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THE NAVIGATION OF THE RIVER LEE (1190 – 1790)

PREFACE

As the men of the river frequently pointed out the Lee is one of the "great rivers of the realm", and it is only fitting that its history should be traced; indeed it is surprising that the task has not been carried out far earlier than this. Regretfully the story of its busiest period in the days of post-canalisation has had to be left to another, later Occasional Paper.

The spelling of the name of the river has varied over the centuries. In 1190 it was referred to as "the water of Lin", in the fourteenth century as "La Leye", the cartographer Saxton seems to have been the first to introduce "Lea" to map-makers in 1576, in the eighteenth century it was not infrequently called the "Ware River" but the commonest spelling would seem to be "Lee" and it is to this which we have decided to adhere.

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THE NAVIGATION OF THE RIVER LEE (1190 - 1790)

"I truly treate that men may note and see
What blessings Navigable Rivers bee."¹

The river Lee rises in Leagrave Marsh about three miles north-west of Luton, and meandering for seventy miles with a fall of 300 feet, joins the Thames at Blackwall. Its catchment area embraces some 547 square miles and there are twelve considerable tributaries. Below Luton the river passes into Luton Hoo park opening into two large lakes.² At the Town Mill, Hertford the navigation begins, running south east through Ware, Stansted Abbots, Homerton, Hackney, Old Ford, Bow and Bromley. It flows into the Thames at Limehouse Lock and also by way of Bow Creek at Blackwall. The navigation is 27¾ miles long with a fall of 109 feet 3 inches and has 19 locks.³

The Romans were familiar with the district though there is no direct evidence that they used the river for traffic. The first documentary evidence for use of the river occurs in the Anglo-Saxon Chronicle. It relates that early in the winter of 894 the Danes of Mersea rowed their ships up the Thames and the Lee, and in the following year built a fortress twenty miles above London. The English attacked but were put to flight with loss of life; in the autumn Alfred camped nearby in order to safeguard the corn harvest, at the same time denying it to the Danes. It was then he conceived the idea of obstructing the Lee so preventing the Danes from retreating with their boats.

Alfred started to build two forts either side of the river but before he had progressed far the Danes sent their women to safety in East Anglia, abandoned their stronghold and ships and marched overland to Bridgenorth. Other details of the incident are later additions. Florence of Worcester implies that the river had been constricted by piers or dams and it was that other Norman writer, Henry of Huntingdon, who was the first to state that Alfred "*caused the water of the Lee to divide into three branches, so that the Danes were unable to bring out their ships.*" Admittedly, at both Stratford and Waltham, the river divides into a number of streams but this is a natural phenomenon. The Danish fort must almost certainly have been built within the Danelaw, of which the Lee formed its south west boundary, so that they were well within their rights but Alfred's activities may be seen as an effort to set up a demilitarised zone and also to discourage new Danish colonisation so near to London.⁴

In 1190 William de Longchamps, Justiciar of England, granted a licence to the abbot of Waltham "*to turn the course of the water of Lin in the town of Waltham as he wishes, without harm to anyone, and .for the convenience of navigation.*"⁵ In the time of Edward I the king ordered the sheriff of Essex to repair the walls and ditches of the marshes of

West Ham, and in the sixth year of the reign of the next Edward a plea was made for the "*repairing of the bridges over the river at Stratford, Bow and the causeways leading thereto.*" Matilda the queen of Henry I is said to have built the first Bow bridge. From the time of the grant there was endless trouble on the river especially around Hertford and Ware.

The Lady of Ware and her bailiffs were accused of neglecting the weirs, even of altering them in such a way that boats were unable to pass, to the great annoyance of the people of Hertford. A truce was arranged in 1207 between the Lady of Ware and the Hertford bailiffs which allowed the tolls of all boats loaded at Ware to be divided between them.⁶ This was by no means the end of the matter and wrangling continued. The lord of the manor of Ware in 1275 was again accused of intercepting the shipping as he had erected a weir between Ware and Hertford. Twenty five years later a commission was appointed to remove obstructions caused by boatmen placing their vessels across the river.⁷

In the Middle Ages sea fish were eaten only by those who lived near the sea because of the difficulties of transport and so fresh-water fish were an important part of the diet. In all rivers, whether large or small, fish weirs usually made of stakes with nets or basket-work were placed across the current. The Domesday book records that Enfield's fisheries yielded eight shillings income. These fisheries could cause great problems to the river navigators. At an inquisition held at Waltham Holy Cross in the fourteenth century it was noted that William Mannyng of Chingford, fisherman had placed in ten places in the course of the river piles and hurdles for the catching of fish, and that there were two "*aylonds*" in his fishery. The fishery of the abbot of Waltham was also causing trouble is a new '*aylond*' and four new '*shelpis*' had formed, there was as well a great breach "*to the hindrance of the watercourse*".⁸ Although the importance of fish declined after the mediaeval period a fishery was still a desirable asset. Henry VIII in 1541 leased to Richard Johnson of Walthamstow the manor of Salisbury Hall and "*a fishery with the profits of the osiers in the water of Lee from Hangers Bone to 'lee fletemouthe*"⁹ whilst in 1539 Richard Parker, a tanner, and his wife were granted three water mills in the parish of West Ham adjoining the bridge called le Tornebridge, a barn and a '*fysshhouse*' in the parish of Bramley Mydd with "*a fishery from the mouth of the river Lee in the river Thames to the bridge at Stratford at Bowe*".¹⁰

Mills were at least as great if not greater problem. Every stream had its mills, most commonly for grinding corn but also for fulling cloth, or in more highly industrialised areas than the Lee for tilt-hammers and for operating the bellows of blast furnaces. An artificial cut was made from the river to bring the water to a water-wheel, and in an effort to ensure an adequate supply of water at all times, the mill owner usually built a weir across the river to hold back the water and form what amounted to an artificial reservoir. The centre of the weir was made of planks held in place by beams, which could in theory be removed when a boat needed to pass, in practice the miller was reluctant to remove the barrier and so lose his precious water, especially in times of drought. Rather than planks some weirs had a single pair of swinging gates or one vertical one; they were known as staunches or flash-locks.

Weirs obviously constituted a barrier to free navigation but they could also confer benefits. In its natural state a river passes through alternate shallow rapids and deep quiet pools in high summer these shallows provide insufficient water to float a barge. It is just at these places that mills were usually built because they gave the sharp fall necessary for the working of the wheels. The mill weir which held back the water and forced it into the leat leading to the wheel also deepened the water upstream for some distance which was helpful to navigation. When a barge approached from below, if the miller felt so inclined he could open the weir and let a rush of water through sufficient to float the boat over the shallows. This was termed a "shoot" or "flash" for which the watermen paid the miller a fee.

It is not surprising that a continuous war was fought between the fishery owners and millers, and the watermen who required an unimpeded passage. River ports such as York and Doncaster were constantly complaining to Parliament about weirs and other obstructions. In 1351 Edward III resolved on a strong measure and passed an Act for the removal of all such obstructions which had been placed in rivers since the time of Edward I. Possibly this had little effect as twenty years later Parliament imposed the stiff fine of 100 marks or £66. This must have been effective because it is noticeable that later, complaints usually refer to constructions erected before Edward I. Justices of the Peace were told in 1398 to ensure that freeholders removed all such weirs within six months of being notified, again upon penalty of a 100 marks, and these measures were backed up by Acts in 1399, 1402 and 1413. Nevertheless complaints were still received that the law was ineffectually executed especially in the south-east.¹¹

Mills were recorded in the Domesday survey of 1088; as the windmill did not appear in this country until the thirteenth century they must all have been watermills. The lord of the manor was able to claim "mill-soke" and insist that all corn grown within the manor was ground at the manorial mill. This monopoly with an assured income from all cereals grown and ground within the manor, resulted in almost every community having at least one corn mill. The tolls, or proportion of the meal taken by the miller who rented the mill, varied from manor to manor and with the cereal ground.¹²

The water mills were in later centuries adapted for other industrial purposes such as fulling and a number are to be found up and down the valley. Just about the time John Gedeney was erecting his new fulling mill at Tottenham in the mid-fourteenth century an inquisition was held at Waltham Holy Cross to enquire into the obstructions in the river Lee and diversions of its water. They discovered that Sir John de Pulteney "*held from ancient times a fuller's water mill called Algodesmelle in Stebenheth (Stephney); for want of water it was abandoned but afterwards he restored it and made a trench from La Leye to it, whereby the watercourse of I.a Leye was deteriorated.*" At another investigation, this time held at Stratford att Bowe, it was noted that the "*flood to the mill called Algodesmelle*" caused a very great diminution of the river. The mill of the prior of St. Bartholomew's of West Smithfield was proving equally troublesome. A lock leading to the mill at le Eldesford (Oldford) was too narrow by 1½ feet and the threshold of the lock was too high by 1½ feet for the convenient passage of boats, furthermore the lock should

have been open from the feast of the Annunciation to that of St. Peter's Chains, as was the custom of ancient times.

The upper reaches were in no better case. The Abbot of Waltham's mill at Nazeing had just had a ditch newly made from La Leye which had caused a breach and allowed the river to escape; his mill at Stansted was so dilapidated that the Lee's water could not be arrested so that boats were unable to pass. The '*dammouth*' of Cheshunt mill belonging to Sir John Bray was wider than it used to be by sixteen feet, whilst ditches called '*melledams*' had been dug from the Lee to their mills at Chingford and Tottenham by Sir John Avenel and the lords of Tottenham.¹⁰

Fisheries and mills were not the only impediments to a free navigation, The Prior of the hospital had made "*a new bridge over la Hegh Legh with 12 piles under it, in consequence whereof there is a sandbed in mid stream to the nuisance of ships.*" Sandbanks formed only too readily in this shifting meandering river without any assistance from man, and yet artificial '*aylonds*' were often made as they were useful in fishing and the growth of osiers. The abbot of Waltham was accused of planting an '*aylond*' in midstream, as was Sir John le Fiz Walter at Reydon.

In spite of these recurrent problems the Lee formed one of the main routes into London and there is abundant evidence of trade on the river in the thirteenth and fourteenth centuries, chiefly corn and malt. Two Acts were passed in the reign of Henry VI to deal with the obstructions. The Act of 1424 gave the Chancellor of England power to enquire into and amend the "*defaults*" of the river caused by weirs, mills, stakes and kiddles.¹³ The Act of six years later empowered commissioners to deal with the "*shelvs within the River of Ley*" which were preventing the passage of boats. They were given authority to borrow money if necessary and for three years to take a toll of 4d. on every freighted boat passing. This is the first known instance of money having been borrowed for such public work, and for tolls to be charged in order to re-pay the debt.¹⁴ Fifty years later, at the very end of Edward IV's reign, a jury gave detailed directions for the removal of "*shelpis*" and the cutting down of trees along the banks in order to free the navigation from impediments.¹⁵

How complicated were the interlocking waterways of the Lee, both natural and artificial, can be seen by an investigation in 1432, In the preamble it is pointed out that since the time of Henry III a stream called Colkyngfareway had led from "*the water called Leye which leads from the bridge at Ware to the water of Thames*" to the dam of two watermills called St. Thomas' Mills in West Ham, but in the previous year on the 10, 11 and 12 May John Bunting, baker and John Hegeman, fisher, both of Stratford atte Bowe had with spades and mattocks dug a trench of three perches length and six feet breadth in the town of Oldford from the Colkyngfareway to the dam of the mills at Stratford of Thomas Beautitz which were called Landesmylles or Lynnesmylles. This had the effect of altering both the depth and course of the Lee so that ships, boats and '*showtes*' were unable to pass. The justices responsible for the overseeing of the Lee decreed that Hegeman should be fined half a mark and that he should "*cast down and utterly dam up*"

the ditch at his own expense. Bunting had attempted to flee and so when apprehended was cast into prison.¹⁶

Hunt had suggested that in early Tudor times corn and malt leaving Ware for London were carried by road as far as Enfield before being loaded onto barges¹⁷ but this is scarcely confirmed by inquisitions held at Waltham Holy Cross in 1512 and depositions taken at Bow Bridge in 1550.¹⁸ In 1571 the Lee was once more the subject of an Act of parliament.

The Lee (or the Ware River as it was also called) was to be brought to the northern side of the City of London by making a cut out of the river at a suitable place. The City was authorised to lay out ground, not exceeding 160 feet in width, for which reasonable compensation was to be paid, and it was to be vested in the City's representatives. Furthermore the City was to have the conservancy of the newly cut river, was required to repair any breaches and was to have the authority to punish transgressors. The work was to be finished in ten years at the expense of the counties of Middlesex, Essex and Hertford. There was to be free passage through the new cut and the old river, which was to be cleaned.¹⁹ This progressive Act, which was the first to be brought either for the straightening of a river or for its partial deviation by making new cuts,²⁰ was the result of more than ten years work. On 8 August 1560 Mr, Alderman Lodge, Richard Spryngham, mercer, John Dymock and Thomas Wheler, draper, were appointed to view the river Lee in a week's time as far as Ware and "*upward to the head of the River and to consider whether that it may be so cleansed that barges and other vessels may pas there upon, into this City with fuel, corn, hay and other necessaries out of those parts, or not.*" They reported back on 29 August that they thought the river could be so ordered that barges could pass "*from thence unto the town of Ware and hither again with the commodities of these parts.*" They had been accompanied by two Dutchmen Garrett Honrighe and Adryan Timberman who had carried out a survey.²¹

This same year Lord Burghley drew a rough sketch plan of the lower reaches of the river, the six miles from Lock Bridge in Hackney to Bow Creek on a scale of about two inches to a mile. It shows that the Lee divided just upstream from the mouth, one arm being crossed by a high bridge at Bow and the other by a ford near Stratford. The two branches united for a space but soon diverged again near Stepney Bridge and Lock Bridge, which was said to be highest point at which the river was affected by the tide.²² Six years later the project was again under consideration and on 15 April, Lodge, now Sir Thomas, was asked if the two strangers born had written anything down of their findings.²³

The improving of a river for navigation is not just a question of scouring it. A frequent improvement and one of the simplest is to dig a "cut" or short canal to by-pass the worst of the meanders or shallows. This results in an artificial island and can cause controversies as to which is the river as occurred at Waltham Abbey. Another useful work is to trim and slope the river banks so that the banks are not undercut with resulting falls of earth. At particularly vulnerable points the bank should be strengthened by driving in wooden piles below the water-line and ramming flat stones into the slope, but this can prove prohibitively expensive. To allow the higher reaches to be really

effectively navigated then a true lock or pound lock is necessary. The installation of such a lock on a river is not so simple as on a canal. Unless the head of water is very small it is not possible to build a lock across the main stream but has to be built in a newly made cut dug out from the main channel; to ensure sufficient water for the operation of the lock a weir or dam is placed across the original bed of the river.²⁴

The earliest recorded pound locks in England were on the Exeter Canal, a short cut beside the river Exe, built 1564-7 by John Trew of Glamorgan, who received a fee of £200 and was granted the tolls. A weir was built across the Exe to divert water into the cut at its upstream end and there three pound locks with basins large enough to pass several boats at one locking were made. The locks had twin mitre gates of modern type at the upper end but the lower gates were single ones. The next pound lock to be built was at Waltham Abbey in about 1577 and it had two sets of mitre gates, which set the pattern for future locks.²⁵ Such locks effected an enormous economy of water compared with the older flash locks and were certainly to the great advantage of the millers as well as being much less dangerous for the boatmen.

