural work. All three areas also possessed mills because they provided a way to earn income for the area.

²³⁰ PRO C 131/85/5

²³¹ Francis Blomefield, "Loddon Hundred: Pirnhow," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 10*, (London: W Miller, 1809), pp. 128-134. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol10/pp128-134>. Accessed October 13, 2016.

²³² Francis Blomefield, "Clavering Hundred: Kirkeby-Kam," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 8*, (London: W Miller, 1808), pp. 28-37. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol8/pp28-37>. Accessed November 18, 2016.

In Henstead, the priory of Pentney was founded by Robert de Vaux in the 1100s near Austin.²³³ The mill of Bridgemill and Shotesham were built during the century. In 1316, the bishop of Ely gave the mills “to the priory of Pentney.”²³⁴ In the same area, Tofthall Manor was also controlled by Roger Bigot. It possessed “2 carucates of land, worth at the first survey 40s. and at the second 4l.”²³⁵ There was also a mill and a church built on the manor. Towards the end of the fourteenth century this manor was joined with the manor of Ickburgh. The loss of population once again caused a reaction of joining two separate manors together. With the lack of people both manors would have started falling into disrepair. Joining the two manors together would allow the people to pool resources together and serve a smaller local population. This was seen also in Humbleyard Hundred as East and West-Hall were joined together. The administration of the newly joined manors would have access to milling. The collective income from both manors allowed for repairs to take place.

In 1066, the Manor of Hemenhale (Depwade Hundred) belonged to Ralf Bainard. The manor had “two mills, five working-horses 100 swine, and 186 sheep, it being worth £24. 5s. a year, it was four miles long and three broad.”²³⁶ Hemenhale featured several mills at the manor and also at the Abbot of Bury. The Abbot of Bury had erected a water mill, which was worth

²³³ "Houses of Austin canons: The priory of Pentney," in *A History of the County of Norfolk: Volume 2*, ed. William Page (London: Victoria County History, 1906), pp. 388-391. *British History Online*, <http://www.british-history.ac.uk/vch/norf/vol2/pp388-391>. Accessed November 11, 2016.

²³⁴ "Houses of Austin canons: The priory of Pentney

²³⁵ Francis Blomefield, "Hundred of Henstede: Shotesham," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 503-519. *British History Online*, 2016, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp503-519>. Accessed November 15, 2016.

²³⁶ Francis Blomefield, "Hundred of Depwade: Hemenhale," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 181-187. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp181-187>. Accessed November 7, 2016.

£34. 4s.²³⁷ The area had Piper-mill on Rucham River in Hemenhale.²³⁸ A windmill was also erected here. In addition to the windmill being erected during the thirteenth century, Roger Bygod obtained Hemenhale in 1282.²³⁹ The ability to possess mills in this area created an environment where the nobility could invest. During the Lay Subsidy of 1334, the area reflected this by supplying £7 to the tax.²⁴⁰ This illustrates another correlation to the available money and milling. The more wealth an area possessed, the more mills the populace could sustain and the more mills were in demand.

In Loddon, there was a mill located at Bedingham and 75 acres were purchased for the manor by 1300.²⁴¹ The addition of a mill and new acreage for the manor was important. The manor had the ability to purchase new land and increased its income. This was clearly beneficial to the surrounding area. In the same area was Walshingham Priory, which also owned its own manor. In Walshingham Priory Manor, in 1304 there was “9 messuages, a mill, 170 acres of land, 9 of meadow, 5 of pasture, 11 of wood, and 40s. rent, in this town.”²⁴² The sheriff of Norfolk sought an inquiry into the land. These two mills allowed for Bedingham to be worth £3 13s.²⁴³ This is another point where there is correlation between milling and wealth. When

²³⁷ Blomefield, "Hundred of Depwade: Hemenhale."

²³⁸ Blomefield, "Hundred of Depwade: Hemenhale."

²³⁹ *Calendar of the Close Rolls: E. D. W. A. R. D. I. A.D. 1279–1288.* p. 195.

²⁴⁰ Glasscock, *The Lay Subsidy of 1334*, p. 195.

²⁴¹ Francis Blomefield, "Loddon Hundred: Bedingham," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 10*, (London: W Miller, 1809), pp. 100-105. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol10/pp100-105>. Accessed October 15, 2016.

²⁴² Blomefield, "Loddon Hundred: Bedingham."

²⁴³ Glasscock, *The Lay Subsidy of 1334*, p. 195.

compared to the next town over, Brome, it clearly shows another example of the lack of milling and less wealth given to the Lay Subsidy of 1334.²⁴⁴

In Depwade in 1321, the manor of Tacolneston was transferred to Sir Peter de Uvedale. Originally, it was also held by the Earl of Norfolk. “The manor-house had 90 acres of land adjoining, woods, groves, a windmill, and £3. 10s.”²⁴⁵ The addition of the windmill highlights adaptation in milling. This is once again another sign of medieval ingenuity by bringing milling to an area that could not provide water milling. Tacolneston illustrates how taking advantage of adapting to geographical features provide the capability to get the most economically out of the property.

In 1277, Earl’s Manor (Depwade Hundred) was owned by Robert Fitz-John. “It had three messuages, seven score and three acres of ground, 50 acres of wood, [and] a mill.”²⁴⁶ By 1306, Roger Bigot the “Earl of Norfolk and Marshal of England” transferred the property.²⁴⁷ This development illustrates the investment taking place throughout the county during the thirteenth century as populations were rising. The return on milling investments were high. After 1350 returns on milling investments began to slip and were not a guarantee.²⁴⁸ However, people perceived them as a good investment even after 1350.

²⁴⁴ Glasscock, *The Lay Subsidy of 1334*, p. 195.

²⁴⁵ Francis Blomefield, "Hundred of Depwade: Tacolneston," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 5*, (London: W Miller, 1806), pp. 164-171. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol5/pp164-171>. Accessed November 7, 2016.

²⁴⁶ Blomefield, "Hundred of Depwade: Tacolneston."

²⁴⁷ Blomefield, "Hundred of Depwade: Tacolneston."

²⁴⁸ Holt, *The Mills of Medieval England*, p. 68.

By 1286, Aldby possessed “30 messuages, 500 acres of land, 40 of meadow, 300 of marsh, 40 of wood, a mill, 10 marks rent per ann. and the advowson of the church.”²⁴⁹ In the nearby town of Aldeburgh during the reign of Henry I, there was “a mill, &c. 120 sheep, 5 skeps of bees, and a church endowed with 20 acres, valued at 40d.”²⁵⁰ These two areas both possessed milling. By the 1334 Lay Subsidy, they sent in £7 4s, the highest collection in the Clavering Hundred.²⁵¹ The correlation of wealth and milling in this area is also apparent.

In 1331, an inquisition was taken at Norwich into Whetacre located in Clavering. Here it was discovered that there was “a windmill at 20s. *per ann.* rents of assize payable at *Lady-day*, *Midsummer*, and *Michaelmas*, £6. 6s. 4d.”²⁵² This inquisition was taken after Robert Baynard died and the property was passed to his son, Thomas, at the age of 26. The windmill provided income and net worth to the area. Six years after his inheritance, Thomas Baynard sold this to manor Sir Thomas Rosceline. The wealth of the property was increased by possessing a windmill. Baynard gained a return on his property and Rosceline gained a windmill and the accompanying income.

