



## River navigation in Medieval England

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The extent of river navigation in Medieval England and its importance to urban development became a matter of dispute in this journal during the early 1990s. The dispute began with the publication of an article by Jim Edwards and Paul Hindle that suggested that England's Medieval rivers were navigable much further upstream than previously believed. Although their controversial thesis was attacked by John Langdon, the issue was not resolved. This paper reevaluates Edwards and Hindle's case by taking up their challenge to examine the evidence on which their article was based. It is shown that although the approach they took was useful and valid, fundamental errors were made in their analysis and interpretation of the data. A major problem with their work is that the Middle Ages are implicitly treated as a homogeneous period. When the data for navigation is placed in a tighter chronological framework it becomes apparent that there was a decline in the extent of England's navigable river network during the later Middle Ages. This decline appears to be related to an increase in obstructions to river traffic, which may in part be associated with a fall in late Medieval urban demand for bulk produce like grain and fuel.

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### Introduction

Several years ago this journal became the focus for a dispute over the extent to which England's Medieval waterways were navigable. The altercation was sparked-off by an article, published in 1991, by Jim Edwards and Paul Hindle. Their article argued that the Medieval rivers of England and Wales were navigable much further upstream than previously believed and that since most towns in the country were close to navigable waterways, water transport must have been much more important to Medieval trade and urban development than had been recognised.<sup>[1]</sup> Two years later John Langdon responded in an article which severely criticised their position. He suggested that much of their evidence was derived from legal cases concerning obstructions in the rivers and pointed out that such cases may frequently have been brought by merchants who hoped to use an unnavigable river, rather than users of a river that was actually navigable.<sup>[2]</sup> He further suggested that even when specific cargoes are mentioned, this could merely reflect an occasional use of a river that was rarely navigable. Langdon then employed purveyance accounts of the period 1295–1350 to determine the range of navigation. Although this pointed to a much more limited level of navigability, the dispute was never really resolved. This was because the parties' reliance on different sources meant they failed to engage on the same ground. The debate therefore fizzled out with each party asserting that their sources gave a more accurate impression of the real position and Edwards and Hindle proclaiming that "we stand by our data, analysis and interpretation".<sup>[3]</sup>

The inconclusive end to this debate is unsatisfactory because river navigation bears

heavily on how Medieval economic and urban development is understood. The significance of Medieval water transport lay in its low cost, for carriage by land could be more than ten times the price of transport by water; indicating the price differential was as great, if not greater, than during the industrial revolution.<sup>[4]</sup> The low cost of water transport meant that it could stimulate economic development by increasing the size of markets, encouraging regional specialisation and promoting urbanisation. A good example of this is London around 1300. Studies of the supply of grain and fuel to the capital have revealed that the Thames waterways greatly extended the market for grain and fuel supplied to the capital.<sup>[5]</sup> Since some areas would have been better suited to the production of particular crops than others, the widened market must also have stimulated the agricultural specialisation that developed around London at this time.<sup>[6]</sup> The impact of the Thames river-network on urban development was two fold. First, the existence of a cheap transport network removed a constraint on London's growth, since it reduced the cost of food and fuel in the capital. Second, urbanism was stimulated in London's hinterland as towns like Henley developed as a specialised centre supplying agricultural produce to the city.<sup>[7]</sup>

Although London is a somewhat special case, there appears to have been a general recognition during the Middle Ages that water transport was important to urban development. During the early twelfth century, the *Leges Edwardi Confessoris* noted that navigation should be maintained on the major rivers "along which ships transport provisions from different places to cities or burghs". It further stated that "minor waterways that carry ships along with things that are essential for burghs and cities" were also to be kept open.<sup>[8]</sup> The continued importance of water transport to towns is reflected by the leading role they took in petitioning for the removal of obstructions to water transport in later centuries. For instance, when the River Derwent was blocked by the erection of mills in 1268, the men of Derby petitioned for their removal; when the Fossdyke became blocked in the fourteenth century, the men of Lincoln complained to the Crown; and when Warwick's trade declined in the fifteenth century it was suggested that the town's trade could be stimulated by making the Avon navigable.<sup>[9]</sup>