This was a major engineering undertaking and it can be seen why ten years and £80,000 were allocated to the project,²⁶ Whether or not new cuts were actually made after the 1571 Act is controversial. Mr. Corble, the clerk to the Lee Conservancy Board in 1894, did not believe that any were dug but that improvements were confined to cleaning the old river and containing it within embankments in certain parts of the marshes. On the other hand G.B.G. Bull seems to be of the opinion that a new cut was constructed.²⁷ Certainly the idea of bringing a part of the Lee to London was not immediately given up. On 12 May 1572 it was ordered that Mr. Chamberlyn, "*taking with him Mr. Bates the Bridgemaster and others whom he shall think mete shall go with Anthony Trapper, stranger, to view and survey the river of Lee along to the four mills of Stratford afore the next court to report what opinion Anthony is of touching... the conveyance of the river of Lee to the City of London and touching the lock at the said four mills.*"²⁸

The work on the Lee did not by any means meet with everybody's approval. First to be aggrieved were those who held land on either side of the river for they bore most of the costs involved, loss of income from fisheries and osier beds, to say nothing of the impoverishment of their rich water meadows as a result of the flood control.²⁹ The men who most strenuously opposed the increase in barge traffic were men such as the London corn merchants, who at an earlier date had erected a granary at Thele (now Stanstead St. Margarets), and the Enfield maltmen and badgers, or the mealmen from further up the river. For many years these maltmen and mealmen had controlled the road traffic in corn and malt entering London from the north, and had become rich. They were quick to realise that their comfortable livelihood was in jeopardy.

A Bill of Complaint was sent in 1580 by the carriers and loaders of grain by land to London. Lord Burghley answered them very fully leaving no doubt that he believed the navigation to be beneficial. First of all he pointed out that whatever might have been said the Bill had in actual fact come only from the people of Enfield and Cheshunt. He then went on to write that the carriers had no cause to say they were "*utterly decayed by the*

transportation of grain by the river of Lee, for they have ... liberty to carry grain or any other thing by land or water at their own pleasure." He then waxed sarcastic, "but it is supposed this speech of utter decay is not meant to be of the poor loaders or carriers which only carry grain for hire by the load, but rather of certain rich loaders and badgers that buy and sell grain, because before the passage by water, they could rule the markets at London and in the county, and now cannot do so, by reason that their grain and the grain brought by water meeting together at London do often glut the market, whereby they are driven many times to sell better cheap than they would."

The complainants had alleged that river trade was in the hands of a few wealthy men but Burghley showed this not to be entirely true. There were 22 owners of barges and boats, 3 were of Hertford, 6 of Ware, 1 of Braughing, 2 of Stanstead, 2 of Broxbourn, 3 of Waltham, 3 of London and 2 of Enfield; between them they employed a hundred men who were able *"to do better service to the Queen and the realm by sea or by land than any two hundred that drive malt horses."* To further demolish their argument he wrote that the economy effected by river transport was not to the advantage of just four or five London brewers but to all of them, and what was equally important, *"to all those of London who wished to send anything by water to Stanstead, Ware or Hertford ... and by this all the smiths and eight or nine mills beyond do daily save in their coals and iron."*³⁰ The land carriers had also maintained that as a result of the malpractice of these few brewers the ale and beer were weaker than formerly, the Lord Treasurer flatly denied this, saying that they were stronger than ever before.

He used the old argument that horses were not cheap to keep and in any case it was better to use their fodder for sheep, kine and hogs, and *"the corn the horses did eat is (now) counted unto corn for man's eating."* Furthermore, *"the highway is not so much pestered to the disturbance of the Queen's posts and the travellers as it was."*

Burghley totally disagreed that the tillage in the country was ruined because its produce could be sold just as easily as before, in fact the reverse was the case as the husbandmen could buy plough horses more cheaply when they were in less demand for carriage purposes. He told the carriers that *"Her Majesty was not anything hindered in her subsidies or other taxes"* even though they claimed they were not able to pay what was levied on them, nor was he able to perceive how the towns of Enfield and Cheshunt *"shall be unable, by this passage of water, to set forth as many able men in Her Majesty's service as heretofore."*

The only point he conceded was that the making of the navigation had been a charge on them but it had lain heavier on others than the towns of Enfield and Cheshunt, and in any case it would have long continued in a good state if only they had not *"disorderly destroyed it."*³¹

Every point that Burghly had made was substantiated by a London baker, only in more vehement language. He testified that he had heard that only Enfield and Cheshunt had less horses than formerly, and that Cambridge, Middlesex, Bedford and Essex transported as much meal and malt by water to the City with the same men but now they saved the expense of the horses. He then made a telling point when he noted that the profits from

're-carriage' from London were sufficient to buy new boats when the old ones were worn out.

He had no sympathy with these men who claimed to be ruined because "*the careful, honest, painful man can live by any trade, but such idle, loitering, lewd, careless people as they are, which do nothing but ride ten miles a day upon a sack pestering the highways, and at their journeys end at dice, cards or bowls, and in riotous drinking spend their time, and so exercised in idleness that they say themselves, before they will take such pains for their living as the boat men do they will be hanged at their doors.*" He had no cause to love these men because he had been driven to the verge of bankruptcy by their methods of raising the price of corn in London, until he retaliated by keeping a string of ten horses himself to carry corn to his house. These horses had cost him £100 a year but now he could obtain the same amount of water-borne corn for a mere £30. The prices of corn and malt had never in the last thirty years remained so reasonable as they had done "*since the Lee was traffict*".³²

In spite of this defeat, or perhaps in desperation, the land carriers in January 1585 tried to bring in a Bill prohibiting the carrying of malt in any barge, boat, lighter or other vessel from Ware, or from any other place within the counties of Hertfordshire, Middlesex or Essex to London or elsewhere, but that it should be carried by horse and carts as it had been previously. They used most of the same arguments as before and again lost.³³ Nothing daunted the carriers of Enfield petitioned Queen Elizabeth in 1589. This time they added the arguments that their lands were no longer fertilised by the overflow of the river, and that as there was insufficient water the mills were unable to grind corn so that they were often forced to take their grain as much as ten miles away to be ground.³⁴ The petition was answered by putting the other side of the case and nothing was done for the "*decayed town of Endfield.*" It would seem that they commanded little sympathy.

Legal methods having failed the mealmen and maltmen turned to violence and intimidation. Even before this, on 2 March 1580 the Lord High Treasurer of England and the commissioners for the water of Lee had received a report concerning the breaches which had been made in the banks. They were informed that two ditches which belonged to Mr. Wroth, the Marditch and the Lodesley, which had "*heretofore always been rammed up are now broken and draweth a great stream out of the river.*" Another ditch lying between Enfield and Edmonton which belonged to Mr. Woodall was in a like condition. The millers were also proving troublesome. Those of Bow were accused of keeping the lock closed to impede the passage of boats. It was written angrily that "*upon mere spite and malice*" they had ordered the locker to keep the lock shut so that "*passengers shall sometimes lose three or four days work.*"³⁵

A year later the situation was far worse. On 9 August 1581 an enquiry was held into the misdemeanours on the river. Thomas Lodge a maltman of Anstye, Hertfordshire related that a bank had been made in the river which prevented the passage of boats, the soil for the bank having been obtained from a cut made to let out the river. He said at least fifteen or sixteen young men had been involved one Sunday and he named some eight of them. His evidence was corroborated by a waterman Francis Bonde who lived at Tuckerstrete in Enfield and he named more names. Two days later some of the accused were examined

and many confessed to their sabotage. Another bargeman was called as witness and he told how his barge had been left high and dry at the 'pipler'; in vivid detail he related that he and John Stede, another waterman of East Smithfield, were labouring to mend the breach when Richard Wodham of Enfield came riding by. He greeted them and said, "*My masters this is but folly for within these three or four days you shall have this cut out deeper than ever it was ... that you may bury a horse in the hole*"; and this is just what happened.³⁶ As might be guessed Richard Wodham was one of those deeply involved in the malt trade.

Further up the river an even more determined effort was made to interrupt the navigation; this time the target was the new pound lock at Waltham Abbey. On the same day in August an enquiry was started into the attempt to burn down the lock-gates. The three accused of arson were William Shambrooke and John Shelley, mealmen, and William Cocke a carter, all of Cheshunt. Shambrooke seems to have been a most indiscreet conspirator. A month before the event he had told Edward King of Turners Hill - that he and Will Cocke intended to make an attempt on the lock, and on the Sunday before the fire he said the same thing to Edward's son Henry. Henry was intent on going to the lock to see the excitement but when George Andrew alias Tiler heard of this at Cheshunt mill he persuaded him otherwise as it would be a hanging matter. George already knew of the proposed sabotage, and told young King that one holiday in May one of the three accused had come to ask if he could borrow George's handsaw. The prudent George enquired to what use it was to be put, but when he heard it was to be used to saw the lock declined to have anything more to do with the matter. Two watermen, Richard Stringer of Amwell and John Seyger gave evidence to the effect that Christopher Penyfather, the miller's man of Waltham knew who was responsible for the outrage and that he had gone on to say that he "*wished there were a barrel of gunpowder in the bottom of the lock, and another in the bottom of the barge so as the men went out of it.*"³⁷

Thomas Fanshawe, the owner of Ware Park and chairman of the court of enquiry, wrote on 8 September to Lord Burghley,³⁸ "*We have met twice about the burning of Waltham Lock, one day at Enfield and Waltham Cross, and another day at Hoddesdon and have taken divers examinations.*"³⁹ They had hoped to give their conclusions and then receive further direction and assistance but unfortunately the Lord Treasurer had not come near. No punishments had been meted out and now there had been further disturbances at Enfield. Fanshawe, realising that without further powers they would be unable to punish the offenders or bring redress to the farmers for their flooded lands, decided not to pursue the enquiry further. He ended his letter by asking Burghley to so "*deal in this matter as the price of corn may no more be in the power of the badgers to raise at their pleasure.*"

A further letter was sent three weeks later signed by Lord Hunsden,⁴⁰ Fanshawe and Edward Bashe, in which the Treasurer's attention was again drawn to the difficulties, and also to a new method of obstruction, that of driving stakes into the river. They reported also that there had been much "*lewd speech*" that interested parties would rise against the maintainers of the river which would "*cost many men's lives*" - the first threat of violence, not only to property but to life as well.⁴¹ The letter went on to suggest that special sessions or courts of Sewers should be appointed to look into the continuing controversies.

The following month, October, brought two more references to those who wished to stop the navigation. One of them proves that it was well understood that the more the river was travelled then the easier it became to navigate as the passage of the boats kept open the channel and drove down "*the shelves into the depths.*"⁴² The barge owners could see that if the badgers and millers succeeded in blocking the river for any length of time then it would once more be almost unnavigable. The land carriers however were desperate. John Barnes of Cheshunt said that he marvelled that those who carried by water "*could afford it so cheap*" and that if they continued to do so it would be to the utter undoing of the land carriers who would have to rise up against the supporters of the river traffic.⁴³

Thomas Fanshawe, Edward Bashe, Thomas Calshill, Jasper Leake and William Clarke, Commissioners of Sewers under William Fletewood, recorder of London were deputed to examine the damage of the Lee. On 5 October they made a report on their findings.⁴⁴ In Enfield Marsh a bank called the Pipler had been broken up "*two several times with shovels and spades*" and the names of six Enfield men were given even though they had "*bound themselves by promise not to bewray the matter.*" At Lothersay Gate also in Enfield the bank had been cut as had the one at Susterneford, which had been but newly built "*for the narrowing of the water for the better passage of boats*". The bank at Lady Wroth's old mill had been damaged several times. This obviously worried the commission as her son Robert was the leader of the anti-river faction. They decided that both she and her tenant John Field should be examined to see if they had assented to the action or had made any complaints. The blame for these acts of sabotage was squarely placed on the Enfield men. At Hallifield, Cheshunt one of the new banks had been demolished by sixteen men of whom fourteen had come from Enfield, but most telling of all was the deposition of William Shanbroke (sic) of Cheshunt. He confessed that he and Thomas Landesdale, a carpenter of Waltham Cross, and one called Hubbard of Cheshunt had attempted to fire the new lock at Waltham with brimstone, rosen and straw. The brimstone and rosen had cost him a groat in London. He ended by saying that he "*verily believed that neither this misdemanour at the lock nor any other against the river had been done but by the procurement of Enfield men*".⁴⁵

On the 21st. at Tottenham witnesses and offenders were examined. Many were abusive, some silent and others hostile. The constable of the Hundred, Goddard, "*a chief maintainer and comforter of the offenders*" not only concealed the truth when upon oath "*but also entered into certain peremptory arguments in defence of their misdemeanors*". He was committed to Newgate. The recorder in exasperation wrote to Lord Burghley, "*I have served in many commissions in the north and south a long time and I assure your Lordship I never met with such stubborn varlets.*"⁴⁶ On the last day of the month Cecil was told that they had not punished any of the offenders but left it to him, nor had they ordered the breaches to be repaired but warned him that the coming winter weather was likely to enlarge them.⁴⁷ The final upshot was that many, including William Holden, Mr. Wroth's man, were sent to the Gate house prison and the Marshalsea

The long list of defects in the river presented to the commissioners in 1583 is probably accountable to this long break in the navigation. They were told that there were shelves,

claybeds, bars, beds of gravel in midstream, weirs unlawfully erected or else extending too far into the river, that a ford had become too shallow and that streams leading out of the river were wasting the water needed for navigation.⁴⁸ Nor were the disturbances quite finished. A letter was sent by the inhabitants of Ware to Burghley telling him that "*certain lewd persons have lately of new broken up the same breaches*" and that a speedy remedy must be taken.⁴⁹ By now there was little sympathy with the badgers and maltmen, for many, such as Thomas Hudde when he heard of the fresh damage said, "*since the river of Lee was reformed God's name be praised, they (that is the badgers) are utterley prevented of their former practices.*"⁵⁰ The letter from Ware had then gone on to ask the Commissioners of Sewers to take a further look at the problems of navigating the river.