The Priory of Toft Monks inherited rents and the mill at Toft, in Clavering, by Edward I. The manor was worth “£40 16s. 10½d,” according to the taxation roll of 1291.²⁵³ During the

²⁴⁹ Francis Blomefield, "Clavering Hundred: Aldby, or Aldeburgh," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 8*, (London: W Miller, 1808), pp. 1-5. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol8/pp1-5>. Accessed November 7, 2016.

²⁵⁰ Blomefield, "Clavering Hundred: Aldby, or Aldeburgh."

²⁵¹ Glasscock, *The Lay Subsidy of 1334*, p. 195.

²⁵² Francis Blomefield, "Clavering Hundred: Whetacre," in *An Essay Towards A Topographical History of the County of Norfolk: Volume 8*, (London: W Miller, 1808), 64-67. *British History Online*, <http://www.british-history.ac.uk/topographical-hist-norfolk/vol8/pp64-67>. (Accessed November 15, 2016).

²⁵³ "Alien houses: The priory of Toft Monks," in *A History of the County of Norfolk: Volume 2*, ed. William Page (London: Victoria County History, 1906), pp. 464-465. *British History Online*, <http://www.british-history.ac.uk/vch/norfolk/vol2/pp464-465>. Accessed November 11, 2016.

inventory of 1337, the value of the property at Toft was £77 17s. 1d.²⁵⁴ Another convent, St. Faith, also received a mill. John de Clavinger was granted the mill to St. Faiths in 1321.²⁵⁵ These mills were advantageous to the community. The clergy possessed enough capital to run the mills and the laymen benefitted from the service that they provided.

The few records that are available on Henstead showcases how each area implemented milling. Clerical and lay investments in milling supported the local populace. Henstead illustrates the importance of all aspects in the economy working together to provide services, including the government and the private sector. The wealth in this hundred helped to sustain the mills in the records that have survived. Shotesham and Austin Priory underline these two characteristics.

Loddon Hundred possessed many mills and an increase in the number of sheep. This advantage allowed for the area to possess nearly the same amount of wealth as Elthorne without the influence of London. The numerous sheep allowed for the wealth of the hundred to increase when the male population decreased after the plague. Loddon was provided with ample prospects to increase milling opportunities throughout the hundred.

Geography also offered locations for windmill building. The site of Clavinger Hundred benefitted those who lived there. The location near the North Sea and the city of Yarmouth was advantageous to Clavinger. The priories, abbeys, and towns provided adequate milling opportunities. The rivers that flowed to the North Sea provided enough power to erect

²⁵⁴ "Alien houses: The priory of Toft Monks"

²⁵⁵ PRO C 143/145/3

watermills. Another factor that played a role in Clavering Hundred was the proximity of Loddon, to the west, and Earsham, to the north, which aided in providing prosperity to the hundred. The benefits of geography for Clavering Hundred were clearly present.

Conclusion

Norfolk's population decline after the outbreak of the Black Death is a dramatic shift in the county's power in England. The loss of almost 300 years of population growth after the pestilence would have been detrimental to the economy of Norfolk. Norfolk's population decrease led to changes in the local economy by shifting the labor force away from Norfolk towards areas like London. With this loss of the labor force, adaptations had to be implemented in order to stay economically relevant.

Switching to raising sheep required fewer laborers and still provided income to the area. Wool yields were less volatile than that of grain. Labor, soil, climate, and geography were all positive contributors to the profit margins of wool over farming grain.²⁵⁶ This adaptation still needed milling to provide for lost labor. The mills that were erected throughout Norfolk until the outbreak of the Black Death provided service for a large population. After the Black Death, milling replaced labor in the second half of the fourteenth century. This is similar to the findings in Middlesex. Only a few mills fell into disrepair and many were still fought over as payments for acquired debts, which illustrates their importance and value. The decrease in the percentage of population was greater than the decrease in the percentage of mills.

²⁵⁶ M.J. Stephenson, "Wool Yields in the Medieval Economy" in *The Economic History Review*, New Series, Vol. 41, No. 3 (Aug. 1988) p. 375.

The addition of milling throughout Norfolk shows economic adaptability throughout the county. The available investment in the county was controlled by a few individuals. The Earls of Norfolk's influence throughout the centuries is apparent. The ability to use their economic influence illustrates how wealth was needed for the milling industry. As the position for the Earl of Norfolk changed hands, the influence throughout the county was still the same. These individuals used their wealth and influence to continue to invest in milling. The wealthier hundreds possessed more access to milling or agriculturally productive geography.

Unlike Middlesex that focused around the nexus of London, there were several economic centers including Yarmouth and Norwich. The crown rarely intervened in Norfolk. The courts took a more active role, especially for repayments of debts. The involvement of the court highlights the importance of milling. The inquisitions into various properties examined mills and their worth. This further indicates the importance of milling in the society. With most of the work being performed by serf labor, the drastic decrease in population levels would have decreased in economic production.²⁵⁷ The high rents provided by milling were important to the medieval economy. The expense for erecting a mill and the maintenance of milling was high. Those who could afford the costs were able to earn rental income.

Norfolk needed more milling to sustain the agricultural economy. Spelthorne and Elthorne benefitted from their proximity to London. The wealth that flowed into and out of the Middlesex hundreds originated from the capital city. The influence of the crown also played a role in Middlesex. Norfolk did not possess the same influence of a major capital city's stimulus

²⁵⁷ Karakacili, "English Agrarian Labor Productivity Rates before the Black Death: A Case Study" p. 26.

on the local economy. There are fewer interventions from the crown and less influence from international businessmen. The hundreds in Norfolk have fewer mentions in the Calendars of the Close Rolls and royal interference. The increased milling activity throughout the county depended on local investment. These investments were critical to the local economy. People were still investing in milling after the outbreak of the Black Death. After the decline in population in Norfolk, there was still an interest in the milling activity. Inquiries that involved mills in Norfolk were plentiful after the decrease in population. The inquiries into various manors demonstrate how debts allowed for others to seize new assets. Creditors were able to increase their possessions throughout England, as Norfolk was prime real estate. Acquiring agricultural property in the county was advantageous. This ability to make rational economic decisions is similar to Wysbeth Barton and Exeter.²⁵⁸ “A detailed study of the 1334 assessments has shown a close correlation between high lay assessments and the production of wheat. The configuration of the richest counties in 1515 would seem to suggest that by the sixteenth century the greatest lay wealth may have been associated with other commodities, such as wool and cloth.”²⁵⁹ Norfolk was in a prime position to take advantage of both sections of the new economy that was emerging because of the Black Death.

The need for milling created an environment supportive of a thriving industry in both Middlesex and Norfolk. The mills assembled in Norfolk were for a higher population. There were more opportunities for markets to be involved in milling in Norfolk. However, there were similar experiences between the hundreds. Loaning of money drove the economy to continue to

²⁵⁸ Stone. *Decision Making in Medieval Agriculture*, pp. 45-46.