Since water transport could stimulate economic and urban development, it remains important to determine the extent of Medieval river navigation. If this can be done it will be possible to form a more accurate assessment of the importance of water transport to the economic and urban development of Medieval England. This paper will reassess the validity of Edwards and Hindle's position by taking up their challenge to examine the "data, analysis and interpretation" on which their case is built. In particular it will seek to assess the extent to which the rivers they identified were all 'A' routes. Although they do not define this term, their belief that they had correctly identified the "known and possible heads of navigation" suggests they regarded 'A' routes as those which were normally open, unimpeded and accessible to commercial traffic.<sup>[10]</sup> The research that formed the bedrock of this paper consisted of an examination of the waterways of the Thames river system (Thames, Ingrebourne, Lea, Fleet, Cherwell, Ray, Kennet, Wey, Effra, Darent, Medway, Len), the Wash system (Witham, Sleas, Steeping, Welland, Glen, Nene, Great Ouse, Little Ouse, Cam, Lark, Wissey, Nar, South Eau, Car Dyke, Well Creek), the southern end of the Humber system (Trent, Derwent, Soar, Fossdyke) and the Severn system (Severn, Warwickshire Avon) (Figure 1). The study of these rivers concentrated on the evidence for navigation beyond that suggested by Langdon. This entailed a detailed examination of the evidence on which the Edwards and Hindle case is built, but also involved the study of additional material which they did not consider. Although the research did not consider some minor rivers, or the northern rivers of the Humber system, it did include the examination of the great bulk of

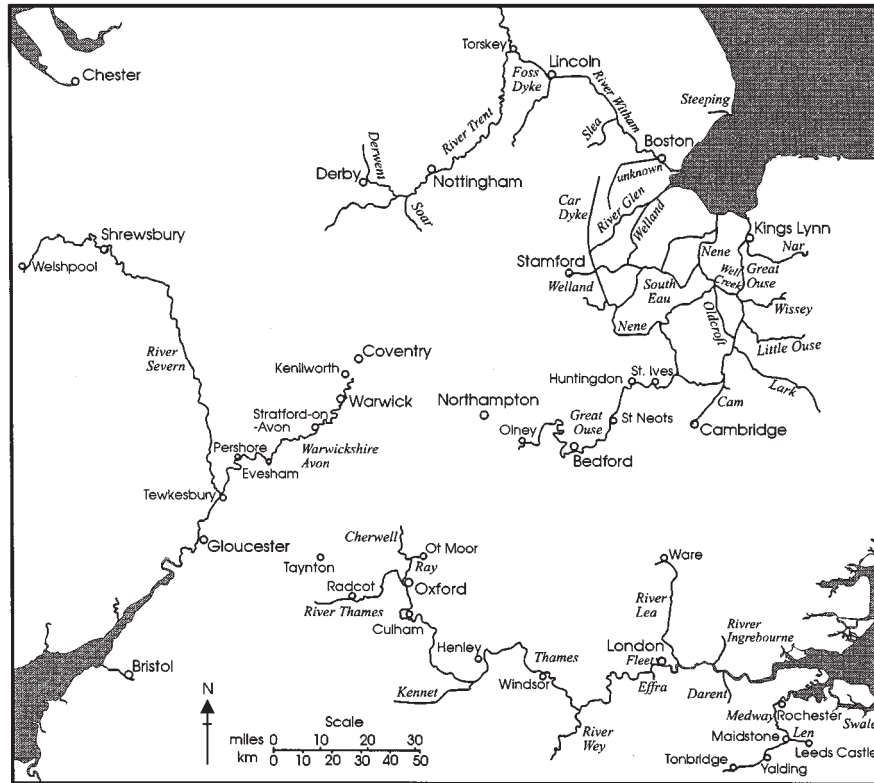


Figure 1. Rivers covered by the reevaluation.

England's waterways. This means that the conclusions drawn from this research can speak, in broad terms, for the experience of England as a whole.