In considering river navigation the question of inundation by the sea where the river banks are not high enough should not be forgotten. So much damage to the adjoining land occurred in the Middle Ages that an Act was passed in 1427 which authorised the chancellor to make provision for several Commissions of Sewers to be sent into different parts of the country to assess the banks, walls and bridges of rivers near the sea-coast. If necessary they could distraint upon the occupiers of the lands for their repair, and invoke legal procedure if they were uncooperative. This work inevitably involved them in ordinances for river navigation. Subsequently similar commissions were granted similar powers but the fact that each Act recited the inefficiencies of former Acts leads one to suppose that the statutes were but rarely enforced.⁵¹ The personnel of the commissions consisted of the chief landowners of the district. They were subject to personal antagonisms, family ties and vested interests which were often strong enough to nullify completely their efforts. Their decrees were frequently challenged. On the Medway they had considerable success but on the Dee they were utterly routed, the Lords Chief Justice deciding in 1609 that a certain causeway which they wished to have partly removed, had not been erected or enlarged since the time of Edward I and so they had not jurisdiction over it.⁵² As the Commissioners of Sewers were so ill-suited to fight the rights of property when they conflicted with unimpeded river navigation, or to assess compensation and the granting of monopolies their place was usually superseded by bodies who derived their power from Letters Patent or more usually Acts of Parliament, but for some unknown reason this did not occur on the Lee until the beginning of the eighteenth century.⁵³

That the Cecils did not lose their interest in the navigation of the Lee is proved by a strip map to be found in Hatfield House library.⁵⁴ It is some 6½ feet by 5¾ inches, in colour wash, showing the river and some of the tributaries with sluices, weirs, fish-traps, field boundaries and the names and the shipping on the river between Cheshunt and Tottenham. The scale is about nine inches to the mile. It was probably produced by Humphrey Gyfforde who sought payment in 1594 for making "a book for the view of the circuit of the water of the Lee on the instructions of a jury of the County of Hertford."⁵⁵ Later an addition was made to the northern or Ware end consisting of a wider strip of paper which shows a heronry at Cheshunt and part of the road to London. It is considered that this part may well be in Burghley's own hand. The barges are shown pictorially, those near Tottenham having square sails and stern-end steering oars, whilst the two near Enfield Lock are drawn by teams of three hauliers. The ropes are attached to the tops of

the barge mast in just the same way as is shown in a print of a barge being bow-hauled on the Thames and Severn canal. The volume of the traffic may be assessed from Burghley's additions to a manuscript of 1588 which gave a list of the barge-masters, the port of origin, the burthen and the cargoes of the barges. A fleet of 44 with such names as Maltsack, Ramshead, Greyhound, Pheasant, Primrose, Hind and Cock and a total capacity of 1100 quarters transported wheat and malt from Ware and Hoddesdon to Queenhythe in London. If the barges left Ware on Saturday they could be at Bow Lock by Monday; they were then dependent on the state of the tide as the lock gates were not opened until the tide was on the turn. Four hours rowing on the Thames brought them to London. The return to the hinterland carrying coal, pig-iron, salt and passengers began at the ebb tide, Bow lock was once more opened at the tide's turn and the remainder of the journey was estimated to take six hours to Waltham and another six to Ware.

All was not quiet on the river and the early 1590s proved as tumultuous as a decade before. In 1594 Sir Thomas Fanshawe, representing Ware and the bargemen of that town and Amwell, together with the city of London brought a case in the Court of Star Chamber. Their complaints were many and, if all true, there must have been a state of near anarchy on the river. As before most of it centred round the old trouble spot of Waltham Holy Cross.⁵⁶

They alleged that many inhabitants of Waltham, Hoddesdon, Enfield, Cheshunt and even Luton and other towns in Hertfordshire, Essex and Middlesex, many of great wealth had "*complotted and combined themselves together unlawfully to get into their hands and the hands of their tenants and factors the whole trade of carriage of malt and of some other corn and grain from this part of the realm... and so raise and hold up prices at their pleasure, for their private gain.*" Since the last general pardon at Waltham they had "*concluded and agreed together to stop the free passage of the river*" and had collected £240 from sympathisers for the purpose. Many names were given, including Robert Wroth, George Rotheram and William. Thoroughgood of Hoddesdon, Henry Cockerell the miller of Cheshunt (the master of George Tyler who had given such sage advice to the foolish young Henry King in 1581), John Harlow the miller of Mr Wroth's mill, the provocative Richard Wodham, the Curles, the Curteys, the Lofts, the Wybarts and many another of Enfield, the Sharnbrooks (a variant of Sharnbrook and Shanbrook), the Cheyneys of Waltham Abbey, the Cordells of Cheshunt, Richard Goddard, possibly the perjurous constable of the Hundred and John Brett of Edmonton. Then on 31 May 1592 many of them came at ten o'clock at night, demolished the High Bridge at Waltham and then re-erected it at so low a level above the water that the barges could not pass. The damage was "*in some sort amended or reformed*" and so on 19 July "*divers of the said persons ... did in most riotous and warlike manner at a place upon the river ... near the bye-stream that leads to Waltham cornmill, being arrayed and furnished with weapons, as well invasive as defensive*" set upon those who attempted to pass by water. The plaintiffs said that four score people in all had been involved both before and since that date.

On 26 July and on other occasions twenty and more men, armed with long piked staves, bills, swords and daggers had attacked the bargemen towing their barges, forcing them to

run into the river to save their lives. In November groups of ten or twelve assaulted the river users and laid great trees across the river; on the 28th John Lambarde was severely wounded in the shoulder with a piked staff. If the bargees attempted to clear the Lee of obstruction then they were attacked, bows and arrows being now added to the armoury. By December the outrages were worse. On the 18th there was almost a full scale battle; again eighty men, this time accompanied by their own surgeon, attacked the boatmen wounding seven men of Ware, four of Hoddesdon and seventeen others with great stones and billets, entered their boats, threw the men in the water and then afterwards in what they themselves terms a "*lusty riot*" heaved the malt and corn in the river. Three days before Christmas the fight was on again, the barges' tackle, lines and masts were cut in pieces and one was actually sunk and so "*drowned a great quantity of corn.*"

Trouble was not confined to the upper Lee. Robert Smith of Stratford atte Bow tenant of a mill had "*by the provocation and assent of some of the confederates chained up the river or stream from one side to the other not far from the mill, through which the common passage of boats had been used time out of mind.*" He now only let them pass on payment of twelve pence for every barge "*and sometimes more or less at his pleasure*". To enforce his will he and ten others use weapons even, it was claimed, guns.

The plaintiffs' furthermore maintained that not only were the "*outrages and misdemeanours not once punished, presented or enquired of*" but that the confederates had persuaded the Justices to join them. Indeed fourteen bargemen of Ware were called to a private Sessions at Waltham by Robert Wroth, Barnard de Whetstone and Robert Leigh, all Justices, on 1 August and fined sums varying from ten shillings to five pounds; some of them were threatened with arrest and removal to Colchester gaol.

The men of the river were not always completely innocent and peaceable for in July 1592 sixteen named bargemen, one of London and the rest of Ware, together with thirty unnamed, riotously broke the bank of the mill-race at Sir Edward Denny's mill at Waltham, diverted the stream and beat his servants when they remonstrated. In the December ten men of Ware (one of whom had been involved in the July riot) and one from Stratford Bow with thirty others were indicted in very similar language.⁵⁷ It was obvious that this rioting could not be allowed to continue and the petitioners, Fanshawe and the City, asked for a subpoena to be directed to Wroth, Rotheram, Whetstone and Leigh with 46 others. How many in fact did receive a subpoena is not related but only seven men, men of comparatively little importance such as Sir Edward's bailiff and servant or Harlow the miller, were called to present the defendants' case. They trotted out all the old claims which had been refuted at least twice before, such as the decay and depopulation of the counties to the north of Ware, that her majesty's war effort could be affected by the dearth of horses, that the mills on the rivers were badly affected and again that the queen would be in trouble if she required suddenly much grist for her navy. It was barely five years since the Armada and so defence was much in men's minds. The marsh lands were only two-thirds as productive in hay and grass, and that the boatmen continually filched and stole calves, sheep, lambs pigs and poultry and many times oxen, nor were "the games of swans of the noblemen and gentry" exempt from their depredations.

The defendants did however bring in one or two new points. They believed rain, dew and river mists so ruined the corn and malt that no beer or ale could be made from them. They thought also that it was possible that the bargees could directly supply ships in the Thames with corn which would be transported to the queen's enemies in Dunkirk, Spain, and Portugal. But the most interesting suggestion is that the case was at the instigation of Thomas Fanshawe of Ware who had recently (1575) bought the manor and town of Ware and that he stood to gain more than any, by water carriage, particularly as he and a "*company of rude, violent, purloining and godless persons, were able to engross great stores of corn, grain and malt.*" When they had cornered the market and pushed up the price then malt was hurriedly made in Essex and Hertfordshire by inexpert men in a mere ten days instead of five or six weeks as was correct. Many of the maltmen in the counties further north were said to have been forced out of business. Fanshawe was one of the new up and coming men making their way in the world and this allegation is by no means impossible. It is supported by the fact that the comparatively fewer number of boats employed must have been easier to control than thousands of pack animals.

The seven defendants pointed out that the new lock had not been on the River Lee but on the freehold land of Sir Edward Denny; the High Bridge lay downstream from this lock and had been heightened to enable boats to pass under it, and both pieces of engineering had been carried out some sixteen or seventeen years ago, when Sir Edward was a minor and thus without his consent. He had been persuaded that it would be advantageous to the "commonwealth of the City and shires" to pull up the lock and to reduce the height of the bridge to its old level, which he ordered his bailiff, William Cheyney and his servants to do on 20 May 1592. The complainants bluntly said that Sir Edward was not in the least concerned with the well being of the country but rather that of his own pocket, to the tune of £240.

Fanshawe and the bargemen did not dispute that the recently demolished new lock had lain on Sir Edward's land but firmly reiterated that they were not complaining of the "stopping of any new cut" but of the obstructions placed in the passage of boats "upon the ancient and common stream and River of Lee." It is clear from recent archaeological excavation at Waltham Abbey that the new lock was to the south-west of a bend of the present Cornmill Stream which flowed past the monastic buildings and turned the stones of the mill. The lock led into the Long Pool (a new cut) and so connected the Cornmill Stream and what is now called the Old River Lee. This route was of particular importance as it bypassed the problems which always occurred near a busy mill. The uprooting of the new lock had blocked this short cut even if the lowered High Bridge could be negotiated. The bargemen were presented with either towing along the "Old" Lee or else past the cornmill along the Cornmill Stream. It seems it was the latter they elected to do. The defendants related that upstream from the mill about 1 mile from the town there was an old lock or dam known as the Netherlock, also on the freehold of Sir Edward, which diverted water towards the mill leaving only a small floodgate. To enable them to pass their boats the river men had breached the old lock. It was at this point that most of the fighting had taken place.

In final rebuttal the defendants contended that the route of the ancient Lee was not the great stream running close to Waltham Abbey but rather the little stream to Cheshunt mill which led down to Smalley (Small Lee) Bridge. By way of proof they said that the ancient Lee had always divided Essex and Hertfordshire, as did the stream from Cheshunt Mill to Smalley Bridge.⁵⁹

The Court of Star Chamber decided that the two sides of the case should be considered by two Lords Chief Justice (helped by counsel learned in the law relating to free passage upon rivers) and the conveniency or otherwise of water carriage. On 16 November 1594 they gave their report. After due consideration of old records and statutes the Justices had "*found it very sufficiently proved that passage on the Lee has been and in their opinion ought to be, free, and that there was documentary evidence from the time of Edward IV that Naues, Batelli, Neifs, Batteux, Showtes, Barges and Boats*" carrying victuals had free passage. Another record indicated that boats of four tons passed in the days of Edward III and twelve tons in the reign of Henry IV. They also found that since 1577 or 78 barges of six or seven tons had passed through the new lock. As the bargemen had been denied passage through that lock they had opened up the old lock known as Nether Lock, which they had a perfect liberty to do, but had again been interrupted.

Their lordships went on to add that there was no doubt that water carriage was cheaper than land, but the latter employed more men, so they left the Court to decide which was the better or whether both should be used. The Star Chamber then gave the verdict that as it was "*more profitable to London and the commonwealth to have free liberties of carriage by both water and land as was before the riotous stopping*" then both were to continue in future. They also ordered that there should be a towpath as the river was one of the great rivers of the realm and its users had the same freedom as the bargemen and keelmen who went "*along by the bankside to draw their vessels by the rivers of Thames, Severn, Trent and the river between Wisbech and Cambridge.*" In fact documents proved that this had pertained in the time of Edward IV when owners of land on either side of the Lee were ordered to cut down all trees growing on the banks and to build bridges over the mouths of mill-streams so that boatmen could cross.

On the question of the route of the Lee through Waltham the Justices refused to make a decision but left the Court, after viewing all the records, to decide. Confusion had arisen between the names Waltham Cross and Waltham Holy Cross and as to whether Smalley Bridge might be equated with the High Bridge but it seems that the plaintiffs in end proved their point that the passage was "Waltham High Bridge and through the old lock called Netherlocke." Evidence was cited from an inquisition in the 23rd year of Edward III. At that time the Cheshunt mill stream was but sixteen feet wide (though it was taking too much water from the river), and the navigable Lee then "*ran down beneath Cheshunt Mill ditch by Hallifield ... and by Netherlock, which is the lock in question, and so to Waltham town and to the High Bridge.*" Furthermore evidence presented to a jury in Hertfordshire in the 22nd year of Edward IV (1483) was also used. The Waltham mill stream had then been too broad by twelve feet and what was worse the abbot's lock was but fifteen feet broad when it should have been eighteen, so it was ordered that it should

be broken up as it was jeopardising the barges, thus proving that this was the ancient navigable route.

The historian John Norden, writing in 1596, describes the Lee as "*a proper river, heretofore (as some affirm) navigable and that shipping passed through from the Thames to Hertford. Barges have of late passed that way to Ware ... but for some cause of late discontinued.*"⁶⁰ He noted that the causes were due to "*discontent*" without elaborating any further. Nevertheless it is obvious that river traffic was in full swing by the following year when it was reported that Cheshunt mill was ruinous owing to the constant obstruction of the mill stream's mouth by barge traffic.⁶¹ Sir Edward Denny made a "new cut and passage" sometime in the 1590s and it has been suggested this was a reference to a re-cutting and cleansing of the "Old" River Lee,⁵⁸ but an investigation by the Commission of Sewers almost a century later leads us to believe that it was more likely to be an opening up '*and deepening of the old Netherlock* (see Appendix A).