Kowaleski, *Local Markets and Regional Trade in Medieval Exeter*.

²⁵⁹ Schofield, “The Geographical Distribution of Wealth in England, 1334-1649” p. 507.

expand. As previously stated, the inability for creditors to receive payments after the decrease in prices made paying back those debts incredibly difficult.²⁶⁰ Customary rents were easier to restore than contractual ones.²⁶¹ This illustrates how the Earl of Norfolk benefitted from customs that stretched back to before the conquest in 1066. The ability for drawing new contracts became increasingly difficult as the Bubonic Plague spread through England.

| Hundred | Before 1086 | Before 1300 | Before 1330 | Before 1400 |
|-------------------|--------------------|--------------------|--------------------|--------------------|
| Walsham | 1 | 0 | 0 | 0 |
| Guiltcross | 3 | 5 | 0 | 0 |
| Earsham | 5 | 5 | 0 | 1 |
| Humbleyard | 1 | 3 | 0 | 1 |
| Henstead | 1 | 2 | 0 | 0 |
| Loddon | 5 | 8 | 0 | 3 |
| Depwade | 3 | 5 | 1 | 0 |
| Clavering | 1 | 1 | 2 | 0 |

Figure 11: Addition of Mills in Norfolk's Hundreds

²⁶⁰ Mate, "High Prices in Early Fourteenth-Century England: Causes and Consequences" p. 8.
McIntosh, "Money Lending on the Periphery of London, 1300-1600," p. 564.

²⁶¹ Britnell, *Growth & Decline in Colchester, 1300-1525*, p. 151.

The relationship between mills, population, and wealth was more prominent in Norfolk county than Middlesex. Norfolk was dependent on milling, while Elthorne's wealth was influenced by London. The royal influence and international businessmen continued to invest in the surrounding area. In lieu of payments on accrued debts, the creditors from London continued to gain property that possessed milling. This was especially common after the 1340s. The wealthiest hundreds involved in this case study had a connection from the Earl of Norfolk. The fourteenth century provided an opportunity to increase wealth at the expense of millers that were in debt. The Earls of Norfolk continued to gain new properties and owned mills like London's merchants. These possessions brought in income for the Earl, regardless of who was in the position throughout the century.

The milling industry in Norfolk survived the staggering loss of life from the outbreaks of plague. Even with the 63.68% drop in population, Norfolk still had a population almost three times the size of Middlesex.²⁶² This population size needed industry to replace lost labor. However, the larger population also needed more mills than were required in Middlesex. Norfolk highlights the importance of milling to the local economy. Trade seemed to be affected more by the distance in Norfolk than in Middlesex. Even with the differences between Middlesex and Norfolk, the correlation between wealth and milling can be seen. Although Norfolk and Middlesex experienced the Bubonic Plague, no one experienced the constant raids that Northumberland did on their Scottish border. While more prominently experienced in Northumberland, the effects of warfare were small in Norfolk.

²⁶² Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence" p. 25.

CHAPTER 4: COQUETDALE WARD (£52) AND GLENDALE WARD (£48) IN NORTHUMBERLAND

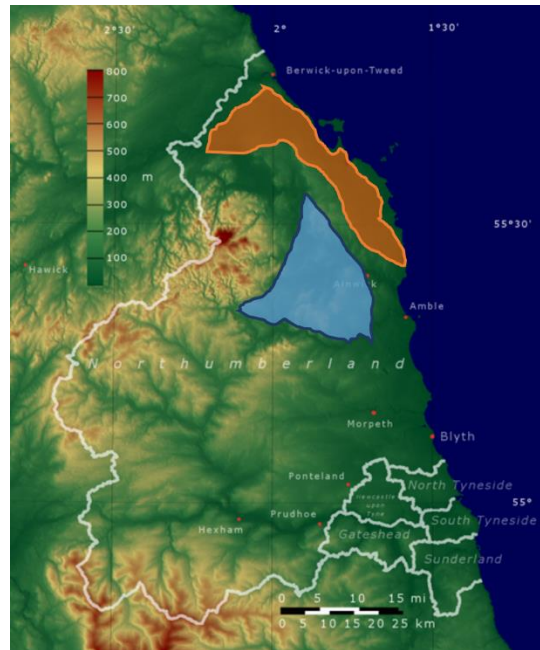


Figure 12: Map of Northumberland's Coquetdale (Blue) and Glendale (Orange) Wards

Northumberland is in northern England located on the border with Scotland. There was only one major city inside the county, Newcastle-upon-Tyne, which was worth £133 in 1334.²⁶³ Newcastle's hinterland would have included both Coquetdale and Glendale. While Newcastle was made its own county by the end of the fourteenth century, there was a lack of overall wealth in the county.²⁶⁴ The geography of Northumberland stretches from lush soil in the east "of a fertile clayey nature" to good pastureland in the west.²⁶⁵ Coquetdale was located in the east

²⁶³ Glasscock, *The Lay Subsidy of 1334*, p. 226.

Mackenzie Eneas, "Historical events: To 1584," in *Historical Account of Newcastle-Upon-Tyne Including the Borough of Gateshead*, (Newcastle-upon-Tyne: Mackenzie and Dent, 1827), pp. 1-22. *British History Online*, <http://www.british-history.ac.uk/no-series/newcastle-historical-account/pp1-22>. Accessed March 24, 2017.

²⁶⁴ Glasscock, *The Lay Subsidy of 1334*, pp. 219-226.

²⁶⁵ Sykes, "The Agricultural Geography of Northumberland," p. 271.

farmland region, while Glendale was located in the pastureland. The River Coquet provided a strong milling source throughout the county, although it does not run through every ward in the area. There were also markets present in towns throughout both Coquetdale and Glendale. Northumberland is used in this study to illustrate another factor, the impact of warfare on economic life during the fourteenth century. Its location near the Scottish borders brought Scottish warring parties to pillage the area. Their raids should have reduced the economic endeavors. People either would have to rebuild or choose to leave. However, people continued investing in milling and their economic situations. To illustrate the economic change in the wards, *The Northumberland Lay Subsidy Roll of 1296* will also be utilized.²⁶⁶ It gives a baseline as to the overall wealth of an area when utilized with the 1334 Lay Subsidy because the Domesday Book did not cultivate data for William the Conqueror that far north.

The reign of Edward I brought Scotland under the rule of England, but the country suffered border raids throughout the Scottish occupation.²⁶⁷ The Scottish raids were highly effective at disrupting Northumberland's daily life. To deal with the raids, Edward I appointed Walter Amersham in 1297 to receive royal revenues and support the Scottish and Northumberland governments.²⁶⁸ These attacks continued throughout 1297, "Wallace's attacks on the border counties were indeed hitting the English where it hurt most - their pockets."²⁶⁹ Those attacks hurt English economic investments. "Northumberland, like the north-western counties of Cumberland and Westmorland, was excused the 1334 tax on account of recent

²⁶⁶ Constance M Fraser, *The Northumberland Lay Subsidy Roll of 1296* (Newcastle Upon Tyne: Northumberland Press Limited, 1968).