### Edwards and Hindle's case

The evidence on which Edwards and Hindle base their examination of the river system comes entirely from Edwards's 1987 PhD thesis.<sup>[1]</sup> Any critique of his study has to take account of two issues: first, whether his approach and methodology was valid; and second, whether his analysis of the data he collected and the interpretations he made of it are correct. Edwards's approach to the study was to work through a number of sources in order to pick up discreet references to Medieval navigation. When these references were collated he believed he had sufficient evidence to prove that inland waterways were navigable much further upstream than was generally believed. The data he collected can be divided into three basic groups. The first group consists of references to journeys by particular vessels. The second is made up of references that indicate the existence of river traffic on a section of river—even though specific vessels or journeys are not detailed. The third group consists of orders and commissions to remove obstructions that were blocking river navigation. Of these forms of data, the first and second group should be the least contentious, for if a reference indicates that vessels were carrying goods along a waterway it cannot be doubted that the river could be navigated. By employing such evidence Edwards is sometimes able to demonstrate

that large vessels were able to navigate rivers beyond that suggested by Langdon's study and that such navigation occurred over a considerable period of time. To illustrate how it is possible to build a strong case for navigation by using such evidence, the following section will consider the navigation of the River Severn and the lower Medway.

### *River Severn*

Although John Langdon accepted that the purveyance accounts do not provide a very reliable indicator for navigation on the Severn, he felt able to suggest that the river was only a fully navigable 'A' route as far as Tewkesbury.<sup>[12]</sup> However, there is a wealth of reliable evidence to suggest that large trading vessels could navigate at least as far as Shrewsbury and possibly as far as Welshpool. Edwards's evidence for extended navigation includes a 1228 order to the Sheriff to Worcester to receive twenty tuns of wine from Gloucester and "to cause them to be carried by water to Shrewsbury", a 1284 grant to the Sheriff of Shropshire to fine the owners 'rafts of firewood or timber' which were damaging Montford Bridge above Shrewsbury, and a 1333 order by the Crown that all wool, hides and wool-fells should be arrested at the port of Shrewsbury unless the custom had been paid.<sup>[13]</sup> This last piece of evidence is particularly interesting because it indicates that sea-going vessels could reach the town. Clearly vessels were still reaching Shrewsbury by the sixteenth century, for a pictorial map of the 1570s illustrates rafts being floated down the river above the town and barges being dragged up river towards it.<sup>[14]</sup> That large vessels could have reached the town in the Middle Ages should not be surprising, since during the seventeenth century vessels of 30–50 tons burthen were navigating the unimproved Severn from Bristol to Shrewsbury and in the eighteenth century a water engineer was able to note that although the river had still not been improved "you may navigate a vessel of 50 tons and not a lock the whole way, 200 miles up to Welshpool, except in excessive drought".<sup>[15]</sup>

### *Lower Medway*

In the case of the Medway, Langdon suggests that navigation to Maidstone could only be achieved on an intermittent basis. Nevertheless, Edwards produces convincing evidence that large vessels regularly traversed the river to the town. This includes a 1354 reference to stone quarried in the vicinity of Maidstone being sent by boat to London and a 1356 reference to "a small ship" of Maidstone being arrested in the River Medway with two sarplars of wool.<sup>[16]</sup> Yet his most conclusive evidence is the inclusion of 'Maydenstan' in a 1326 list of port towns which were ordered "to survey the ships over 50 tons" and send such ships to join the fleet at Portsmouth.<sup>[17]</sup> The continued use of the river by large, sea-going vessels is attested by a 1566 return to the Crown, which noted that Maidstone then had four ships of between 30 and 50 tons.<sup>[18]</sup>

### **Crown commissions**

The above examples illustrate that Edwards's approach can demonstrate that rivers were fully navigable further upstream than the purveyance accounts suggest. Edwards's methodology is thus justifiable in so far as he relies on hard evidence for navigation. However, the methodological issue that still needs to be addressed is whether his third type of evidence, orders to remove obstructions to river navigation, proves that

navigation was maintained. Such orders are primarily associated with Crown commissions to remove obstructions that were hindering navigation or causing floods. Edwards notes the creation of a large number of these commissions in the late thirteenth and fourteenth centuries and takes their creation as evidence that navigation continued on the named sections of rivers. In noting such cases Edwards is evidently right in assuming that there was an official belief that the river should be open to traffic. Their creation thus suggests that a river had once been navigable; the contentious issue is whether they were effective. In most cases it is not possible to determine this, since although rivers were often subject to a number of commissions over the years, the documents rarely mention particular obstructions or allude to the success of previous commissions. Sometimes, though, it is possible to gain an insight into their effectiveness. An illustration of one such case is given below.