River navigation was very much to the fore at this time. In 1604 and 1605 the House of Commons attempted to bring in a Bill "*for the abating and to restrain the new erection of all weirs, kiddles, stanks and other obstructions in great and navigable rivers.*" It was much disputed and was called "*a Foxfaced Bill, only bent at the Earl of Worcester.*" In the same year of 1604 there would seem to have been yet another resurgence of the land carriers interests because a Bill was proposed "*For the suppressing the inconvenience growing by Barges on the River of Lea*" but it did not even get a first reading.⁶²

The idea of bringing water from the Lee to London was not forgotten either. In 1609 an Act was passed "*For bringing a fresh stream of water by engine from Hackney Marsh to the City of London for the benefit of the King's College at Chelsey.*" The newly founded college of divinity was empowered to dig a new trench not exceeding ten foot width or else use an old one, through the open fields between Lock Bridge near Hackney and Bow Bridge at Stratford, but it had to be done in such a way it "*may again be returned and made to open itself into the main river within some convenient distance from the mouth.*" They were also allowed to erect engines, waterworks or waterwheels where they would be no hindrance to the ordinary passage of barges or boats. Permission was also given for them to dig for springs of fresh water on the west side of the river ... and convey the water by gutters or pots or pipes under the ground into one pit, pond or head made by the provost and fellows.⁶³

After the excitement of the late sixteenth century navigation would seem to have proceeded reasonably smoothly in the early decades of the next. The first time that a rate is known to have been levied was on 2 December 1635. The town of Hertford ordered that Daniel How should make good a breach at his own expense, and that in future the banks were to be maintained by a rate "*to be laid upon such houses as have a right to common.*"⁶⁴ It is doubtful whether the rate was ever successfully collected. There are many references in the 1630's to the cutting of the weeds on the river and even in one case to the "*mowing*" of the river. The town of Hertford seemed to be more concerned with the maintenance of the navigation than most of the other areas. The first indication that the setting up of a turnpike on the river was being considered occurred on 21 October

1646.⁶⁵ The Hertford aldermen ordered that Captain Oliver Butler "*be spoken to about making a turnpike*" but no details were given as to whether the Hertford authorities were in favour or not.⁶⁶

There is evidence that the passage of boats between Ware and Hertford was at a standstill early in 1647. On 10 February many of the poorer inhabitants of Hertford importuned the mayor and burgesses "*that the passage of water from Hertford to Ware might be laid open for boats to carry and re-carry commodities ... according as it formerly had been.*" This was probably yet another round in the jealous battle between Hertford and Ware. Eight years later a "*jury*" informed the Commissioners of Sewers that the river between the two towns was scarcely navigable and they then ordered the landowners on either side of the river to cleanse it and make it navigable. They levied a rate for the purpose.⁶⁷ In April of the following year the Commissioners were battling with the millers. They ordered that "*the river which was lately cut out of the main river ... unto certain new mills near Temple Mills*" was to be stopped up together with the mill gates and several other small cuts which had recently been made, because the barges bringing provisions to the City were being hindered in their passage.⁶⁸ This was a serious matter to the City fathers and no doubt they brought their very considerable power to bear on the matter.

Whilst the City was safeguarding its food the Hertford authorities were taking another look at the possibility of setting up a turnpike. At a meeting held on 25 June 1656 in Hertford it was decided that a turnpike was necessary "*for the better bringing up of barges*" and that £20 should be borrowed.⁶⁹ Apparently this was set in motion without delay as in April 1660 the people of Hertford were told that the navigation was likely to become ruinous unless greater care was taken of the river, consequently the town council had decided to order that "*all foreign barges should pay one shilling; and every inhabitant was to pay sixpence for three years.*" The willingness of the Hertfordians to impose a toll on themselves as well as foreigners is an indication of the importance they attached to the navigation.

During the Great Plague of 1665 the river Lee and the barges of Ware made a name for themselves in history. They continued to carry corn into London all through the period of that scourge thereby being largely instrumental in saving the city from starvation. Since then Ware barges have been entitled to enter the Thames without taking the services of a lighterman, and on their return home from a "*voyage*" may demand refreshment at an inn at any hour. Although these privileges have been exercised since 1665 and are recognised by the Port of London Authority no documentary evidence has ever been traced.⁷⁰

In the following year the problems with the flash weirs or locks once more rose to a head. On 4 May 1666 at the court at Whitehall and in the presence of the Lord Chancellor, Lord Viscount Fitzharding, Lord Arlington, the Earl of Craven and the bishop of London, a petition from some of the bargemasters was heard. They alleged that the owners of several locks and weirs ... "*have lately made several unreasonable demands ... (and) have of late cut a sluice to draw the water so low that at present he (Thomas Worrill of Tottenham Mills) hath thereby kept twenty barges on ground for fourteen days last past, and will let no barge pass without paying five shillings and some ten shilling, of purpose*

to have all goods landed at his wharf as from thence carted to London ... and Edward Clayton at Waltham Turnpike, who formerly had but fourpence now demands five shillings." ⁷¹ The accused were ordered to report to the court two weeks later. On 18 May in the presence of the king the Commissioners were ordered to examine the complaints and in the meantime the accused were told to let all the barges through, so long as the bargees paid the rates to which they were accustomed. As a result of their examinations the Commissioners fixed a price for flashes, though their order was not obeyed.

The Dutch were at the mouth of the Thames in 1667 and again the Lee played an essential part in provisioning London, this time with coal. ⁷² Coal was usually transported from the north of England by ship around the east coast but under the pressure of war it was deemed wise to unship at King's Lynn and take it by barge to Cambridge. There it continued its journey by land on the backs of pack ponies as far as Ware, where it once more reverted to water carriage. As might be expected the whole operation took considerable time, the last step being infuriatingly one of the slowest parts. Complaints were made in the October about the Lee navigation which were again heard at Whitehall in the presence of the king. It was explained that because of weirs, sluices, turnpikes, mills and dams on the Lee the water was so reduced and diverted that barges could neither pass upstream nor down, whether they were light or loaded. The boats were forced *"to lie on ground and buy water at an excessive rate from those who draw it out of the river,"* which could cost thirty shillings for each barge on every journey. ⁷³ The Commissioners tried to exonerate themselves by saying that they had tried to bring down the prices for water but the abusers had refused to comply, and now they asked for their orders to be confirmed. The dispute was referred to eight independent investigators.

Just at this time the New River Company was one of the worst offenders and was the cause of much wrath from the barge owners of Hertford and Ware. ⁷⁴ The company took water from the river Lee to augment its supplies but according to the bargemen was taking more than that to which it was entitled. In fact so much water was being withdrawn that it was seriously disturbing the passage of boats. Some watermen took revenge by cutting the banks of the New River. At Whitehall on 16 October 1667 the governors of the New River Company laid a petition before the court. They had erected a dam between Hertford and Ware, which had been pulled down by certain bargemen. The governors maintained that the dam had been built in order to allow sufficient water to pass into the New River and thus to London but the bargemen argued that the dam had no right to be there. The court dismissed the petition. ⁷⁵

Edward Hopkins, bargeman, petitioned the Mayor and aldermen of the City on 7 July 1668 for some recompense *"for his charge and pains taken for removing a great obstruction and hindrance caused by the governors of the New River to the common passage and navigation in and upon the river Lee."* He was granted the benefit of making one person free of the City by redemption; this compensation cost the City nothing but one supposes that Hopkins could "sell" this privilege if he did not want to use it himself. ⁷⁶ By 29 July the independent investigators had still not reported back to the court, so it

was decided to appoint a further five gentlemen to the panel with the hope that they would expedite matters.

In April of the following year the court received another petition from the New River Company in which it was alleged, "*that Henry Dunstan Esq. having some causeless controversy with the petitioners*" had cut into the bank of the New River a trench six feet by two feet and kept it open all week, as a result it was feared that in a short while it would drain the River, and this would put a stop "*to the further building in the City of London,*" presumably a reference to the massive rebuilding being carried out after the Great Fire of 1666. This presented a difficult decision for the courts as the Lee kept food prices low and the company supplied the equally indispensable water. Henry Dunstan and his friends were ordered "*to give their attendance on His Majesty in Council on Wednesday next,*" when Henry was told to go to a "*Trial at Law*". However at the next meeting of 5 May there were second thoughts as it was then decided that the former order of 7 April "*as to the Trial at Law be ... vacated; and Mr Dunstan is commanded at his peril not to cut any of the banks of the New River.*"⁷⁷

The problems nevertheless still remained. Only two weeks later the court was informed that others had been copying Dunstan's example. In an effort to stop these practices the Attorney-General was ordered to draft a proclamation and present it to the court at its next meeting; this he duly did and on 16 June the king ordered it to be prepared for the royal signature.

On 28 August 1669 the results of the investigation into the differences between the New River Company and the Lee boatmen were at last heard. The outcome was that two jetties were to be set up instead of the dam in order to turn the water into the New River pipes. Fourteen feet of water were to be left between the pipes for boats to pass.⁷⁸ A compromise solution which pleased no one. The representatives of both parties were ordered to be present at the court of 22 September when the final evidence would be given and a final decision made. Present at this court were the king, the Duke of York the king's brother, their cousin Prince Rupert, the Archbishop of Canterbury, the Lord Keeper of the Great Seal, the Duke of Albermarle, the Earl of Craven, Lord Arlington, the Chancellor of the Duchy of Lancaster and many another noble gentleman. It was there decided after two years of petitions, the interviewing of witnesses and of hearing evidence and opinions that, "*The governor and company of the New River do take away their great pipes now lying in the river Lee and instead do lay two lesser pipes.*"

It had been clearly a victory for the bargemasters of Hertford and Ware, particularly notable because the New River Company was an influential and wealthy organisation. It is interesting to speculate whether it was the rich London brewers who provided the capital to back the organised bargemasters, and the necessary support for the rather ineffectual Commissioners of Sewers.

In the next decade disputes on the river became more domestic again. Sir Thomas Hyde, the successor to the Fanshaws at Ware Park and mills, signed an agreement in 1669 with

the town of Hertford which allowed the free passage of Hertford barges through his lock and turnpike, and what was equally important afforded the boats sufficient water from his mills.⁷⁹ Due to the jealousy between Ware and Hertford that particular stretch of river through Ware Park had always been a source of trouble, and so it is not surprising that the new agreement did not bring an end to the quarrels. On 22 July 1674 it was recorded that, "*the miller of Ware Mills ... hath exacted the sum of two shilling and sixpence for the passage of one barge from Ware to Hertford.*" Two of the chief burgesses went to see Sir Thomas "to the end that remedy may be had according to law."⁸⁰ It is doubtful if the meeting was satisfactory to either party because two years later the aggrieved watermen were still complaining that the Ware miller was refusing to give them any flashes of water. The Hertford barges were as a result lying on the ground until such time as their masters purchased their passage. They declared that Sir Thomas Byde was violating the agreement of 1669. The Commissioners of Sewers intervened and he was ordered to give assurance that the demanding of money would cease, which, no doubt reluctantly, Sir Thomas decided to do on 26 July 1676.

At this time the navigation on the river seems to have had one of its periodic phases of improvement. At a court held in the city on 7 May 1679 it was ordered that "Mr. Water-bailiff" was to take care constantly of the river, which lately at the City's charge had been cleansed and made fit for navigation.⁸¹ The next year four men were appointed as "*surveyors of the navigation and receivers of the money subscribed for the improvement.*" This work by London seems to have been carried out without any prompting from the Commissioners and may possibly have only applied to the lower reaches. In any case this is the first mention of full-time surveyors and waterbailiffs.

In 1683 there was again conflict over lock charges, this time Waltham lock. An investigation was held before the Commission of Sewers as a result of the petition of a group of bargemen. They claimed that the Lee was one of the greatest navigable rivers in England and that for the past 400 years it had been "*a free and common river to carry corn meal and other necessaries from Ware and other places to the City of London.*" John Bell and the Widow Clayton "*contrary to all law and justice*" had erected or continued to maintain a lock or turnpike near Waltham Abbey athwart the river "*whereby the navigation is hindered ... and the barges passing through greatly hurt and sometimes sunk.*" Furthermore they charged five shillings for the passage of each barge.⁸²

The idea that certain rivers were public and free goes back to the Magna Carta but from the time of Edward I was certainly only applicable to the greatest rivers. The situation was further complicated by the fact that a tidal river, as far as the tide rose, belonged to the Crown and so like a highway was free and common to all, but a non-tidal river belonged to the riparian owners and was as much private property as the land either side. The right of passage was then only established by an Act of Parliament, mutual agreement or more frequently by ancient usage, as in the case of a right of way on the land.⁸³

The jury appointed by the Commission found that the petition was inaccurate on a number of points. Firstly the turnpike had been recently erected only because the bargemen had pulled down the previous one early in 1683; but a lock had existed there since "*time out of mind*". Secondly it did not prejudice the navigation in any way, in fact it was claimed that it assisted it. One witness, Stringer, maintained that at one time barges could not carry above 60 quarters of malt but since the re-building the figure was 200. He also gave evidence, supported by Chandler and Everitt, that the turnpike had been there between 70 and 100 years, and that a duty of five shillings per barge had always been paid. In fact it had even been paid when the bargemasters themselves had leased the lock from Sir Edward Denny. Payment had been made unprotestingly until the Restoration when the bargemen had complained to the king and council. They had several hearings and then in 1666 were referred to the Commission of Sewers, who ordered payment to continue. Stringer maintained that it had done so until at least 1678.

The dues were then in the hands of the Earl of Kinnoul, and Bell and Clayton were his tenants. It is probably significant that the 4th earl, an ardent Royalist, had died in 1677 and his eldest son found it expedient to live abroad. He died unmarried in Hungary in 1687. His only brother was a minor and was at the court of St. Germain. The conclusion was that the jury decided the turnpike benefitted the navigation and so should be maintained, but if the petitioners wished they could bring an action challenging the right of taking the duty.