²⁶⁷ Watson, *Under the Hammer: Edward I and Scotland 1286-1306*.

²⁶⁸ Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, p. 37.

²⁶⁹ Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, pp. 52-53.

devastation by the Scots.”²⁷⁰ Northumberland’s population increased from 12,300 in 1086 to 148,084 in 1290.²⁷¹ However by 1377, the population had diminished to 30,389.

The population at the turn of the century in Northumberland was repeatedly called into military service.²⁷² Usually this utilized the city of Newcastle as a staging area for defense and invasion, which attracted attacks from the Scottish armies.²⁷³ This decrease of population is related not only to the raids and military service in the area but also the Black Death and Great Famine. Although, the people who remained in this region continued to invest in their economic well-being.

Coquetdale, which was worth £52, and Glendale, £48 in the 1334 Lay Subsidy, both continued to improve their economic situation.²⁷⁴ The ability of the residents to adapt to economic challenges showcases their economic ingenuity. Northumberland also highlights how windmills moved into the county, similar to both of the other counties.²⁷⁵ Northumberland illustrates the idea of the ingenuity of medieval men working to improve their lives against odds that were more difficult than in the other counties. The expense of milling was difficult to overcome because of the continuing need to support military expeditions along the Scottish border, including supplying horses and iron.²⁷⁶ The ability to erect windmills in a county that

²⁷⁰ Glasscock, *The Lay Subsidy of 1334*, p. 219.

²⁷¹ Broadberry, Campbell, and Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence” p. 25.

²⁷² Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, p. 48.

²⁷³ Eneas, “Historical events: To 1584.”

²⁷⁴ Glasscock, *The Lay Subsidy of 1334*, pp. 206-207.

²⁷⁵ Holt, *The Mills of Medieval England*, pp. 30-31.

²⁷⁶ Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, p. 63.

had been attacked by the Scottish repeatedly throughout the 1200's and 1300's illustrates how people still were striving to add milling throughout their local areas.

That lack of major economic centers outside of Newcastle should have meant a lack of capital available for investments. However, similar to Norfolk and Middlesex, there were plenty of opportunities for people to invest in milling throughout the county and also these two wards. As Holt stated, "revenue derived from monopolies was huge throughout Northumberland and Westmoreland. Far greater value than the proceeds of demesne arable cultivation, it [owning milling monopolies] provided those secular lords whose estates had been surveyed after their deaths with over one-third of their rental income. In fact, practically all of this revenue must have come from mill rents."²⁷⁷ The milling industry was important to Northumberland, similar to the rest of England. Controlling a monopoly on the business allowed for the upper class to continue to provide themselves with supplemental income throughout Northumberland, including Coquetdale and Glendale.

Coquetdale Ward (£52)

Coquetdale is now centered around the town of Rothbury, although during the fourteenth century, Rothbury was not a large town and did not possess more wealth than every other town in the ward. The River Coquet runs through the town and also the ward itself. This river provided the site for several water mills. The opportunity for milling allowed for monopolies to develop, which created a money lending market.²⁷⁸ The owners of a large numbers of mills

²⁷⁷ Holt, *The Mills of Medieval England*, p. 81.

²⁷⁸ Holt, *The Mills of Medieval England*, p. 81.

allowed profits to be made with little competition in a given area. This improved cash flow provided an upturn for the local economy. While there are fewer records of mills changing hands in the fourteenth century, there are records of people taking on large debts. This shows how people were making economic adjustments and investments after not only natural causes of death including the Bubonic Plague, but also the Scottish invasions.

Those invasions diminished wealth around the turn of the fourteenth century. By 1296, Coquetdale was “ravaged” after Scottish forces were afraid to attack Edward’s army in Berwick.²⁷⁹ Attacks of a similar manor should have reduced investments in the area. However, while there are fragments left of the 1313 Subsidy, one must accept the “unlikely view that Northumberland had grown in wealth and population between 1296 and 1313.”²⁸⁰ The attacks did not have an affect in the early part of the fourteenth century. This is represented by the increase in wealth throughout the ward.

After the last outbreak of plague, economic investment should have been limited. However, similar to the other hundreds examined, investments to improve economic situations continued to be made. There were still military operations taking place against the Scots well into the fourteenth century out of Newcastle.²⁸¹ Newcastle would have needed the support of the local farmers to supply materials to the armies that were assembled throughout the end of the

²⁷⁹ Eneas, "Historical events: To 1584."

John Hodgson Hinde, *A History of Northumberland: Part 1*. (Newcastle-Upon-Tyre: Thomas and James Pigg. 1858).

²⁸⁰ Frederick Bradshaw, "The Lay Subsidy Roll of 1296: Northumberland at The End of the Thirteenth Century" <https://archive.org/details/laysubsidyrollof00brad>

²⁸¹ Eneas, "Historical events: To 1584"

thirteenth century and the fourteenth century.²⁸² Coquetdale's location provided an opportunity for local farmers to sell their goods in Newcastle-on-Tyne and it also gave the wealthy an area to invest in the countryside.

Newcastle-on-Tyne played a similar role to that of London, Norwich, and Yarmouth. The ability for wealth to be invested in the wards of Northumberland would have been paramount for economic development. As integral as the other cities were to their counties, Newcastle-on-Tyne provided the income needed for investments, including that of milling. While there were other finances that surpassed this incredible amount in Coquetdale in this case study, there were additional government entities that investigated the worth of property, including mills.

Robert de Clavinger, a knight of Northumberland in Callaley and Yetlington in Whittingham, Coquetdale Ward, acquired an enormous debt. He owed Thomas de Hetton £400 in 1359.²⁸³ The records do not state what property Robert de Clavinger owned or how he was going to pay back this debt. His son Ralph de Clavinger, who was also a knight in Callaley and Yetlington, owed 48 marks in 1374 to Simon de Betchworth of Sussex.²⁸⁴ Both of these towns provided almost £2 a piece to the Lay Subsidy of 1334, which was around the average for the Coquetdale Hundred.²⁸⁵ With each town providing only minimal resources, it would have been difficult for a resident to pay back the debt, especially without owning property that brought income. Milling provided income and those who lacked the resources faced extreme difficulty

²⁸² Eneas, "Historical events: To 1584"

²⁸³ PRO C 241/158/36

²⁸⁴ PRO C 241/156/3

²⁸⁵ Glasscock, *The Lay Subsidy of 1334*, p. 223.

during this time period. This parallels with a similar outcome of the atte Mill family in Middlesex County. The inability to repay their debts became more difficult as the loss of life and falling agricultural prices began to take place.

At Hurworth Manor located in Coquetdale, Henry Tailbois possessed one-third of a mill worth 9s by the time of his death in 1369.²⁸⁶ The drastic loss of life in the area would have made milling more important than before. Although handmills could have been utilized, Tailbois believed that milling was best served by a mill. Keeping the ownership of the mill throughout his life illustrates this belief. Declining population levels should have reduced investments. However, this instance indicates that was not the case. Continuing to control access to labor saving technologies was significant to economic survival of medieval man. The importance of milling throughout Northumberland outshined the loss of life from natural and man-made causes.