### *Foss Dyke*

During the twelfth and thirteenth centuries there is good evidence that this waterway was navigable. There is, for instance, a reference to it being cleared in 1121 so that vessels could pass and in the mid-thirteenth century a complaint was raised about the levying of tolls on Lincoln ships using the Foss Dyke.<sup>[19]</sup> On the other hand, the fourteenth century case for navigation rests largely on the creation of three commissions to deal with obstructions to the dyke. The first of these (1335) noted that the Fossdyke was “so obstructed the passage of boats and ships is no longer possible”. The commissioners were ordered to survey the waterway, find out how and when it became obstructed and to compel its cleaning. Monies were raised from the liable parties and distributed to those who were to clear it. Yet subsequent evidence presented to the King indicated that those who received the money “have converted the greater part thereof to their own use”. As a result of this fraud an inquisition was ordered to find out “what men received the money, how much they applied in the removal of the obstruction and how much they retain”.<sup>[20]</sup> Edwards interprets these data by suggesting that “monies in excess of what was required to remove the obstruction were appropriated by the collectors”. This interpretation implies that the dyke was cleared. However, the Calendar does not state that this was the case and an equally plausible reading would be that those contracted to clean the dyke had simply embezzled the money.

The next commission was set up in 1365. It is interesting in that it indicates that, although the dyke had once been passable, it had become obstructed by a process of decay and silting-up that must have happened over a long period of time. It notes that the Fossdyke:

by which ships and boats with merchandise and victuals used to pass to and from Lincoln is so obstructed by some of those parts having lands, meadows and pastures on both sides of it who in summertime drive their cattle over it to their feedings, as well by an unusual growth of grass and the rising of the sand in it that there is now no passage in it.<sup>[21]</sup>

Following this observation it was ordered that commissioners should survey the dyke, find out who was responsible for its repair and compel rectification. But this commission must have failed because just 11 years later another was set up with an identical remit and identical causes were cited for the dyke’s decline.<sup>[22]</sup> The 1376 commission was presumably set up in response to presentments made the previous year that the Foss Dyke “was once open and full of water so that ships . . . could come thereby . . . and is now stopped for the lack of repair and cleaning”.<sup>[23]</sup> Although Edwards claims this

presentment indicates the ongoing importance of the dyke's navigation to the inhabitants of the region, the dyke could not in fact have been important for a long time, since the presentment goes on to note that "the said stoppage has continued for thirty years". This confirms that the 1365 commission had failed and suggests that even if some work had been carried out in 1335, it could not have been effective for very long. Whether the 1376 commission had more success than the previous ones is uncertain but, since attempts to clear the dyke were abandoned from the late fourteenth century until 1518, it seems unlikely that this was the case. In the event, the sixteenth-century attempts to clear the dyke also failed and it was not fully reopened until 1672.<sup>[24]</sup>

Since the Foss Dyke commissions were ineffective it cannot be assumed that the other commissions which Edwards so frequently cites were any more successful. The repeated creation of commissions to clear waterways like the upper Thames, which was subject to nine commissions between 1302 and 1377, may thus be a reflection of the limitations of the Medieval State rather than its success in maintaining waterways.<sup>[25]</sup> Since doubts exist as to the efficacy of such commissions, they cannot be used to prove that river navigation was maintained, except in those rare cases where commissions contain specific references to the continued use of a waterway by river traffic.

### Navigation case studies

Thus far it has been argued that Edwards's approach is reasonable so long as firm evidence can be found of navigation by large boats or trading vessels. If such evidence can be found, it can be assumed that a waterway was navigable even if the Purveyance Accounts do not mention its use. Still, this is not to say that all of Edwards's other claims are justified, for the issue that remains to be addressed is whether his interpretations are always sound. As it turns out, this is the crucial issue, for although Edwards does sometimes present a convincing case for navigation beyond that suggested by Langdon, in many more cases his arguments cannot be substantiated. Since these arguments frequently relate to precisely the areas over which the main contention has arisen, it is necessary to examine the evidence he employs in some detail.