By 1694 the navigators and traders in Ware were again in trouble. They complained that several locks, weirs, turnpikes and ditches were impeding the navigation contrary to the act of 1571 so they asked that the Lord Keeper of the Great Seal of England should appoint sixteen commissioners to supervise the cleansing of the river.⁸⁴ Obviously the long suffering people of Ware had lost all faith in the Commissioners of Sewers. A committee of the court considered their petition and decided to ask, "the Lord Keeper to inspect and remove the encroachments." A George Seracole (sic) then surveyed the river as far as Ware. He found that at Bromley lock the Ware barges were often held up for twelve or even sixteen days due to a lack of water, which caused the cost of water carriage to rise to nineteen shillings a ton. Land carriage was only one shilling a ton more. It was suggested that a new lock should be constructed which could accommodate the largest barges of the time.⁸⁵

The interest then once more shifts to the lower reaches. Two years later on 2 October the City of London entered into an agreement with a Dr. Savage. He was to repair immediately at his own charge the bridge at Hackney marsh "over the river and the banks on both sides of the new cut" and to keep the bridge in good condition for 21 years.⁸⁶ This new cut was possibly nothing more than a trench cut across the ends of a meander in order to shorten the river's course excavated nearly twenty years earlier in 1679. Although minor works were carried out in the years 1670-1700 the Lee was still far from the condition in which it could and should have been. It has been pointed out that it was still basically in a state of mediaeval inefficiency and that it was of more use as a source of power than as a system of transport. In most parts of the river there was no towpath for

horse-drawn barges, which was one reason why they were still hauled by men. There was still no united jurisdiction over the whole route which made the collection of tolls for the improvement of the navigation difficult if not impossible.⁸⁷

A monthly court held in Hertford on 5 March 1706 found that Mr. Byde of Ware Park was demanding a shilling for every barge passing through his "cistern" (that is the pound of a lock) at Ware.⁸⁸ In the May of the following year Byde suggested to the mayor of Hertford that a new agreement should be drawn up between him and the town which would give the bargemen passage through his mill water at sixpence per barge. This was a return to the controversy of thirty years earlier. There is no indication whether the proposal was accepted but the Hertford authorities must have felt very doubtful of making any agreement with the Byde family.⁸⁹

The years 1719 and 1720 saw renewed legislative activity. Despite the fact that Dr. Savage in 1696 had been made responsible for the upkeep of the bridge at Hackney for 21 years the constables of the parish of St John, Hackney wrote to the "*committee for letting the City's land*" in 1719 that the bridge over the new cut within their parish was "*very ruinous and in decay*". A week later the Common Sargeant replied in an unusually clear and succinct manner. "*It is most apparent to me that that part of the River Lee over which the mentioned bridge is built and (which) is in this representation called the new Cut, is not so, nor is it the Cut that was intended to be made by virtue of that statute of the 13th. of Elizabeth, and if it be not, the City cannot be chargeable by virtue of that Act to repair the same, nor was that Act in my judgement ever put in execution.*"⁹⁰ If this statement leaves some doubt as to whether there were two bridges over the Lee in Hackney it certainly leaves no doubt that it was the City's belief in the early eighteenth century that no cut was made, at least in the lower reaches, in the time of Elizabeth. It is also apparent that the City was taking care not to be saddled with the responsibility of the whole of the navigation of the river, which contrasts with its attitude forty years previously when it claimed that it had "*cleansed and fitted the navigation.*"

Nevertheless it is very likely that this complaint which was received on 2 September was the spur necessary for a directive from the Commissioners of Sewers issued on the 8th. They set up a quorum as they termed it of 43 named persons and "*any six more*" to survey the "*walls, ditches, banks, gutters, sewers, gotes, calcies, bridges, streams and other defences by the coasts of the sea and marsh ground being within the limits of the river Lee, lying and extending from the bridge at Ware to the beginning of the New Cut near Hackney, and such parts as run through the counties of Hertfordshire, Middlesex and Essex to the River Thames, and not enquirable into by any custom or special privilege of the City of London, or in the borders of the same by rage of the sea flowing and reflowing.*" They were to investigate "*streams, mills, bridges, ponds, fishgarths, mill-dams, locks, hebbingwears, hecks, floodgates and other like impediments and annoyances*" which if not repaired when necessary, or enlarged or illegally set up would cause damage to the walls and bridges and so flooding and would disrupt the passage of "*ships, ballengers and boats.*" It can be seen that their main consideration was not with the navigation but with the control of the river.

By statutes and ordinances made before 1 March 1530. 23 Henry VIII they were empowered "*to depute diligent and true keepers, bailiffs, surveyors, collectors, exponditors and other ministers for the safety, conservation, reparation, etc.*" of the river and the adjoining land. They were to oversee the accounts of the collectors and "*for the receipt and laying out of the money that shall be levied and paid in and about the making, reforming ... of the walls, etc.*" They were also allowed to distrain for the arrears of such collections, taxes and assessments "*as often as shall be expedient, or otherwise to punish the debtors and detainers by fines, pains and other means.*" They could "*arrest and take carts, horses, oxen, beasts and other instruments necessary, and as many workmen and labourers for the work and repairs as shall suffice, paying competent wages, salary and stipend.*" Trees, woods, underwoods and timber might also be taken as necessary at a reasonable price. Finally they could "*make or ordain statutes, ordinances and provisions from time to time ... for the safeguard, conservation, redress, etc. of the premises after the laws and customs of Romney Marsh, Kent or otherwise by any means after your wisdom and discretion.*"⁹¹

Even if the members of the quorum had set to work immediately with vigour and enthusiasm the defects would have been long in being removed so complaints continued. In 1720 grumbles concerning ditches were put before the Commissioners; one in the parish of Ware was thirteen feet wide at the mouth and three feet deep, another in the parish of Nazeing was 23 feet wide at the mouth. There was also a "large hill of stones and gravel blown up below Stanstead which was a hindrance to navigation"⁹² It is apparent that despite the high sounding phrases of the Commissioners of Sewers all faith had been lost in the body, so that in 1720 an Act for the improvement of the Lee was proposed.⁹³

For a short while in 1721 it looked as though something fruitful was about to develop. Sometime in April the Court of Alderman of the City of London received information that a petition was then depending in the House of Commons to bring in a Bill for "*securing and mending the navigation of the River Lee.*" The aldermen were apprehensive about the City's interests and decided that Captain Richard Boswell should attend the next sitting of the committee in the House of Commons.⁹⁴

At the next court Captain Boswell made several suggestions. He believed that an Act of Parliament should be obtained as it would make the Lee and its branches effectively navigable "*by setting up proper locks and other proper conveniences to keep the river Lee always full of water for barges and tiltboats to pass and repass at all times; and tow with horses instead of men, by which means barges will carry twice as many tun at a time as they do now in half the time and with half the charge.*" He had calculated that at the lowest computation £1,500 a year would be brought in, if a shilling a tun were charged for all goods carried either up or down. In fact he was of the belief that that sum of money would be obtained just for goods coming downstream and that a nearly equal sum would be received for those goods going up. As a result of this enthusiasm it was decided that Mr. Remembrancer was to take a copy of the bargemaster's petition and lay it before the parliamentary committee.⁹⁵ Unfortunately even with the support of the powerful city interests the petition obtained scant sympathy and the whole matter was dropped for nearly twenty years.

The grievances continued. "*Several malsters, barge owners and navigators of the town of Ware*" presented a complaint on 27 July 1736 that a bridge called Temple Mills Bridge near the lower end of Hackney Marsh had caused an eddy to cast up such quantities of sand and gravel that a bank had formed which interrupted the passage of boats. The petition for its removal was signed by 34 people. It was referred to the Court of Aldermen which Mr Waterbailiff attended and who agreed that work was necessary.⁹⁶ Two years later they were still thinking about it at an "*Especial Court held on the feast of St. Mark the Evangelist, Tuesday 25 April 1738.*" But during the 1730's determined efforts were being made to solve the problems of the overcommitted river.⁹⁷ The corporation of Hertford, the people of Ware, farmers, malsters, barge-owners and navigators together with the New River Company petitioned the House of Commons for leave to bring in a Bill, "*for ascertaining, preserving and improving the navigation, and to enable the governor and company of the New River better to supply water to London.*" The House ordered the petition to be referred to the consideration of a committee, which was to commence work that afternoon at 5 p.m. in the Speaker's chamber.

On 12 March Sir Thomas Clarke reported back. Firstly they had examined Mr Bostock Toller. He had told them that some six or seven years previously he had been asked by delegates from Ware and Hertford just how much water the New River Company was allowed to take from the river. His investigations led him to the Order of Council of 22 September 1669, copies of which he laid before the committee. Toller had advised Hertford and Ware to take counsel's opinion, and they went before the present Lord Chancellor, then his majesty's Attorney General, and the late Lord Chief Justice Reeve, who advised that "*a proper application should be made to the legislature*". Since when Toller had visited the New River Company from time to time in order to reach an amicable agreement.

The first meeting with the deputy governor and committee had taken place a month later at the Bull Inn, Ware when the "*Proposals of the navigators and inhabitants of the towns of Hertford and Ware*" were delivered. The proposals reiterated the importance of the navigation not only to Hertford and Ware but to the surrounding counties and to London but unhappily for several years the river had been greatly impaired by the water company taking too great a quantity between the two towns, indeed it amounted to one third of the water of the navigable river. The proposers were aware that the water from the springs, to which the company was entitled, was nothing near sufficient for the demands made by London; they realised how important the company's service was and so wished to be as accommodating as possible, but they did demand that such huge volumes of water should not be extracted. The river users wanted the allowed water to be in a "*proper manner ascertained*" and an annual rent be paid out of the profits of the company. They proposed that this money should be applied by the Commissioners of Sewers or by trustees to the scouring of the river, the removal of shelves, sandbanks and other nuisances, and to the erection of locks, weirs or turnpikes to redress the loss of water. Then just to show they were not a set of country bumpkins the protagonists of the navigation added they were "*fully apprized that what ever agreement they make with the Company will need to be confirmed by Act of Parliament, which is intended to be applied for.*"⁹⁸

The next person the parliamentary committee interviewed was Dr Desaguliers. He related that in August 1735 he was sent for by the navigators of the Lee and whilst he was in the country he measured the gauge or new-made instrument of the New River Company and found it to be six feet wide, two feet deep and the top 28 inches above the sill at the water house. He measured the quantity of water below the gauge and found it flowed at about 2,400 tuns an hour with a small allowance for eddies. He repeated the experiment on the 28th in the presence of people from Ware and Hertford and Mr Mill of the company, who also made a calculation and came up with a figure of 2,100 tuns an hour. The doctor added that the two lesser pipes of eight inches and six inches bore agreed upon by the council of 1669 would have delivered a mere 90 tuns an hour, provided the surface of the Lee were "even with the top of the bore." He was of the opinion that as the fall of the river was very considerable (which is a rather surprising conclusion) if the river were properly scoured and locks erected then half as much again of water could be extracted without prejudice to the navigation.

Two barge-owners, Thomas Pettit and James Fordham, were then brought as witnesses. They said that forty years earlier they could do the Ware to London return trip in considerably less time and expense than they could now. They attributed the shallowness of the water to the great quantities taken by the water company, and the shoals to the gravel and stone thrown in the river by the weirkeepers and millers. The barge-owners had raised amongst themselves £3.000 which had been spent on removing shoals. They felt also that the Commissioners of Sewers sat at far too infrequent intervals.

When Toller was re-examined by the committee he referred to the problems of the stretch of river, between Hertford and Ware. He told them that the Lee divided into two or three branches in this area and then reunited a little below Ware Mills. The ancient route had been along the branch known as the Manifold Ditch, but now, and for many years, navigation had been through the branch known as the mill stream leading to Ware Mills and then through a lock back to the main stream and so to Ware Bridge. Until recently this route had been precarious and only with the consent of the mill owners, but now the New River Company had bought the mills and the lock with the stream.⁹⁹ Before purchase the Company had agreed that the mill stream should in future be the indisputable right of way for navigation, whereupon Hertford had relinquished all its rights to navigate through the Manifold Ditch. Thus navigation was now confirmed in the most useful branch of the Lee and the Company had the sole use of the turnpike or jetty already erected, and so would be in a better position to supply water to London. Jasper Bull of the New River Company then told the committee that they had agreed to pay the corporation of Hertford a £500 premium and £50 a year, and the town of Ware a premium of £1,000 and £300 a year; it was also prepared to give several sums to the Trustees for improving the navigation provided the company was allowed sufficient water to pass through a trough six feet wide by two feet deep.

As the old contestants seemed at last to have reached a sensible and amicable arrangement there was little for the committee to do but advise that the petition for the Bill should go forward.

The Act was soon passed (12 George II c.32) and was probably the most important in the history of the Lee navigation.

As might be expected there were several petitions opposing the proposed Bill. One was from Henry Hare, Baron Colerain of Tottenham, and John Walton of Waltham Abbey. They stated that they had always been entitled to mills in the parishes of Tottenham and Waltham Abbey, "*which time out of mind had been supplied with and worked by water issuing out of the river*", and that they would sustain loss, damage and hindrance in the working of their mills because of the great quantity of water the New River Company would be allowed.¹⁰⁰ As the company had already been in the habit of taking large amounts of water it is difficult to see why the mill owners should now become so anxious. Their example was followed by William Couper of Lincoln's Inn Fields who owned several mills in Enfield, John Hemp of Walthamstow who owned mills in that parish, and by John Lloyd of Ryton, Durham who owned land and premises near Islington.

The lord mayor, aldermen and commons of the City also joined in. This time they stated categorically that by virtue of an Act made in the thirteenth year of Elizabeth, the City had at very great cost purchased lands and made a new cut from the Lee to the Thames for the navigation of barges and other vessels, and had kept and preserved it ever since. The City's common council did not wish to hinder the New River Company provided care were taken to preserve the navigation. This contradicts what the Common Serjeant had written twenty years before, though it is confirmed by the Act of 1738, which states, "*That from and after 24 June 1739 the navigation shall be and is established ... in the same channel where the river now runs and is used for navigation from the town of Hertford to Ware Mills as far as the lock or cistern near the mills, and through the lock to Ware Bridge, and from there along the ancient river Lee to the beginning of the cut or river made by the Mayor, Commonalty and citizens of London in pursuance of the Act of 13 Elizabeth...*"

The Act laid down that every craft passing through the lock was to pay the mill owners one shilling but that the return journey was free. The company had to keep the lock in good repair at its own expense, was forbidden to hinder any vessel, and had to allow the usual quantity of water from above the dam into Ware for the cleaning of the streets and highways. It was enacted that the New River Company was to receive forever that quantity of water which issued from the Lee near the mouth of the Manifold Ditch through the recently built balance engine, and then ran along the ditch to the ancient turnpike or sluice belonging to the company now standing across the same ditch near a small piece of land called Chalk Island; from the old turnpike the water was then to flow along a cut made from the New River itself via the present timber gauge or trough which had also been recently built by the company. The gauge was six feet wide, two feet deep and fourteen feet long and was not to be altered to greater dimensions in brick, wood or stone between the brick arch near the turnpike and the New River, nor was it to be moved to a higher or lower position or any pen to be added. No more ditches or cuts were to be made from the Lee.

To ensure that a greater quantity of water was not drawn off the company had to maintain at its own expense "*the turnpike or tumbling bay now fixed and standing (a)cross the Manifold Ditch just below its exit into the New River.*" All future tumbling bays were to be erected to the same height and breadth which was fourteen feet. It was also to be kept low enough to keep or reduce the head of water flowing from the ditch on a level with and not higher than the top of the gauge in the cut and the two adjacent capped stones placed as standards, one near the brick arch and the other near Chadwell Spring. This meant that any superfluous water would run over the tumbling bay to fall into the channel below the old turnpike into the Lee.

The Manifold Ditch and the water in it were the property of the company and so they were responsible for cleaning it and making sure no soil accumulated around its mouth. The same applied to the balance engine over which they were to be allowed to build a cover and a dwelling house alongside. The people of Hertford and the lords of the manor were still to have the right to fish in the Manifold; likewise owners of adjacent land and all people with right of common in the common meadows still had the privilege of passing through or over the ditch at the usual ford, and to water their cattle and horses there. To safeguard the water no persons were allowed to cast in any filth, rubbish, soil, dead dogs or cats, carcasses, carrion or other unwholesome things, nor was wool, hemp, flax or other noisome thing to be washed in the ditch or New River. All of which was doubtless a great relief to the inhabitants of London and Westminster.