In 1246 at Alwenton, “a third part of the park and of 2 water-mills, 3s. 11 1/2d. rent of assize, 3s. 4d. castle ward, 1 1/2 lb. pepper and 1 lb. cummin from three husbandlands” were held by the Earl of Northumberland.²⁸⁷ This was before the attacks along the border or any Malthusian population corrections.²⁸⁸ The county’s population increased from 12,300 in 1086 to 148,084 in 1290.²⁸⁹ Alwenton provided £6 12s for the 1296 Lay Subsidy.²⁹⁰ These monopolies allowed for the upper class to continue to collect rent. The Earl of Northumberland clearly

²⁸⁶ "Parishes: Hurworth," in *A History of the County of Durham: Volume 3*, ed. William Page (London: Victoria County History, 1928), pp. 285-293. *British History Online*, <http://www.british-history.ac.uk/vch/durham/vol3/pp285-293>. Accessed February 22, 2017.

²⁸⁷ Dawes, Devine, Jones and Post. "Inquisitions Post Mortem, Richard II, File 40," in *Calendar of Inquisitions Post Mortem: Volume 16, Richard II*.

²⁸⁸ Karakacili, "English Agrarian Labor Productivity Rates before the Black Death: A Case Study" p. 26.

²⁸⁹ Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence," p. 25.

²⁹⁰ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 175.

viewed milling as a worthwhile economic endeavor during the thirteenth century as he continued to own mills. Alwenton provided £1 7s to the Lay Subsidy of 1334.²⁹¹ Existing mills replaced labor and owning one would bring in much needed revenue after constant border raids.

On July 2nd, 1346, Cecily, late wife of John Fitz Henry, owned a third part of a water mill at Whytingeham (Whittingham). This was worth 2 marks per year. She also owned a third part worth 40s. yearly rent from certain free tenants in Glanton.²⁹² The ability to provide milling to the populace was clearly illustrated as important. Owning part of a mill brought in some wealth for the part-owner, although it did not require the full upfront cost of owning an entire mill. This was seen as economically beneficial. The mill passed to William del Wode to manage the properties at Whittingham until John's heir came of age. Whittingham provided over £1 for the 1334 Lay Subsidy.²⁹³ The town's wealth was slightly above the average for the area and therefore, it could support a mill. As in other counties, milling provided an income for the upper class and replaced lost labor.

In 1369, towards the end of Edward III's reign, Alnwick possessed "two watermills rendering £14 yearly, of which the prior and brethren of the order of St. Mary of Mount Carmel of the house of Holm receive 13*l.* 6*s.* 8*d.* yearly by grant of the lord of Alnewyk."²⁹⁴ These mills were likely on the River Alne. "In 1289, the town and its mills were held at farm by the burgesses for £61 1*s.*"²⁹⁵ These mills provided income as the population was still growing and

²⁹¹ Glasscock, *The Lay Subsidy of 1334*, p. 223.

²⁹² *Calendar of the Close Rolls: EDWARD III. VOL. VI. A.D. 1346-1349.* p. 87.

²⁹³ Glasscock, *The Lay Subsidy of 1334*, p. 223.

²⁹⁴ Dawes and Chapman, "Inquisitions Post Mortem, Edward III, File 202."

²⁹⁵ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 95.

the area provided plenty of wealth for the 1296 Lay Subsidy at £7 3s.²⁹⁶ The mills replaced much needed labor, especially with the population levels for the county regressing back to almost Domesday levels after the raids and Black Death.²⁹⁷ Two watermills in a town that provided £3 to the Lay Subsidy of 1334 further illustrates the importance of the industry. This was the wealthiest town in the Lay Subsidy for Coquetdale.²⁹⁸ Alnwick provides another correlation between the wealth of a town and milling. The amount of money each mill brought to its owners demonstrates that people were willing to pay for its services.

In Chatton, during the middle of the 1300s, while the manor was in ruins, there was still a working “watermill rendering £8. yearly, from which £4. yearly is paid to a chaplain celebrating at Chatton.”²⁹⁹ Before the fourteenth century, Chatton was important as it held courts for complaints in Scotland.³⁰⁰ The mills and farm were worth £68 16s in 1289.³⁰¹ Chatton provided £7 3s to the 1296 Lay Subsidy.³⁰² Over time, the population decrease hit Chatton hard as the manor was in ruins in the latter fourteenth century. While the manor disappearing is astonishing, this was a similar situation where the mill became more valuable as it was needed to provide for the smaller population, offsetting labor. While the manor was not worth an investment, the mill clearly was worth saving and deemed valuable.

²⁹⁶ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 95.

²⁹⁷ Broadberry, Campbell, and Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence,” p. 25.

²⁹⁸ Glasscock, *The Lay Subsidy of 1334*, p. 23.

²⁹⁹ Dawes and Chapman, “Inquisitions Post Mortem, Edward III, File 202.”

³⁰⁰ PRO E 39/100/188/86

³⁰¹ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 151.

³⁰² Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 152.

In the same survey, Rothbury possessed 3 watermills “with the toll and furnage of an oven” and provided a yearly rent of 20s.³⁰³ In 1201, “its burgesses were granted by King John.”³⁰⁴ The area provided only £1 15s for the 1296 Lay Subsidy.³⁰⁵ Rothbury provided £1 for the Lay Subsidy of 1334.³⁰⁶ The ability to replace lost labor and bring in rent every year was a great benefit to the owners. In a town that possessed middling wealth, these mills brought in less money for owners than in other localities. The watermills allowed for Rothbury to weather the population downturn better than other cities that did not own a mill.

Coquetdale Ward illustrates that even with drastic loss of life and constant raids along the county border, people still continued with economic investments. Their ability to provide maintenance for mills throughout the ward was instrumental. Even in areas where the manor had fallen into disrepair, milling was still seen as a worthwhile investment. The experience of Coquetdale Ward relates to the Norfolk Hundreds. The lack of a major commercial center is different from the other hundreds in this study. There were no Norwich, Yarmouth, or London merchants to invest in the local economic scene. The crown only invested in this county and ward when they were needed to supply raw materials (horses, carts, men) for the war effort against Scotland.³⁰⁷ However, Newcastle-upon-Tyne was instrumental in supplying money into the surrounding area even though it did not possess the same amount of wealth as the other counties in this study. The town also provided a market for people to sell their goods. The implementation of the tasks to maintain a war effort became more difficult as there were military

³⁰³ Dawes and Chapman, “Inquisitions Post Mortem, Edward III, File 202.”

³⁰⁴ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 52.

³⁰⁵ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 52.

³⁰⁶ Glasscock, *The Lay Subsidy of 1334*, p. 224.

³⁰⁷ Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, p. 63.

expeditions throughout the fourteenth century. It also made the surrounding area marked for continuous raids as the Scottish viewed Newcastle-upon-Tyne as the central administrative area for invasion.³⁰⁸ This only exacerbated the problem with fewer wards bringing in much needed capital during the 1334 Lay Subsidy because they were closer to the border and further from Newcastle.