#### *Upper Medway*

Starting with the Medway, Edwards suggests that the river was fully navigable for 16 miles beyond Maidstone. He also suggests its tributary, the River Len, was navigable for 10 miles to Leeds Castle. His belief that the Medway was navigable upstream of Maidstone is based entirely on a 1326 payment to the keeper of Rochester Castle (at the mouth of the Medway) for the costs involved in making timber from seven oaks in Tonebrugge Forest and the subsequent "carriage of the timber by land and water" to Rochester.<sup>[26]</sup> Although no indication is given as to where the timber was transferred to the river, Edwards infers from this that the Medway must have been navigable to Tonbridge. That the river was not navigable above Maidstone by at least the sixteenth century is made extremely clear in one study of the opening up of the river's navigation. Although Chalkin notes that "[f]rom at least 1580 small boats could intermittently travel upstream from Maidstone for six miles to Yalding" he also reveals the very great problems involved in making the river navigable beyond Maidstone.<sup>[27]</sup> This was largely because the opening up of the river was opposed by landowners who possessed property next to the river and wished to use it for their own purposes, such as fishing and mills. As a result, full navigation to Tonbridge was not achieved until well into the seventeenth century. Edwards's evidence for the use of the Len is similarly weak, for it rests on a



single 1359 order that “timber, stone, iron, boards, tiles, charcoal and all other necessities” required for building works at Leeds Castle were to be brought “to the castle by land and water”.<sup>[28]</sup> However, as in the case of the Medway, there is nothing to indicate that it was transported all the way by water and the order might simply imply that the goods should be taken by water to Maidstone and then by land to the castle.

### *River Thames*

If the argument for navigation of the Len and upper Medway is weak, the evidence for a number of other rivers in the Thames group is also questionable. In the case of the Thames, there is good evidence that vessels, laden with grain, could pass down-river from Radcot until at least the thirteenth century. For instance, in the early thirteenth century the monks of Beaulieu were granted the right to lade goods onto the Thames at Radcot for transport to London. This must have been a practical possibility at the time, since at one point a dispute developed over the nuisance caused by the monks selling grain to merchants who subsequently laded it onto boats opposite Radcot.<sup>[29]</sup> The continued use of this part of the river for carrying grain can be inferred from a 1271 grant to one of the King’s Yeomen who was given:

the boat wherein Gilbert son of Walter le Messser was lately drowned by misadventure in the Thames at a place called ‘La Juresherd’ within the said Matthias’s liberty, of Radecote, with 5 1/2 quarters of wheat, an iron chain, a lock and eleven sacks found in the said boat.<sup>[30]</sup>

This indicates that grain was still being carried along the river in the late thirteenth century, but since the boat was carrying just one ton of grain, it is not clear that the river was one of the fully navigable ‘A’ routes that Edwards was seeking to identify. Although Edwards provides further hard evidence for navigation to Oxford in the eleventh–thirteenth centuries, it appears that by at least the fifteenth century the river was not suitable for navigation beyond Reading.<sup>[31]</sup> This can be inferred from a 1448/9 builder’s account, which deals with the transport of stone from Taynton (in west Oxfordshire) to Eton (by Windsor). On this occasion the master of the works first tried sending stone down the Thames from Culham, just below Oxford. But “owing to weirs and other obstructions it did not prove satisfactory” so subsequently he had the stone carted straight to Henley—even though this would have taken it past Culham and doubled the carting distance.<sup>[32]</sup> This account indicates that although it was possible to use the upper reaches of the river, by the late Medieval period it was not a cost-effective way of transporting even bulk goods.

### *River Lea*

In the case of the Lea, Edwards has a good case for thirteenth-century navigation. At this time, the river was certainly used for long-distance transportation of bulk goods, for in 1220 the Countess of Winchester granted to the canons of Holy Trinity, “free carriage for their corn by ship from Ware to London, at the same price as they had paid in the time of her father and mother, viz., 1d. on a quarter of hard corn”.<sup>[33]</sup> The river’s continued use for transporting bulk goods is attested by a 1258 reference to 34 tuns of wine being sent from Ware to London by water and by the use made of it for transporting grain from Ware to London around 1300.<sup>[34]</sup> During the fourteenth–fifteenth century, it appears that the river was still at least partly navigable for a number of

commissions and complaints make references to the current, rather than past, passage of boats on it.<sup>[35]</sup> At all events, by the mid-sixteenth century the river had long ceased to be a practical route for transporting bulk goods to London. This is apparent from a 1560 investigation by the City of London to view the river as far as Ware “to consyder whither yt maybe so clensyd that Barges and other vessells may parse thereupon unto this cytie with fewell corne hay & other necessareys”.<sup>[36]</sup> Although improvements were effected from the 1570s, the work led to vociferous complaints, violence and vandalism by carters, who claimed that they were utterly undone by the new water transport. Since they particularly objected to the transport of arable goods down the river, carting must have long since supplanted water transport as the primary means of sending goods to London.<sup>[37]</sup>