Probably the most important point of all was that the Act nominated trustees for the future administration of the navigation. They included the mayor, aldermen and recorder of London, the mayor of Hertford, the knights of the shires of Middlesex, Essex and Hertfordshire, the members of Parliament for Westminster, Colchester and Hertford, and amongst the 66 specifically named were John Byde and Thomas Plumer Hyde, Sir Jeremy Vancker Sambrooke, Joseph Gascoigne Nightingate, Daniel Brattle and Harry Gough. Henry Lord Coleraine was also a trustee presumably to keep an eye on the water supplies for his mills. In order to improve the navigation the trustees had to erect a turnpike, weir, jetty or some other device across the Lee between Ware mills and Water Lane near the wall of the priory orchard in Ware, in such a way as to be of the greatest advantage to the navigation and the least detriment to the mills. They were to keep this stretch well scoured but after the erection of the turnpike or weir the New River Company were responsible for its maintenance and "government". All craft were to pass toll free.

This building was to be financed by £2,500 and £350 which the company was to pay on 29 September 1739, thereafter it was to remit £350 a year. Out of the £2,500, £1,000 was to be paid to George Hathaway, John Docwra, Anthony Fage, Humphry Ives, Thomas Fletcher, Ambrose Proctor and Wayte Hampson, all of Ware, who were to re-pay the money borrowed to execute a late Commission of Sewers, and reimburse those people of Ware who had had expenses in the obtaining of this Act.

The trustees or any ten of them were to meet for the first time on Monday 6 August 1739 at the Old Crown, Ware, and then every year on the first Monday in August at the same

place or any other place in London or the counties of Hertford, Essex or Middlesex which the trustees thought convenient. The quorum was ten and if not reached the meeting was adjourned for four weeks and was to be held at the same place. The trustees were empowered to appoint a clerk who was to place fourteen days notice in the London Gazette of the day of meeting. The trustees were to defray their own expenses.

At the first meeting of the trustees, of which 29 were present, the Act was read out.¹⁰¹ Meetings were held regularly every month when the setting up of turnpikes at Ware and Broxbourne were discussed, usually there were between eleven and sixteen trustees present. The owner of Broxbourne mills was perturbed that a turnpike consisting of two gates was to be built near his mills as he believed that it would increase the likelihood of flooding. The surveyor appointed by the trustees assured him that that would not be the case.¹⁰² On 21 April 1742 they decided to buy a boat to be used in scouring the river and for carrying away the resulting sludge and soil.¹⁰³ All the meetings between 5 November 1744 and 30 September 1745 were adjourned because there was not a quorum. The first flush of enthusiasm was now over and this may well account for the notice placed in the London Gazette of 30 April 1746 that new trustees were to be chosen at the next meeting. The Act had laid down that to fill vacancies occurring as a result of death, removal or refusal to act, 21 days notice had to be given in the Gazette of a public meeting at which new trustees could be elected, nominated or appointed. A condition of appointment was that they held lands or tenements in fee simple, fee tail or for life of the clear yearly value of £100 or more, and that they should live in the same county as the dead or removed trustee had done.

The Act had given the trustees powers "*to sue out the Commissioners of Sewers*" but at the meeting held at Hoddesdon in June 1750 it was suggested that the Commission should be resuscitated to deal with several impediments in the river.¹⁰⁴ The trustees seem to have been doubtful over their authority for toll levying and raising capital and possibly thought a way round this problem might be to work through the Commissioners. Again all meetings between 30 September 1754 and 24 October 1757 were adjourned through lack of a quorum. It was a sad reflection on them that at a meeting on 21 November 1757 they "*did order their clerk to purchase 200 of the Acts of Parliament for the preservation and improvement of the navigation of the river Lee for the use of the trustees*" in order to find out just what their duties were. Possibly as a result of their research, it was decided on Boxing Day 1757 to appoint 22 new trustees. The next month they received a complaint that the navigation was obstructed by a "*hill*", and they ordered immediately the surveyor to scour that part. In October 1759 a committee was arranged to view the river near Walthamstow, and in the following year another for the Hackney area. Possibly the new members were making their presence felt.

In 1760 the trustees received a shock when they discovered that malt from Ware was being carried to London by road. At an enquiry held in December it was declared absolutely necessary "*that the new cut ... should be immediately cleared of obstructions... that it should be performed in six months in such a manner as that it should endure for the Age of Man.*" A rather ambitious proposal;¹⁰⁵ Eighteen months later in April 1762 there was a complaint that a lock had just been erected on the Lee at Hackney marsh with

the intention of diverting water down a new cut to work a water wheel for grinding corn. This lock greatly disturbed the navigation. Without hesitation the trustees ordered it to be cut down.¹⁰⁶ Probably as a result of this complaint the surveyor was ordered in May to measure the width and depth of all the mill streams leading out of the river.

Between 29 January 1763 and 9 July 1765 there were no meetings due to lack of a quorum but on 5 August 1765 the trustees decided that if they could they would once and for all settle the navigation on such a plan as would "be most conducive to the good of the public." They told the clerk to apply to Mr Smeaton "to take a survey of the river and prepare a proper plan" for them to act on. John Smeaton (1724-1792) was one of the most famous civil engineers of the eighteenth century, and responsible for many canals. In 1759 he had triumphantly concluded the building of the third Eddystone lighthouse.

On 30 September 1766 Smeaton's report was laid before the trustees.¹⁰⁷ A thousand copies were printed. The Act of Parliament (7 Geo.II c51) for "*improving the navigation of the Lee from Hertford to the Thames, and for extending the navigation to the floodgates belonging to the Town mill of Hertford*" was passed in 1767. The proposed Bill had been examined by a committee of the House of Lords with Lord Sandys in the chair. The Act of George II was inspected and a copy of that of 13 Elizabeth compared with the original. Having obtained their basic information the committee called in Mr. Smeaton.

He said the river was very difficult to navigate as it was "*wholly carried on by stanches which pen up a head of water to carry the boats over the shallows below. In fact in summer when water was scarce the navigation could not be carried on without the assistance of the millers, which rendered it precarious and subject to delays.*" He went on to say that his plan intended it to be a canal navigation which was completely practicable; it would be of much greater certainty and less liable to obstruction, the vessels would be able to carry a full load upstream as well as down and in nearly the same time, namely about fourteen hours. This was of particular interest because on 9 December 1766 a committee of the trustees had been told that in the best seasons the barges could not make a trip (from the Thames to Hertford) in less than a week and were often three weeks. In the new plan a round trip was expected to be made regularly in about four days.¹⁰⁸ The first figures may have been an over estimate but Smeaton's seem to be the reverse, as the engineer said the 28 miles would require 21 locks with double gates.¹⁰⁹

John Smeaton estimated the expenses of the works at £23,022. 15s. and the purchase of land at about £5,490¹⁰⁹. He pointed out that such a canalisation would preserve the barges from being beaten to pieces in their upward journey as then occurred, and that it would be of great benefit to the mills on the river. The committee of the House of Lords ordered that "the Bill be reported without amendment."¹¹⁰

The Act referred to the previously divided jurisdiction which had been inconvenient and led to chaotic conditions. The trustees, of whom 286 were listed, were given the power to carry out Smeaton's suggestions - to cleanse, scour and deepen, to enlarge and straighten and make new cuts; to set up bridges, locks, stanches, flood-gates, pens of water, weirs,

stanks, weigh-beams, cranes and other engines. They were to make towing paths or haling-ways for men or horses or other cattle. The cuts to shorten the river and by-pass obstacles were carefully delineated. There were fourteen in all.

1. The first cut (working from north to south) was to lead from the Lee near the Folly into the Dicker Mill stream, out of which it was led back into the Lee at some convenient place between Constant's Weir and Manifold Ditch.

2. The next cut was to lead from the tail of the lock above Ware mill to the south side of the channel at any place above Water Lane near Priory Orchard.

3. The third was to be made from above Ware weir but below Ware bridge, to some point above Stansted bridge.

4. Like Ware mill Stansted mill was also to be by-passed by making a new canal from the river below Stansted bridge into the tail stream of the mill.

5. A new cut was to be made from the Lee above Field's otherwise Rye Bridge Weir to any place between Archer's Weir and Field's Weir.

6. Number six was to lead from above Dobb's Weir otherwise the New Turnpike to below the stream leading into the head of Broxbourne mill.

7. The next one was only short, going from above Carthage Turnpike to a little below it.

8. The eighth led from above King's Weir, over Cheshunt mill stream into the channel at or near the west tail stream of the Powder Mills near Waltham Abbey.

9. After this a cut was to be made from the Lee above Sotherby's Upper Weir otherwise called Newman's Weir to run in to Enfield mill stream not more than a hundred yards to the south of Enfield Lock erected at the head of the mill stream. From there the canal was to run through Enfield mill stream (which was to be enlarged) to not nearer than 340 yards north of the corn mill.

10. Another new cut was then to be made to the east of the mill stream returning to that stream not nearer than 204 yards below Enfield mill, to run through as much of the mill tail stream as at least five of the trustees thought desirable so by-passing the mill.

11. After the complications of the Enfield mills it must have been comparatively simple to make a new cut through part of the Enfield and Edmonton marshes, across the ditch which separated Edmonton and Tottenham marshes, through part of Tottenham marsh into and through the tail stream of Tottenham mill and so back to the Lee.

12. The twelfth cut or canal was to lead from below Flander's Wharf "through several crooks" into the Lee above the tail stream of Walthamstow mill.

13. The next was to be dug from between Lee Bridge and the buildings belonging to Hackney waterworks but was not to be nearer than ten yards to the buildings; it was then to pass through part of Hackney marsh and back into the Lee between Pudding Mill stream and Hackney Brook on the east side of Jones' calico grounds at Old Ford.

14. The final cut was to lead from any place between Bromley lock and Bromley Hall, through the parish of Bromley St. Leonard's, the hamlet of Blackwall and Poplar in the parish of St. Dunstan, Stepney (otherwise Stebonheath) and the parish of St. Ann, Limehouse to the north of Limehouse church and so into the Thames at Limehouse Bridge Dock. This last cut was the most important of all because it circumvented a long loop of the Thames.

The trustees were empowered to buy out the rights of toll from the private owners of weirs and locks and to pay annual rents fixed by the Act as follows:

King's Weir	£28
Bolton's Weir	£20
Ware Weir	£40
Flander's Weir	£25
Enfield Mill Stream	£25
Archer's Weir	£28
Field's Weir	£48
Sewardstone Mill Stream	£45
Hellyer's Turnpike	£48
Sollerby's Weir	£19 5s.
Parkinson's Weir	£16 15s.
Ware Lock Tollage	about £60
Total	£428

The owners of Waltham Turnpike received five shillings for every boat coming down the river and this was compounded for by paying 1d. per ton on all goods carried down the river through the new cut which avoided this turnpike. The Act gave the power to charge the following tolls south of Broxbourne:

	Coals, culm or cinders (per chaldron)	Other goods (per ton)
King's Weir Lock	8d.	6d.
Newman's Weir		
Enfield Lock	8d.	6d.
Lea Bridge Lock	4d.	3d.
Limehouse Cut	3d.	2d.

Pleasure boats passing through a lock were charged a shilling. Manure was exempted from toll.

On 27 October 1767 27 trustees met at Enfield and resolved that John Calvert was "*to reduce in form the plan he mentioned for borrowing £35,000 on the credit of the Act of Parliament.*" ¹¹¹ Calvert came from a successful family of London brewers and as Member of Parliament for Hertford was a central figure in the negotiations for the new canalised river. There is no doubt the commercial interests of the London brewers and those engaged in malting had been one of the main factors in the promotion of the 1766 Bill, ¹¹² No difficulty arose in raising the initial capital; £161,500 was offered, a flood of credit appeared from the trustees and many rich Londoners in response to the newspaper advertisements. Applications were drawn by ballot and individuals rationed.

The work of construction proceeded speedily. On 25 November 1775 Benjamin Rooke, clerk to the trustees, put out an advertisement for contractors as it had been resolved on 23 October "*to divide the care and support of the navigation from Hertford to Old Ford*

... into the following districts; and to let the same by contract on the terms hereunder ... for three years from Christmas next"

1. Hertford to Broad Mead near Ware, including the lock	£25
2. Ware to Stansted	£25
3. Stansted Lock and Tumbling Bay	£16
4. Page's Weir and Broxbourne Turnpike and the two locks in the cut there	£30
5. From King's Weir to Waltham including the lock at Waltham Town's End	£35
6. From Waltham to Enfield Mill River	£20
7. Enfield Mill River Cut and Lock	£16
8. Enfield Mills to Tottenham Mills	£58
9. Lee Bridge to Old Ford	£30

The contractors were expected to "*find wooden pins and small chains to the slackers of each lock, and chains to each lock gate; to keep the copings of the brick work of each lock in repair and scour the hills from the tail of each lock when directed by the surveyor; to keep the back drains open and keep the water at a proper height for navigation in the locks and cuts; to repair all the breaches in the banks of the cuts and to keep the towing paths in good order.*" If their work was not carried out satisfactorily then the expenses incurred would be deducted from their pay. A committee of the trustees would meet at Garroway's Coffee House in Exchange Alley on 1 December to receive the proposals of the undertakers. All nine sections were contracted out to different people.¹¹³

At this time the tolls were bringing in about £5,000 a year but in 1778 it was found that they were insufficient to pay off the annuities. The same year the trustees discovered to their anger that an unauthorised £17,740 had been raised, which heavily mortgaged the income from the tolls, as the loans had been floated on the security of future toll receipts.¹¹⁴ A watchdog finance committee was inaugurated to rectify matters, and after considerable discussion with the principal traders on the river, a successful application was made to Parliament for tolls to be increased. These were incorporated in an Act of 1779.¹¹⁵

The river Stort joins the Lee between Rye House and Broxbourne and its navigation was due to the efforts of Sir George Jackson. Work was begun in 1766; owing to the serpentine course of the river, artificial cuts, particularly at Roydon and Spellbrook, had to be made as well as fifteen locks but construction was finished in three years. This considerably increased the volume of traffic on the Lee.