Glendale Ward (£48)

Glendale's location is close to the border with Scotland. If there was a ward that experienced the Scottish raids, Glendale would have felt their consequences more than most. The Bubonic Plague destroyed population levels throughout the county, including Glendale Ward. The loss of life and property were difficult to replace and should have left the ward in ruin. However, investments continued to take place throughout the milling industry in Glendale Ward.

In 1369, North Charleton owned several mills. There were also profits from tolls and a weekly market held on Saturday.³⁰⁹ This town brought in £1 to the Lay Subsidy.³¹⁰ The town benefitted from milling and the local weekly market. As transportation improved, markets became more viable throughout the country.³¹¹ During the same inquisition, Lesbury also possessed "a watermill and a halmote."³¹² Both North Charlton and Lesbury provided £1 for the

³⁰⁸ Eneas, "Historical events: To 1584."

³⁰⁹ Dawes and Chapman, "Inquisitions Post Mortem, Edward III, File 202."

³¹⁰ Glasscock, *The Lay Subsidy of 1334*, p. 225.

³¹¹ Britnell, *The Commercialisation of English Society: 1000-1500*, p. 87.

³¹² Dawes and Chapman, "Inquisitions Post Mortem, Edward III, File 202."

1334 Lay Subsidy.³¹³ Both of these towns match the minimum correlated wealth in other towns in Northumberland during the 1334 Lay Subsidy. While some towns were performing well during difficult times, others were facing great difficulty.

There are other areas that also support the threshold £1 of tax supplied to the Lay Subsidy of 1334.³¹⁴ The mill at Mindrum continues to support the required wealth needed to maintain milling. Mindrum possessed £1 2s in the 1334 Lay Subsidy.³¹⁵ The mill was recorded in 1290 and again in 1331.³¹⁶ It was originally erected process the corn grown on the land around the mill. This area provided £1 8s for the 1296 Lay Subsidy, which illustrates a very small decrease for the 1334 Lay Subsidy.³¹⁷ In Lanton, the mill there was fetching 20 marks in rent during 1293.³¹⁸ The area provided £3 4s for the 1296 Lay Subsidy.³¹⁹ In 1318, the manor and mill were being rented out for 40s.³²⁰ For the Lay Subsidy of 1334, Lanton provided £1 to the tax.³²¹ The decrease once again showcases the decreasing population and also the effects of the raids emanating from Scotland. Even with the decrease in overall wealth of the town, the mill still played a part in the local economy. Joan Coupland passed the mill on to her grandson in 1365.³²²

³¹³ Glasscock, *The Lay Subsidy of 1334*, p. 225.

³¹⁴ Glasscock, *The Lay Subsidy of 1334*, p. 225.

³¹⁵ Glasscock, *The Lay Subsidy of 1334*, p. 225.

³¹⁶ Kenneth H. Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford* (Newcastle-Upon-Tyne: Andrew Reed & Company, 1922) pp. 80,84.

³¹⁷ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 123.

³¹⁸ Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, p. 129.

³¹⁹ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 118.

³²⁰ Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, p. 129.

³²¹ Glasscock, *The Lay Subsidy of 1334*, p. 225.

³²² Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, p. 136.

The manor was rented out for £10 in 1376.³²³ David Baxter provided services to the mill including carrying millstones and “homage, fealty, and scutage” in exchange for two acres of land.³²⁴ Purchasing millstones shows economic investment, even though the best millstone that one could afford in an area that only provided £1 to the 1334 Lay Subsidy would have been of low quality.³²⁵ Installing one required knowledge that might have been difficult to replicate with the drastically declining population by the end of the fourteenth century.

Kilham brought in £1 17 for the 1296 Lay Subsidy and £1 2s for the 1334 Lay Subsidy.³²⁶ There was a mill located in the area, and by 1290 investment was split into fourths.³²⁷ Dividing investments into fourths spreads out the cost of owning the mill but still allowed for the owners to earn some profit. With technology that was fairly expensive to maintain, this economic partnership not only spread out costs but also profit as well.

The water mill located at Wooler brought in £5 per year in the mid-thirteenth century.³²⁸ For the 1296 Lay Subsidy, the town provided £12 6s.³²⁹ The wealthiest town in the 1334 Lay Subsidy was Wooler which paid £2 10s.³³⁰ This mill also sold ownership, dividing it into thirds,

³²³ Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, p. 137.

³²⁴ Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, p. 144.

³²⁵ Farmer, “Millstones for Medieval Manors” pp. 97-111.

³²⁶ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 123.

Glasscock, *The Lay Subsidy of 1334*, p. 225.

³²⁷ Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, pp. 160-161.

³²⁸ Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, p. 310.

³²⁹ Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 39.

³³⁰ Glasscock, *The Lay Subsidy of 1334*, p. 224.

thus spreading the costs after the drastic decrease in wealth.³³¹ Unfortunately, half of the mill was destroyed by the Scotts in 1399, which showcases how raiding disrupted economic endeavors.³³²

In Longhoughton, “the manor is in ruins and waste.”³³³ The Black Death caused massive loss of life throughout the county and towns were decimated. This is similar to Britnell’s findings.³³⁴ Although the loss of life occurred, there were still “two watermills and halmotes” in Longhoughton.³³⁵ This adaption also occurred in Chatton in Coquetdale. The manor itself was deserted but the watermills were still in use. As in other areas of Northumberland, it is difficult to ascertain whether the manor was in ruins because of the Scottish raids, people leaving the area, or perhaps both. What is important is that in Coquetdale and Glendale, both wards provided instances in which people were interested in saving the mills that were erected in the area. The manors were left abandoned although people still utilized the labor-saving technology in milling.

In 1296, Akeld was a well-to-do town bringing in £4 16s.³³⁶ The constant invasions from Scotland created opportunities for people to seize land in a desirable area of Glendale Ward.

“Prendergast was restored to the lands taken from him on account of the war with Scotland in

³³¹ Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, p. 310.

³³² Vickers, *A History of Northumberland: Volume XL The Parishes of Carham, Branxton, Kirknewton, Wooler, and Ford*, p. 315.

³³³ Dawes and Chapman, “Inquisitions Post Mortem, Edward III, File 202.”

³³⁴ Britnell, *The Commercialisation of English Society: 1000-1500*, p. 159.

³³⁵ Dawes and Chapman, “Inquisitions Post Mortem, Edward III, File 202.”

³³⁶ Frederick Bradshaw, “The Lay Subsidy Roll of 1296: Northumberland at The End of the Thirteenth Century” <https://archive.org/details/laysubsidyrollof00brad>
Fraser, *The Northumberland Lay Subsidy Roll of 1296*, p. 128.