### *The Great Ouse*

Turning from the Thames system to the waterways of the Wash exposes other instances in which Edwards’s case is overstated. The worst example of this is the Great Ouse. In this case, Edwards suggests that the river was fully navigable all the way to Olney in Buckinghamshire. Yet his hard evidence of navigation beyond St Neots is limited to a fourteenth-century reference to a boat at Lavendon and a piece of tenth-century archaeological evidence which indicates that an invading Danish army built a temporary dock on the river at Willington—some five miles east of Bedford. However, since the fourteenth-century boat was actually a fishing boat being employed in the Abbot’s fishery at Olney and the tenth-century evidence relates to navigation adopted in very unusual circumstances his case is unsustainable.<sup>[38]</sup> For the navigation of the Huntingdon reaches there is slightly more evidence, for materials brought for building the churches and priory of St Neots were apparently carried in by water.<sup>[39]</sup> Nevertheless, by the fourteenth century navigation above St Ives appears to have been quite limited, for a 1338 reference, which deals with wool sent from Huntingdon to Kings Lynn, indicates that it was first sent by boat to St Ives before being transferred to shutes for the rest of the journey.<sup>[40]</sup> The use of small boats above St Ives would have been strange if the shutes, which were themselves river barges rather than ships, could get as far as Huntingdon. This suggests that St Ives, the point suggested by Langdon, was the limit to which large vessels could travel by the late Medieval period. That this was certainly the case by the early modern period can be determined from a 1672 deposition produced some decades after engineering improvements had been effected to the Ouse. In this deposition, various witnesses noted that before the navigation had been improved the use of the river below St Neots was limited. This was because goods sent along the river either had to be transhipped at each mill, or the boat had to be unloaded at each mill and then dragged up to the next stretch of river—a process known as ‘backing’. The effect this had on water trade is best described by one seventy-year-old witness who noted that before the navigation:

they did bring all sorts of corn, as are now in boats, by backing them over at the mills, but a good part was brought by carts by reason of the troublesomeness of the passage by water, by reason of backing them at the mills.<sup>[41]</sup>

### *River Derwent*

Moving up to the Humber system, Edwards’s evidence is the most problematic in the case of the River Derwent, which Langdon considered to be unnavigable. In this case,



a charter of 1204, a grant of 1229 and a reference to the use of the river in John's reign suggest that the river was navigable to Derby until the early thirteenth century.<sup>[42]</sup> On the other hand, after the building of nine mills at Borrowash between 1268 and 1270, the case for continued navigation is much less satisfactory.<sup>[43]</sup> For his part Edwards notes the existence of two fourteenth-century references to barge loads of lead being sent from the King's Derbyshire lead mines to Nottingham. This provides the basis for his conclusion that the Derwent must have been navigable for some distance beyond Derby.<sup>[44]</sup> Yet these references to barge loads of lead do not prove that water transport was being used, since the 'barge-loads' and 'cart-loads' referred to in the accounts are simply units of measurement.<sup>[45]</sup> That it is not possible to infer from the use of either term how lead was actually transported becomes clear when the 1325 reference that Edwards cites is examined in full. It reads:

Allowance to the sheriff of Notts of the price of 24 great cartloads (*grantz charrees*) and 1/2 foot of lead, if it appears this amount has been delivered to him by Robert de le Forde and Nicholas his brother, farmers of the King's lead mine of the wapentake of Wrykesworth and Hertyngdon in accordance with the King's order to deliver as much as might be needed for covering certain houses in Notyngham Castle at the price contained in their commission, viz. 44s. the barge-load (*la charee ererecte*).<sup>[46]</sup>