From a gradual rise of £3,300 a year in 1771 to £4,100 in 1777-8, the income jumped to £7,500 in 1780 and to £8,500 four years later. It then rose to between £9,000 and £10,000 annually in the years 1785 to 1804, by which time the debts had been wiped out.¹¹⁶ By 1780 the Lee, to use Mathias' phrase, could be called "*an efficient artery of commerce.*" Even today though sadly sclerosed by the advent of railways and juggernauts it is still used. In February 1974 "The Engineer" reported that Enfield Rolling Mills which lies on the Lee at Brimsdown was handling at its wharf 60,000 tons of copper a year brought up in 150-ton barges. Distribution from Tilbury docks takes about four days but

consignments of raw materials from Avonmouth in 20-ton lorries take ten to fourteen days. Perhaps it is time for another Act of Parliament for "*the improvement and preservation of the navigation on the river of Lee?*"

REFERENCES

1. John Taylor, the water poet (1580-1653) "*John Taylor's Last Voyage*"
2. Hobday, "*History of the River Lee*"
3. Evidence to the Commissioners, B.T.H.R. Railway and Canals Traffic Act, 1894.
4. A.C.Jones, "*The River Lea Campaign of 894-5*" Herts. Past & Present No. 9 1969 pp. 9-17
5. Brit. Lib. Harl. Ms. 391 f. 103. This is believed to be the earliest definite documentary evidence in this country for this type of work. (K. Bascombe)
6. Hunt, "*History of Ware*" p.17.
7. V.C.H. Herts. Vol III pp.380-91 and p.383.
8. Cal. of Inquisitions, Misc. III, 1348-77, pp 70-73.
9. Cal. of Patent Rolls. Philip & Mary, III, 1557-8, p.259.
10. Cal. of state papers (Dom.) Henry VIII, 14 pt.i.
11. W.T. Jackman, "*Development of Transport in Modern England*" pp.22-3.
12. E.g. in Derbyshire the toll was 1/16th.part.
13. Act 3 Henry VI.c.5.
Kiddles are dams, weirs or barriers in a river having an opening in it fitted with nets or other appliances for catching fish.
14. Act 9 Henry VI.c.5. and Jackman op.cit.
15. City of London R.O. Proceedings of Court of Star Chamber, 1594. Shelf 36c. ff154-62.
16. G.L.C.R.O. Stowe Mss. "*The Boke for the right course of the water of Lee.*"
17. Hunt, op.cit. p.18.
18. Cit. Ldn. R.O. op.cit. ff. 163-74. 19. Act 13 Eliz. c.18.
20. Pratt, "*A History of Inland Transport and Communication in England*" p.165.
21. P.R.O. Repertories, 1557-60. Rep.14 ff.365,367,382.
22. P.R.O. State Papers (Dom.) Eliz. V.15 No.16. 23. P.R.O. Rep. 16.FF. 119, 127, 165, 186.
24. B.F.Duckham, "*Navigable Rivers of Yorkshire*" pp17-18.
25. L.T.C.Rolt, "*Navigable Waterways*" p.11. P.R.O. S.P. 12/109 dated 26 Nove.1576, "An estimate of the charges of the new lock .. at Waltham ... in length 70 foot and 24 foot in breadth." The lock was built of wood but there is an alternative costing

- for stone walls. (K.Bascombe)
26. The Lee & Stort Development Committee "*The Rivers Lee & Stort*" p.7.
 27. G.B.G. Bull, "*Elizabethan Maps of the Lower Lea Valley*" Geog. Jnl. 124 pt.3 pp. 375-8.
 28. P.R.O. Rep.17. ff. 456, 464.
Also P.R.O. M.P.F. 282, which appears to show three alternative routes for the "cut" from the Lee to the north part of London. (K.Bascombe)
 29. D.O.Pam "*Tudor Enfield*" Edmonton Hundred Hist. Soc. Occ. Paper. No.18, p.8.
 30. It is known that there was a bloomery and smithy at Waltham Abbey in the Middle Ages, and that coal was used there in forging. This coal probably originated in Durham, would be brought to London by sea and thence up the Lee. P.J. & R.M. Huggins "*Excavations at Waltham Abbey 1972-3*" p.154.
 31. Brit. Lib. Lansdowne Mss. 32/105.
 32. Ibid. 32/40.
 33. State Papers (Dom) 177/8.
 34. Lansd. Mss. 60/96.
 35. Ibid. 32/93.
 36. Ibid. 32/98.
 37. Ibid. 32/95.
 38. Thomas Fanshaw (1530-1601). Eldest son of John of Fanshawe Gate, Derbys., where he was born. His uncle Thomas Fanshawe took him under his protection and procured for him the reversion of the office of Remembrancer, which was held by five members of the family. Besides Fanshawe Gate he possessed Jenkins, Barking, Essex and Ware Park; the last was sold by his great grandson to Sir Thomas Byde, Recorder of London, in 1668 for £26,000.
 39. Lansd. Mss. 32/91, 92.
 40. Henry Carey, 1st. Baron Hunsdon (?1524-96). Received lands in Herts. & Kent from Elizabeth who was his cousin. He was active in suppressing the northern rebellion 1569-70. Received lands in Yorks. in 1571.
 41. Lansd. Mss 38/100.
 42. Ibid. 32/104, 108.
 43. Ibid. 32/111,112, 113.
 44. Ibid. 32/41.
 45. Ibid. 60/37.
 46. Ibid. 32/102.
 47. Ibid. 32/115.
 48. Ibid. 38/91 et seq.
 49. Ibid. 38/87.
 51. Jackman, op.cit. p.24.
 52. T.S.Willan "*River Navigation in England*" p.20
 53. Ibid. p.23.
 54. Hatfield House Library, map 2/53.
 55. G.B.G. Bull, op.cit. p.375.
 56. Cal. of State Papers (Dom.) 1591-4,pp.499-501. City of London R.O. Court of Star Chamber. Op. Cit. ff. 1-37.
 57. F.G. Emmison, "*Elizabethan Times - Disorder*", Riot.

58. Mediaeval Archaeology EIV (1970) "*A mediaeval Bridge at Waltham Abbey*" p.128
59. At an earlier period a dispute had arisen between the abbot of Waltham and the lord of the manor of Cheshunt concerning the 'land between the main channel and a lesser one a ½ mile to the west. It was continued by the towns' citizens after the Dissolution and was not finally settled until the mid 19th century when a compromise was effected between the Essex and Herts authorities.
60. Norden, "*Speculum Britanniae*" p.11.
61. G.B.G. Bull quoting Salisbury Mss. 213/78.
62. Jnl. of House of Commons, 1604-5, pp.208, 237, 262, 283, 288, 290.
63. Act 7 James I, c.9.
64. "*Extracts from the Books of the Mayor and Aldermen of Hertford.*" p.3.
65. A turnpike is defined as "A barrier across a water course; a water-gate allowing the water to flow but obstructing cattle; also a lock on a navigable river." Murray's English Dictionary Vol.X.
66. Extracts, Hertford p.4.
67. Ibid.
68. Guildhall, "Book of Extracts, 1503-1767" N.64 f. ,130.
69. Extracts, Hertford, op.cit. p.5.
70. Hunt. op.cit. p.20.
71. Extracts, Hertford, op.cit. p.12.
72. Hunt. op.cit. o. 21.
73. Extracts, Hertford. op.cit. p.14.
74. The New River had been built between 1609 and 1613 to augment London's water supply. Its source were the springs of Amwell and Chadwell, near Ware.
75. Extracts. Hertford. op.cit.p.16.
76. Guildhall, Extracts op.cit. No 73 f.222.
77. Extracts, Hertford op.cit. pp.17-18. 78. Ibid. p.22.
79. Ibid. p.6.
80. Ibid. p.8.
81. Guildhall, Extracts, op.city. No.84 1.112.
82. Brit. Lib. Add. Mss 33576 1.63.
83. T.S.Willan op. cit. pp22-3.
84. Guildhall, Extracts.op.cit. No.98, 1.405.
85. Hunt, op.cit. p.22.
George Serocold, born about 1668, was a famous engineer from Derby. There, in 1692, he provided the town with a piped water supply; he built a water wheel on the Derwent which drove pumps to lift the water to a cistern, from which it was led through wooden pipes to many points. It was one of the sights of the time. He installed similar works at Leeds, Norwich, Portsmouth, Yarmouth, Exeter, Bristol, Nottingham and two in London, the Marchants waterworks and that of London Bridge.
86. Guildhall, Extracts, op.cit. No.8 1.10.
87. Peter Mathias, "*The Brewing Industry in England, 1700-1830*" p.442.
88. Extracts, Hertford, op.cit.p.10.
89. Guildhall, Extracts, op.cit. No.15. 1.324.

90. Ibid. No. 15 1.329.
91. Brit. Lib. "*A Commission of Sewers for the River Lee also Ware River.*"
92. Broxbourne Collection B.190.
93. Hunt. op.cit.p.23.
94. Guildhall, Extracts, op.cit. No 16 1.178.
95. Ibid. No. 16 1.183.
96. Hunt, op.cit. p.28.
97. Jnl. of House of Commons, 19 Feb. 1739, p.238.
98. Extracts,Hertford, op.cit. p.28.
99. J.H.C. 20 March 1738, p.204. An Act had been obtained for vesting this mill and lands belonging to Thomas Plummer Byde, an infant, which had been part of his grandfather's settlement, in the New River Company in return for a perpetual rent charge in lieu.
100. H.L.R.O. Petitions against Act 12 Geo.II.c.32.
101. B.T.H.R. River Lee, Trustees Minute Books, Vol. I.
102. Broxbourne Coll. b.640.
103. B.T.H.R. op.cit. Vol. I.
104. Ibid. Vol. III.
105. Hunt, op.cit. p.24.
106. B.T.H.R. op.cit. Vol. II.
107. Ibid. Vol. III.
108. Guildhall, Extracts, op.cit. Kite Mayor.
109. Today there are 16 locks between Limehouse and Ware.
110. H.L.R.O. "*Proceedings at Committee on Bills and other matters 1765-68*"
111. Ibid. Vol. 4.
112. Mathias, op. cit. pp.442-3.
113. Brit. Lib. "*A meeting of the Trustees of the River Lee.*"
114. H.L.R.O. p.446.
115. Act 19 Geo. III.c.58.

A NOTE ON SOME OF THE WATER-MILLS IN THE LEE VALLEY

The earliest record of a water-mill is usually to be found in the Domesday survey. The mills of both Enfield and Edmonton were valued at ten shillings each, Walthamstow had a mill, Waltham Holy Cross three and in the Stratford atte Bow area there were no less than eight. Although there may be doubt as to their exact position it is thought that the mediaeval and later mills were on or near the same site.

The lord of the manor of Enfield, Geoffrey de Mandeville, in the early twelfth century granted the mill to the abbot of Walden, who before 1289 leased both fulling and corn mills to Richard de Plessis. (V.C.H. Middx. Hundred of Edmonton p.236) This is the first reference to the fact that there were two mills on an arm of the river Lee. They both later came into the possession of the Wroth family. The inquisition held at Waltham Abbey in 1355 noted that John Wroth and John de Gerton had a ditch called "*Norhtlok*" from le Leye to "*Nortmelle*" in Enfield which was twenty feet wide near the river. (Cal. Inq.

Misc. 1348-77 p.70-3) In 1362 John Garton had one of the Enfield mills on lease, presumably the northern or upper one, but it was out of action as it needed a grindstone. Either this one or more likely the lower one was owned by Humphrey de Bohun in 1363. (V.C.H.) The survey of 1572 tells us that Sir Thomas Wroth farmed "two mills under one roof (i.e. there were two pairs of grindstones) which within twenty years was but one;" they were driven by a stream from the Lee which "*is greater than in tyme past and is now greater and larger than the High River and was never so big before the last making of his lock.*" The surveyor also noted a mill called Barestrete mill which had been there in the time of Edward IV and that there was some doubt as to whether the present mill and the old one were the same. On 7 June 1587 Lady Wroth's mill lock was stopped by bargemen from Waltham and Ware, and on the 13th. the men of Gardner's barge of Broxbourne mill "*did break off from (her) lock one board and did stop the lock with it.*" The next day it was repeated. It can be reasonably assumed that the lock and mill-stream were taking too much water to allow the barges to pass. (Lansd. Mss 53/76)

The Long Parliament on 10 June 1653, "*desired the ordnance officer to treat with John and Henry Wroth of Enfield for the use of certain mills in their possession on the Lee, called the Lock for making (gun)powder.*" (Cal of State Papers (Don.). Whether anything developed from these negotiations is unknown but it should be noted that the Hearth Tax returns of 1665 record that the "*Master of the powder mill*" had a hearth at Bulls Cross. Some authorities (V.C.H.) believe this mill to have been derelict by the eighteenth century though John Seller's map of 1733 seems to indicate that there was still a mill at the Lock. Morden's map of 1695 shows a powder mill a little further upstream just at the point where the river divided again in Rammy Marsh; it was still there in 1730 (Morden) and 1733 (Seller). The Trinity College, Cambridge map of 1754 shows the Lock but the powder mill seems to have degenerated to a sluice. Ford and Hodson wrote that there was an oil mill at the Lock and that it was the site of the Royal Small Arms Factory, "*the nucleus of which was established here in 1804, apparently to utilise a small water-wheel and fall belonging to the Crown.*" (p.228)

The Wroth's mill in South Marsh was in the late sixteenth century two storeyed and had a tiled roof. It was held by John Wroth in 1635. The Court Leet in 1688 ordered the miller of Enfield mill to cut down the weeds but this appears not to have been carried out as in the following year Joan Flanders, widow, was threatened with a fine for not "*cutting down and cleansing the weeds in the river about the mill and in the millstream below the mill*" She was probably the widow of Thomas Flanders of the Ponders End quarter who was fined 6d. for non-appearance at the court "*to do his suite and service.*" In 1692 Joan Flanders was again in trouble because she was ordered "*to lay a bridge going out of her Mill house into South Marsh.*" The Trinity College map of 1754 shows it to have been a corn mill then a Roque's map of the same year indicates that it was still known as Flander's Mill. It was rebuilt in 1789 and much of it is probably still preserved in Wright's flourmill of today; it is weather-boarded with a brick house adjoining. In 1853 it had seven pairs of grindstones, ground up to 500 sacks of flour weekly and barges of 60 tons could be drawn up alongside. To the north of this mill in 1754 (Trin. Coll. map) was a leather mill, which was probably dressing skins in 1831 but had gone by 1845.

Almost between the two Enfield mills, but on the east bank of the main river were the two mills of Sewardstone. Norden's map (1695) shows a powder mill, (W. Winter's unpublished manuscript of Waltham Abbey records that the powder mill was there in 1648) but the Trinity College map indicates that the northern one was a colour mill and the southern one ground snuff. By 1779 Andrews and Drury map shows they had changed again, one was engaged in fulling and the other was a blue mill.

The Domesday mill of Edmonton was not situated on the Lee but a couple of miles up one of its tributaries Pymmes Brook. Possibly it may be identified with the Scerwes mill of 1256 which was near this stream and formed part of the estate held by Clerkenwell priory in the thirteenth century. It is probably also the mill which was leased in 1577 by Nicholas Roldsby to William Calton, tanner. This part of Edmonton was until 'recently known as Tanner's End. (V.C.H.) It is also likely that it is the same mill as was held in 1605 by Jasper Leake's freehold estate of Weir Hall. It mouldered away amongst the ponds and osiers near the Tudor mansion until the early nineteenth century.