May 1330.”³³⁷ The inquest began in 1318. The constant war with Scotland should have slowed down the inquest in an area that was near the raids. Akeld was a good piece of land to own before Scottish raids, because the records indicate that it must have been a desirable area based on Prendergast legally inquiring about the area and the 1334 Lay Subsidy which brought in over £1 to the tax collection. Akeld illustrates medieval people investing capital back into their land and making the necessary adjustment to continue their economic improvement. Akeld provided one of the limited new investments in milling. In the 1369 investigations, there was “the site of a manor, a windmill, a park with deer, and a court called ‘halmote.’”³³⁸ The site of the windmill shows ingenuity even in an area that had seen loss of life from disease and warfare. Towards the end of the fourteenth century, the area was owned by the Earl of Northumberland. In 1404, it was given back to Richard Arundell by the king.³³⁹ This was one of the few records that indicate economic royal involvement. Akeld still brought in wealth throughout the century. Arundell gained rents from the manor itself, including the windmill residing there.

Glendale, while worth less than any other area in this study, still possessed milling. Glendale Ward even added windmills during the loss of life from warfare and then disease. Their ability to continue to invest in themselves and their property improved their economic situations. The milling sites available in Glendale provided the people an opportunity for investments. Longhoughton Manor was abandoned and left vacant but the mill operating there

³³⁷ PRO SC 8/220/10953

³³⁸ Dawes and Chapman, "Inquisitions Post Mortem, Edward III, File 202."

³³⁹ PRO SC 8/186/9294

continued to thrive after the loss of life. This is another indication of the ingenuity of medieval man throughout England.

Conclusion

Northumberland's loss of lives over almost a century was astounding as the county lost almost 80% of its population.³⁴⁰ Manors fell into disrepair throughout the county. Also, at the turn of the fourteenth century, "Northumberland was in the greatest danger from the Scots."³⁴¹ The Scottish invasions affected people who lived in Coquetdale and Glendale directly. These incursions continued throughout the fourteenth century. Those who survived the raids were continually asked to provide capital, weapons, and soldiers for "Edward's continuing demands to sustain the English war effort" against the Scots.³⁴² These supplies were usually housed in Newcastle-upon-Tyne, which would have drawn Scottish raids toward Coquetdale. Glendale was located on the Scottish border which was further away from Newcastle-upon-Tyne and protective military forces. This continued throughout all three reigns of the Edwards during the end of the thirteenth and the entirety of the fourteenth century.³⁴³ The money provided by the locals was not spent towards economic improvement but sustaining Edward I's military expansions and defenses.

The invasions from Scotland's armies directly affected the local economy. Moreover, the loss of life from the Bubonic Plague that decimated communities also had an impact on the local

³⁴⁰ Broadberry, Campbell, and Leeuwen, "English Medieval Population: Reconciling Time Series and Cross Sectional Evidence," p. 25.

³⁴¹ Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, p. 75.

³⁴² Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, p. 151.

³⁴³ Eneas, "Historical events: To 1584."

economy. However, milling continued to be implemented throughout both Coquetdale and Glendale. Although Chatton and Longhoughton manors were both in ruinous states, the mills that were erected continued to be used. Northumberland indicates that even in dire situations the population of the 1300s needed to replace lost labor. Northumberland's experience lasted more than one month. Although both areas were affected by armed conflict, each continued to invest in milling.

Harnessing the power of nature was crucial in Northumberland's development. Streams available for milling were indispensable to the local economy. The River Coquet provided enough power to supply milling enterprises. In areas where rivers were not adequate, windmills were erected throughout the wards. This is similar to the other hundreds in this study. Windmills were not as predictable as watermills. The lack of predictability did not allow for windmills to replace watermills but to supplement them as seen in both Middlesex and Norfolk.³⁴⁴ This was medieval economic ingenuity by adapting to their situations. The Lay Subsidy indicates that if a town supplied at least £1 to the collection, they could afford erecting and maintaining a mill.

| Hundreds | Before 1086 | Before 1300 | Before 1330 | Before 1400 |
|-------------------|--------------------|--------------------|--------------------|--------------------|
| Coquetdale | 0 | 2 | 1 | 2 |
| Glendale | 0 | 3 | 1 | 4 |

Figure 13: Addition of Mills in Northumberland

³⁴⁴ Holt, *The Mills of Medieval England*, p. 34.

Large sums of money were also loaned in these wards. Most creditors came from the local area. Rarely were people in London involved in loaning money to Northumberland. The records indicate that the crown paid for supplies to defend the border; however, several of the nobility who wanted to “take up royal office required a significant private income if they were to have any chance of fulfilling their duties.”³⁴⁵ The requirement to provide one’s own income to further the war effort in Scotland was detrimental to the economy. These funds were not spent toward furthering economic endeavors. This capital could have been instrumental in helping the wards provide for lost labor after the Black Death. The drastic loss of life caused by these events affected economic decisions for the people who survived. This highlights the importance of Newcastle-upon-Tyne. The city was used as a staging area for the Scottish conflicts, however it was also the economic center for the Northumberland.

Northumberland experienced similar results as Middlesex and Norfolk counties in the study. The biggest variable that altered the economic outlook of an area was the outbreak of the Bubonic Plague. This is accurate for all three counties. The enormous loss of life required areas of the agricultural economy to adjust by continuing to use mills to help offset the loss of labor. These modifications were seen throughout England in the wake of the Bubonic Plague.³⁴⁶ Many markets began during the twelfth century and fairs were added in the thirteenth while population levels were still rising.³⁴⁷ However, there were exceptions. The town of Whittingham added both a market and fair in 1361 in Glendale Ward after outbreaks of Bubonic

³⁴⁵ Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, p. 75.

³⁴⁶ Stone. *Decision Making in Medieval Agriculture*, pp. 47-48.

³⁴⁷ "Northumberland," in *Gazetteer of Markets and Fairs in England and Wales To 1516*, ed. Samantha Letters (Kew: List and Index Society, 2005), *British History Online*, <http://www.british-history.ac.uk/list-index-soc/markets-fairs-gazetteer-to-1516/northumberland>. Accessed March 24, 2017.

Plague. This indicates the changing economic situation even though population was declining; enough goods were still being sold enough to increase the number of markets and fairs after the outbreak of the Bubonic Plague. These new markets benefitted mills by providing access to new buyers. Milling was still an integral part of the medieval England's agricultural society in Northumberland.

CHAPTER 5: CONCLUSION

The geography of Middlesex, Norfolk, and Northumberland varied greatly. While Middlesex had sea access through the River Thames, Norfolk and Northumberland bordered the North Sea. Middlesex's geographic location benefitted the local merchants of finished products and those that supplied raw materials. "The incentives for participation in the trade were powerful- in the 1330s, wool sold for twice as much in Flanders as in England, and even with the high rates of taxation and the costs of collection and export, profit margins were high."³⁴⁸ Middlesex was aided by London's ability to bring in foreign money from traders and merchants. Norfolk and Northumberland benefitted in the increase of exporting agricultural goods. From 1300 to 1305 exports in sacks of wool increased.³⁴⁹ They also grew again after 1350, once the Bubonic Plague outbreaks ended.³⁵⁰ The expanded output of goods benefitted not only the sheep herders in both Norfolk and Northumberland, but also the mercers in London. The exchange of wool shows "urban merchants in their forays into the countryside."³⁵¹

The cities in Middlesex and Norfolk advanced the economy in their surrounding areas. London's wealth was consistently used for investments in both Spelthorne and Elthorne. Several sources "suggest that London's routine trading network in the fourteenth century extended to a distance of about 100 miles from the city," the radius that Masschaele projects would almost include Norwich in London's hinterlands.³⁵² "By the early fourteenth century Norwich had

³⁴⁸ James Masschaele, *Peasants, Merchants, and Markets: Inland Trade in Medieval England, 1150-1350* (New York: St. Martin's Press, 1997) p. 137.