Edwards's other fourteenth-century evidence for Derwent navigation is based on a quotation taken from the Calendar of Patent Rolls that in 1378 Derby was "charged with making a balinger".<sup>[47]</sup> Edwards suggests that after construction this ship "would no doubt be floated the 9 miles down-river to the Trent, for delivery to the King's officers". Unfortunately, Edwards misquotes the Calendar—which in fact states that Derby was "charged along with the men of Nottingham with making a balinger". This is important since it means that even if the 25 balingers that the Crown ordered to be built this year were all built at the place so charged this particular vessel could have been constructed at Nottingham rather than at Derby.<sup>[48]</sup>

### *Warwickshire Avon*

Turning lastly to the Warwickshire Avon, it may be noted that this river is significant, since while Langdon considers it to be unnavigable, Edwards suggests that it was fully navigable at least as far as Warwick and possibly up to Kenilworth. If he were right this would put even Coventry within striking distance of a navigable waterway. Dealing first with the navigation of the lower reaches of the river, it may first be noted that there is some evidence that the river was navigable at least as far as Evesham; for the accounts of the monastery at Pershore indicate that goods were brought to the site by water from Bristol, Tewkesbury and Evesham.<sup>[49]</sup> However, Edwards's evidence for navigation beyond Evesham is weak. He alludes to Beresford's belief that the river was navigable to Stratford and possibly beyond, but this appears to have been merely a supposition on Beresford's part.<sup>[50]</sup> This means Edwards's only concrete evidence for navigation beyond Evesham is a reference to an attack on Kenilworth castle in 1266. During this attack it is related that a ship was brought to the siege from the Gloucester area and that a number of barges were sent overland to Kenilworth from Chester to facilitate the crossing of the moat.<sup>[51]</sup> Yet, this was clearly a most unusual set of conditions and the sending of the barges overland—rather than down the Severn and up the Avon—suggests that there was no navigable river in the vicinity. That the river was not even navigable as far as Warwick (at least by large vessels) may be deduced from a proposal by Richard De Beauchamp (d.1439) "to deepen the shallow parts of

the Avon between Tewkesbury and Warwick, to enlarge the arches of bridges, and to compound with millers to let ships pass”.<sup>[52]</sup>

### **The value of Edwards’s thesis**

The primary intent of this paper was to reassess the validity of Edwards and Hindle’s case. It has been demonstrated that the creation of Crown commissions to remove obstructions to river navigation cannot be taken as proof that navigation was maintained. It has also been shown that Edwards’s analysis and interpretations are frequently unsound. An examination of his evidence has made it particularly clear that great care must be taken with extrapolating too much from references to what were, or might have been, small vessels. Waterways that could only support small vessels may have been economically important to a local area, but a river cannot be characterised as an ‘A’ route unless it was open to trading vessels on a regular basis. Nevertheless, such criticisms do not imply that the approach that Edwards took was wrong, for his failure lay not in his approach but in an application which treated data in too uncritical a way. In this respect, his greatest mistake was his use of evidence from one point in the Middle Ages as evidence for navigation throughout the period. This is a critical issue because if the evidence for river navigation is placed in a tighter chronological framework, it becomes apparent that there were significant changes in the extent of England’s navigable river network during the period.

### **The decline of river navigation in Medieval England**

Evidence that the extent of river navigation decreased during the later Middle Ages can be found on three levels. First, there is clear evidence that a number of England’s major waterways underwent a reduction in their navigation at some point between the late thirteenth and fifteenth centuries. Second, it can be inferred from Crown commissions that some waterways were once more navigable than they had become by the late thirteenth–fourteenth centuries. Third, late Medieval legislation on waterway obstructions indicates that the Crown was unable or unwilling to prevent the accumulation of the obstructions on England’s waterways that so hindered river traffic.