Curiously there is no mention of a mill at Tottenham in the Domesday book. Even if there were no settlement at the time close to the Lee one feels that there should have been a mill operating on the Moselle. The Countess Judith did however possess a weir which was valued at three shillings. We first hear of a water-mill in 1234. On 23 January 1367 Thomas Hardyng as part of his service to the lord had to help repair the wall of the water mill by carrying clay and earth, and by digging turfs; he was to be assisted by William atte Merssh. (Bruce Castle, Manor Court Rolls) Their work cannot have been satisfactory because only seven years later the mill was said to be ruinous.

By the 1470's it seems to have been farmed out annually (V.C.H. p.336) The miller was fined in 1530 for charging an excessive toll; understandably the tenants were reluctant to take their corn there and in 1588 one was fined for refusing to patronise the mill. Sometime before 1619 a leather mill, as at Enfield at a later period, was built close by. Oil is used to impregnate skins in the production of some leathers such as chamois, and it may have been to this that the Privy Council was referring when it warned that James I found the smell of the oil mill in or near Tottenham so noxious that all work was to cease shortly before he was due to pass through. (Roe, "Historical Notes".) Certainly the aroma must have been pretty pungent if it could be detected on the High Road.

The lord in 1656 was presented for making gunpowder instead of flour. The necessary expertise was probably gleaned from Sewardstone or else from a mill at West Ham which was making gunpowder as early as 1588. (V.C.H. Essex VI) By the 1730's one or both of the mills had changed to the more acceptable trade of paper making (Morden, (1730), Sellers, (1733). This craft has a long history in the Lee valley. The first paper mill in England is claimed to have been erected by John Tate about 1494, which is still commemorated in the Paper-Mill stream which flows through Hertford. There was a paper mill at Brimsdown in 1776. The making of paper was continued at Tottenham mills until at least 1761. It is known that the manufactory was insured in 1735 by Israel Johannet, a member of a well known French paper making family and it is also shown on John Roque's survey of London of 1741-45. Later (1757-61) it was leased and insured by

Thomas Cooke, who is reported to have refused to vacate the mill when Edward Wyburd took over in 1770 and after a quarrel was thrown into the water. Wyburd converted it into a corn mill, but this was burnt down only a few years later in 1788. (W.Robinson, "History of Tottenham") In the rebuilding a corn and an oil mill were put up on opposite sides of the road; they seem to have proved very profitable and for a while Wyburd sublet the oil business. After the death of James Townsend the lord of the manor they were sold to John Cook - but their best days were over. There was severe flood damage in 1817 and after a fire in 1852 they were not rebuilt. The flour mill was then known as Bell's Mill and stood close to the Tottenham Ferry.

The history of Walthamstow mill is equally chequered. Originally a corn mill and then for a time carrying out fulling, it was also engaged in powder making; by 1777 it is shown as an oil mill on Chapman and Andre's map. (It is probably the same mill as Hemp's Mill of Rocque's survey of 1741-5, though the water courses are rather different, but this is probably due to the alterations after the Act of 1767) An advertisement of 19 September 1799 says that "*Those very valuable, substantial and newly erected freehold oil mills most advantageously situate on a branch from the river Lee, Walthamstow ... the property of the late Mr. Benjamin Head, comprising an admirable pile of buildings, 92 feet by 44 and four stories high ... having a pair of rolls, two pairs of stones and eighteen presses ... a large cake house, cask and cistern house attached; a dwelling house, two cottages for the foreman and millwright, workshops, store-lofts, stabling for fourteen horses coach-house, dairy, bath, out-buildings, gardens, three acres of pasture and a valuable right of marsh*" were for sale. ("The Record" Nos.37 and 5, Walthamstow Antiq.Soc.) The mill was up for sale again in 1806. An advertisement in the Times on 6th March gives much the same information as the earlier one but adds that the large cake, cask and cistern houses are "*attached with cisterns in abundance, and lofts capable of stowing 7,000 quarters with ease, from whence the seed can be distributed, sifting itself in its descent to every necessary part of the works.*" It was also pointed out that the mill was so constructed that part might easily be converted to a corn mill. In the event its future purpose was quite different.

Between 1808 and 1809 it was converted into a copper mill for the British Copper Company at a cost of £5,500 by Simon Goodrich, engineer. The mill was driven by an eighteen feet diameter and twenty feet wide waterwheel making five to seven revolutions a minute. From 1809 and 1814 the copper ingots smelted at Landore, South Wales were here rolled into sheets and stamped into a series of penny and ha'penny copper tokens. ("The Story of Walthamstow" G.E. Roebuck p.41) The mill stream was purchased by the East London Waterworks Company and the water stored in some 250 acres of ponds. According to William Houghton the copper mill was previously used as a powder mill. (Walthamstow, its Highways and Byways." (1884)

In some ways the most interesting of all is the Royal Gunpowder Factory at Waltham Abbey. Probably the first time the idea was mooted was in 1561 when there was correspondence between John Tamworth of Waltham and Mario Antonio Erizzo concerning ingredients, but no building seems to have taken place until the next century.

Thomas Fuller (c. 1655) described them as "lately erected" - he also noted that there had been five explosions in seven years.

Fuller may have been referring to the powder mill at Sewardstone, but by the 1660's Ralph Hudson had developed gunpowder manufacture at Fisher's Green, 1½ miles to the north of Waltham Abbey. In the early 1670's he was in trouble for obstructing a right of way, and production was moved downstream, close to the old fulling mill. After Fuller's time the deaths of many men in the mills were to be found in the parish registers in the next 200 years. The clerk at Edmonton wrote in his diary on 13 August 1843, "*At about five minutes after 3 a.m. an explosion took place at the Royal Powder mills at Waltham Abbey, which destroyed two corning houses and killed seven persons.*" (Ms. Local Hist. Dept. Palmers Green Lib.)

An early owner of the mills was John Walton, thought to have been a cousin of Izaak, a frequenter of the Lee and observer of mills. At one point in his "Compleat Angler" (1653) he gave directions on how to fish for bream, first you must "*sound the bottom which should be eight or ten feet deep; two yards from the bank is best. Then consider with yourself, whether that water will rise or fall by the next morning, by reason of any water mills near.*" A later John Walton sold the mills to the government in 1787 when they were much enlarged. Many notable developments have taken place there such as the Congreve rocket at the time of the Peninsular War, gun-cotton in the 1860's and cordite at the end of the last century. It is now a research establishment.

Besides the gunpowder mills and the corn mills there was in 1779 a silk mill in Waltham but it seems to have had a short life.

Their water rights sanctioned by long use the early corn mills were redeveloped to serve other industries such as the manufacture of woollen cloth. The Lee valley is just on the extreme edge of the Essex woollen industry and so fulling mills are not unusual. They were developed in the fourteenth and fifteenth centuries in spite of a loud outcry against them, it being claimed that they not only ruined the cloth but also impoverished the "*footworker*". The Letter Books of the City of London tell us that a mill was used in Enfield for the fulling of cloth and for making caps called "*hures*". The fullers in August 1376 sent a petition to the mayor and aldermen asking that the use of urine in fulling be forbidden, and also that hurers be not allowed to full their caps in the mills of Wandiesworth, Oldford, Stratford and Enfield, as when the caps were mixed with their cloth they tore and crushed it. In 1404 a group of hurers and cappers petitioned that none of their work should be "*fulled in mills or by feet but only by the hands of men*" but this had no immediate effect as it was not until 1493 that fulling mills were forbidden only to arise again later. (Roe, "Historical Notes" p.118)

It is known that the entrepreneur of Tottenham, John Gedeney, set up a fulling mill in the fourteenth century and that both the mills at Chingford and Walthamstow carried on fulling at some stage in their history. (Chingford reverted to a corn mill in the nineteenth century) As previously mentioned there was a fulling mill at Waltham Holy Cross by

1402 at latest but in this case it was quite separate from the corn mills with its own leats. (K. Bascombe)

Not only was there competition for the water between the millers and the navigators but also between the mills. In 1804 the Board of Ordnance which then ran the gunpowder mills at Waltham bought out the miller at Cheshunt mill because he was interfering with the supply of water to its mills. ("Cheshunt in Hertfordshire" J. Edwards p.42.) This pressure on the available water is no where better seen than in the September of 1623 when the Court of Aldermen of the City appointed two of its members to view the new cut which Mr. Cooke had recently made into the Lee. They reported back on 2 October and said there was no doubt the ditch did "*with most subtle violence withdraw much water of the wanted stream from Spellman's mills to the exceeding great damage and prejudice thereof.*" They felt that the new cut could in no wise be tolerable especially as the tenant of the City's mill was threatening to withhold his rent as he believed that the present arrangement was with the City's connivance. The two aldermen did not find any other place where the cut could be made so Mr Cooke, who was in the court, agreed to fill the trench within a week.

The jealous fight for water is again shown in a report placed before Mayor Cotton on 27 July 1626. Four aldermen had been to view a mill which Abraham Baker had started to build. To supply it with water he intended to dig a trench 24 feet wide from a little above Temple Mill stream which came off the Lee, through his own ground to the new mill and then by "*fitching a compass about a flight shot*" beneath it to bring the water back to beneath the Temple Mills so that it would be no impediment to the City mills which lay about a mile downstream. The visiting committee did not think this was feasible. The City mills were already much incommoded by the Temple Mills' "*floodgate which doth pen up the water at the pleasure of the millers there*" and the situation would be much worsened. Further more they believed that as the new cut would also connect with a stream which ran to the west and served the Abbey Mills, the latter being at a lower level would draw off the water of the new mill. As a result of their survey they ordered Mr. Baker not to proceed.

Still to be seen today is the tidemill at Bromley atte Bow. The building was once a part of three corn-mills known as "*The Three Mills*". One of them was demolished as a result of the Act of 1571 and compensation was given. Possibly this is the same mill as was leased by Thomas Browne in 1577. He wrote to Bughley telling him of the injury done to his mill near Bow Bridge by the alteration to the course of the water of Lee and solicited his intervention with the landlord, Mr Nicholas Sturley, for an abatement of the rent. (Cal State Papers (Dom) 1547-80). One of the remaining mills was used as a distillery by a Huguenot Peter Lefevre, later it became a warehouse and the waterwheels were bricked up.

Water was so essential as a source of power before the Industrial Revolution that every small stream was utilised. We know that there were water mills on such minor tributaries as Pymmes Brook or Salmon's Brook where Thomas Aldersey built an overshot wheel for his glass mill ("*Green Lanes Turnpike Trust*" D.O.Pam) or the even smaller Bury

Street stream where Sadler's Mill was to be found (V.C.H.) There was a mill near Maiden's Bridge, Forty Hill in the time of the great Sir Thomas Lovell and John Withering paid 25s. a year in 1635 for a mill on New Pond in Enfield Chase. (Ford & Hodson, p.134)

In spite of mills for working snuff, cloth or colours, gunpowder or glass it is probable that with the close proximity of London, corn-milling was always the most important. Stratford with its plentiful supply of water courses early acquired the right of sending baked bread into the City. The Baker's Company was able to use its influence to keep the Stratford bakers allowance for expenses in baking a quarter of wheat at 6d. whilst in London it was two shillings (probably a reflection of the cheaper transport of fuel and corn for the Stratford mills) but in return they had to supply a six ounce heavier loaf, and inspection was strict. ("History of the Bakers' Company" S.L.Thrupp pp.58-9) The London millers never formed a guild as they did at York or Coventry, possibly because the town became largely dependant on the importation of ready ground meal and of baked bread brought from without its boundaries. ("English Windmills" M.I. Batten & D. Smith)

APPENDIX A

As early as the inquisitions held in the reign of Edward III "the high bridge of Waltham" is mentioned, and there are as well references to "Le Netherloke" (i.e. lower or downstream lock) on the abbot's fee in Waltham and to the fishery of the abbot opposite his land near "Le Overlok" (i.e.upper or upstream lock). At this distance in time it is difficult to determine the exact importance and size of the branches of the Lee at Waltham in the sixteenth century. The map of c. 1595 does not indicate that the new lock (or indeed any lock) or the long Pool had ever existed. Excavation of a mediaeval bridge has shown that there was once another small stream which had re-joined the Cornmill Stream at the point where the new lock was built, which probably caused its demise. It is possible that there was on this now defunct stream in the thirteenth century another mill (See "Med. Arch." 1970 p.128) and the upper lock or "overlok" was sited at the point where ' it diverged off from the main Cornmill Stream. An examination of the present day Ordnance Survey map, the c.1595 map, the 1594 Star Chamber case and the inquisitions of Edward III has led to the following tentative sketch map.

Excerpts from a description of the River Lee and its tributaries, written by William Vallena, a native of Hertfordshire, c.1589.

A Tale Of Two Swannes and their 15 cygnets

Thus ordered they come by Byrches House
That whilom was the Brother Friers place¹
Then by the Crown and all the Innes of Ware;
And so approaching to the late built bridge,
They see the barges lading malt apace. ...
Then troupes this traine to Stansted call'd Le There,

And Stansted where at Bashe did lately build,
Whose sonne yeelded hope of vertue worth the place
And livings which his father purchast him.

And here againe out of the kingly streame
They passe by Roydon through little Estwycke quite,
Then they salute Hunsdon the nurserie ²
And foster house of thrise remoured Swannes
Whose honour and whose noble progenie
Gives glorie to that Honorable house. ...
From Stansted unto Hodsdon goe these Swannes,
From thence to Broxbourne, and the Wormiey Wood,
And so salute the holy house of Nunnes ³
That late belonged to Captain Edward Dennie.
A knight in Ireland of the beat accompt,
Who late made execution of our foes,
I means of Spanyardes, that with open armes
Attempted both against our Queen and us:
There now Lorde Talbot keeps a noble house.

Now see these Swannes the new and worthie seate ⁴
Of famous Cicill, tresorer of the land,
Whose wisome, counsell, skill of Prince's state
The World admires, then Swannes may do the same.
The house itself doth shewe the owner's wit,
And may for bewtie, state, and everything
Compared be with most within the land.
Downe all along through Waltham street they passe,
And wonder at the ruines of the Abbay
Late supprest, the walles, the walkes, the monument
And everie thing that there is to be seene.

Among them all a rare devise they see
But newly made, a water worke: the locke
Through which the boates of Ware doe pass with malt.
This locke containes two double dores of wood,
Within the same a cesterne all of plancke,
Which onely fills when boates come there to passe
By opening of these mightie dores with sleight
And strange devise, but now decayed sore.

And as they sayled here, they chaunst to see
The Stately crosse-of Elnor, Henrie's wife (sic.),
Then Enfield House, that Longes unto our Queene,
They all behold, and with due reverence
Salute the same.

1. Priory of Grey Friars, granted by Henry VIII on 21 May 1544 to Thomas Byrch, one of the Yeoman of King's Crown.
2. Sir Henry Carey, Baron Hunsdon.
3. Cheshunt Nunnery.
4. Theobalds.