³⁴⁹ Mate, "High Prices in Early Fourteenth-Century England: Causes and Consequences" p. 2.

³⁵⁰ Sutton, *The Mercery of London: Trade, Goods and People, 1130-1578*, p. 99.

³⁵¹ Masschaele, *Peasants, Merchants, and Markets: Inland Trade in Medieval England, 1150-1350*, p. 136.

³⁵² Masschaele, *Peasants, Merchants, and Markets: Inland Trade in Medieval England, 1150-1350*, p. 120.

become possibly the leading English provincial city, with a population of perhaps 18,000, whilst Yarmouth was at the zenith of its prosperity as a mercantile-and naval port and may have had a population of about 11,000.”³⁵³ These three cities provided the market for local merchants and farmers who were in the surrounding area. The cities’ wealth flowed throughout their hinterlands. These “local markets were certainly capable of handling a great variety of goods and services” but goods that dealt in food reigned supreme.³⁵⁴

Northumberland’s access to Newcastle-Upon-Tyne did not house as much wealth for Coquetdale and Glendale. However, Edward I’s constant investment in the recently acquired Scottish territory provided the area with income from the crown. The army also depended on the local populace for goods and manpower. The logistics of the operation called for “the transference of all goods” to the Northumberland and this “rarely went smoothly and certainly not smoothly enough for Edward himself.”³⁵⁵ The influx of men and the crown’s money brought new wealth to the county. Even during the Scottish raids and after the Black Death, mills were still in use in the region. The milling industry remained in Northumberland during the rest of the century, even throughout the population decrease.

These Middlesex, Norfolk, and Northumberland case studies support the adaptation and ingenuity of medieval man. The early 1300s began with a large population throughout the country.³⁵⁶ England experienced an abundance of available labor. The number of mills grew as

³⁵³ Campbell, “Agricultural Progress in Medieval England: Some Evidence from Eastern Norfolk” p. 28.

³⁵⁴ Kowaleski, *Local Markets and Regional Trade in Medieval Exeter*, pp. 174-175.

³⁵⁵ Watson, *Under the Hammer: Edward I and Scotland 1286-1306*, p. 63.

³⁵⁶ Broadberry, Campbell, and Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence,” p. 25.

they were needed for grinding flour. Norfolk was providing large areas with grain.³⁵⁷ The numbers of markets and fairs were increasing in the early part of the century.³⁵⁸ The increase in competition and the agricultural problems early in the 1300s “possibly encouraged lords to become proactive as producers, processors and investors. They themselves engaged in agricultural production, preferring to manage rather than lease their demesnes.”³⁵⁹ The population had grown until the country reached around 4.75 million in 1290 and then took a sharp downturn as the Great Famine and Bubonic Plague ravaged through the country.³⁶⁰ Northumberland, which is one of “the northern counties, which had shown the fastest growth between 1086 and 1290, displayed the greatest rate of decline between 1290 and 1377.”³⁶¹

There were other events that destroyed harvests such as those caused by exceptionally wet, weather, “widespread famine, livestock epidemics and a retreat of cultivation in an over-populated economy.”³⁶² The modifications applied throughout England were in reaction to the loss of life. The economic adaptations provided relief to a strained population. Trade should have diminished along the same rate as population. Mills, therefore, also should have decreased in a similar manner. However, commerce increased faster than the population in areas of England.³⁶³ As this study has shown, people were extracting loans and maintaining mills in the

³⁵⁷ Campbell, “Agricultural Progress in Medieval England: Some Evidence from Eastern Norfolk,” p. 28.

³⁵⁸ Campbell, “The Agrarian Problem in the Early Fourteenth Century,” p. 44.

³⁵⁹ Campbell, “The Agrarian Problem in the Early Fourteenth Century,” p. 44.

³⁶⁰ Broadberry, Campbell, and Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence,” p. 22.

³⁶¹ Broadberry, Campbell, and Leeuwen, “English Medieval Population: Reconciling Time Series and Cross Sectional Evidence,” p. 14.

³⁶² Stephenson, “Wool Yields in the Medieval Economy,” p. 382.

Britnell, *The Commercialisation of English Society: 1000-1500*, p. 184.

hundreds and wards. The continued investigations into milling property highlights the interest from local creditors.

The experience of hundreds chosen in Middlesex, Norfolk, and Northumberland illustrates similar findings of increased commerce. While the decrease in population was catastrophic and presented social turmoil, the surviving population continued to make economic adjustments. Stone has shown that the decrease in agricultural production at Wysbeth during the 1300s was not by soil exhaustion but by personal choice.³⁶⁴ During the latter part of the century people found work: “wage levels rose, and families were able to buy more food.”³⁶⁵ The economy and the people evolved using the technology of mills as one answer. While milling was no longer guaranteed to fetch the profits of in the early fourteenth century, the industry was still coveted as creditors still investigated the worth of milling in all three counties.³⁶⁶ The number of mills did not decrease at the same rate as the population after the last outbreak of plague. This illustrates that the surviving population was now “starved for labor rather than food.”³⁶⁷ This case study continues to support this statement. Milling represented an industry of innovation. Mill numbers fell around 10% from the beginning of the century until 1370, a much lower percentage than the population throughout the country.³⁶⁸ For the survivors, milling still provided necessary labor and finished products.

³⁶⁴ Stone, *Decision Making in Medieval Agriculture*, pp. 45-46.

³⁶⁵ Britnell, *Growth & Decline in Colchester, 1300-1525*, p. 1.

³⁶⁶ Holt, *The Mills of Medieval England*, p. 159.

³⁶⁷ Langdon, *Mills in the Medieval Economy*, pp. 39-40.

³⁶⁸ Langdon, *Mills in the Medieval Economy*, pp. 27-28.

Middlesex, Norfolk, and Northumberland all possessed streams that provided ample opportunities to erect mills. All three counties also possessed windmills or horse mills where watermills could not be established.³⁶⁹ The wind and horse mills were not as efficient as the watermill. However, these adaptations brought milling into areas where they were lacking. These additional mills provided opportunities for those in their region. The investments brought back profits for the owners. The mills continued to be a much-desired commodity. It signaled wealth and power for the nobility as well. The use of mechanical wheels was implemented throughout England for fulling cloth and grinding grains into meal.³⁷⁰ Although it was not the start of a medieval industrial revolution, milling does represent economic adjustments of medieval people.³⁷¹

³⁶⁹ Holt, *The Mills of Medieval England*, p. 166.

³⁷⁰ Holt, *The Mills of Medieval England*, p. 146.

³⁷¹ White, *Medieval Technology and Social Change*, pp. 83-4.

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