Much of the evidence for a reduction in river navigation can be found by referring back to the case studies examined earlier in this paper. In the case of the Fossdyke it can be noted that while there is good evidence that the waterway was in commercial use during the twelfth–thirteenth centuries, it appears to have silted-up during the fourteenth century and was not subsequently reopened until the seventeenth century. Of the Derwent, it was suggested that navigation ceased after mills were built on the river in 1268–70. It was not subsequently reopened until 1720.<sup>[53]</sup> The Thames must also have undergone a reduction in its navigation for, while grain was being sent down-river from Radcot to London in the thirteenth century, by the fifteenth century it was not even practical to send goods down stream from Culham to Henley. Since there is no evidence that the river was passable between Culham and Oxford from the late fourteenth century until 1635 the extent of navigation on the Thames must have undergone a significant contraction in the late thirteenth or fourteenth century.<sup>[54]</sup> The Lea also ceased to be an effective transport route, for while in the thirteenth century goods like wine and grain were sent down river from Ware to London, by 1560 the transport of such goods was in the hands of carters. The Great Ouse seems to have undergone a reduction in its navigation, for though building materials for St Neots had been sent along the river during the Middle Ages, by the start of the seventeenth

century any goods sent along the river above St Ives had to be transhipped at every mill. Lastly, the River Welland must have undergone a reduction in its navigation during the Middle Ages, for while Stamford had been a port in pre-Conquest times, by 1570 the river route to the town had silted-up and the way was blocked by mills.<sup>[55]</sup>

Though references that prove that navigation had terminated are hard to come by, when taken together, the evidence from the above watercourses indicates that there was a widespread decline. That this was so is confirmed by two other groups of evidence—Crown commissions and national legislation.

The efficacy of Crown commissions was discussed earlier in this paper. It was then suggested that, regardless of their success, their creation presumes an official belief that the named sections of the river had once been open to traffic. During the thirteenth and fourteenth centuries, Edwards notes the creation of Crown commissions to remove obstructions in the navigation of several waterways. These include some of the waterways discussed above, but commissions were also created to examine waterways, or stretches of waterways, where no evidence has been found that open navigation ever existed. For instance, commissions into the blocking of the Great Ouse between Huntingdon and St Ives support the earlier suggestion that the Huntingdon section of the river was once more open, while serving to clarify when exactly the decline occurred.<sup>[56]</sup> It also seems likely that the rivers Cherwell and Ray were once navigable, since a commission was created in 1294 to remove obstructions between London and Ot Moor whereby “vessels cannot pass as they were wont”.<sup>[57]</sup> Although there is no evidence that the commissions were effective, their creation does presume a belief that open navigation was once possible as far as the named places.

The other evidence that indicates that river navigation was declining is derived, paradoxically, from the growing volume of late Medieval legislation passed to prevent the obstruction of England’s watercourses. The first national legislation to deal with waterway obstructions was encompassed in the Magna Carta (1215), which stated that, except on the coast, all weirs should be removed.<sup>[58]</sup> It was followed in 1350–51 by an Act that noted that “the common passage of boats and ships in the great rivers of England be oftentimes annoyed by the inhansing of gorges, mills, wears” and ordered that all such built since the time of Edward I should be pulled down.<sup>[59]</sup> Yet this law was clearly ineffective, for 20 years later another was passed owing to “the grievous complaint of the great men and the Commons . . . that the [previous] statute is not dully executed or kept”.<sup>[60]</sup> The new Act imposed a 100 Mark fine on those who rebuilt a weir that had been pulled down after due process. Further legislation was necessary in 1397–8. This extended the remit of the previous legislation to deal with the “outrageous inhansing and stratening of wears, mills, stanks and kiddles” built before Edward I’s time and ordered that commissions were to be appointed in each county “to survey and keep the great rivers there”.<sup>[61]</sup> That these new measures did not work is apparent from further legislation. An Act of 1402 noted the problems were continuing, provided pay for the commissioners and promised that the previous statutes would be “holden and kept in due execution”.<sup>[62]</sup> This clearly did not happen, for 11 years later more legislation was passed. It was again noted that great complaints had been made about the failure to observe the law and it was once again promised that this time the previous statutes would be duly kept.<sup>[63]</sup> The next Act was passed in 1423. This outlawed ‘nets and engines called trinks’ that were hung continually across rivers and as a result both depleted fish stocks and disturbed the passage of vessels.<sup>[64]</sup> The last general legislation was that which was passed in 1472. It recited all the previous laws in great detail and explicitly noted their failure for “in divers parts of this Realm of England . . . fishgarths, mills, milldams, millstanks, locks, ebbing-wears, stakes, kedels, hecks, floodgates and

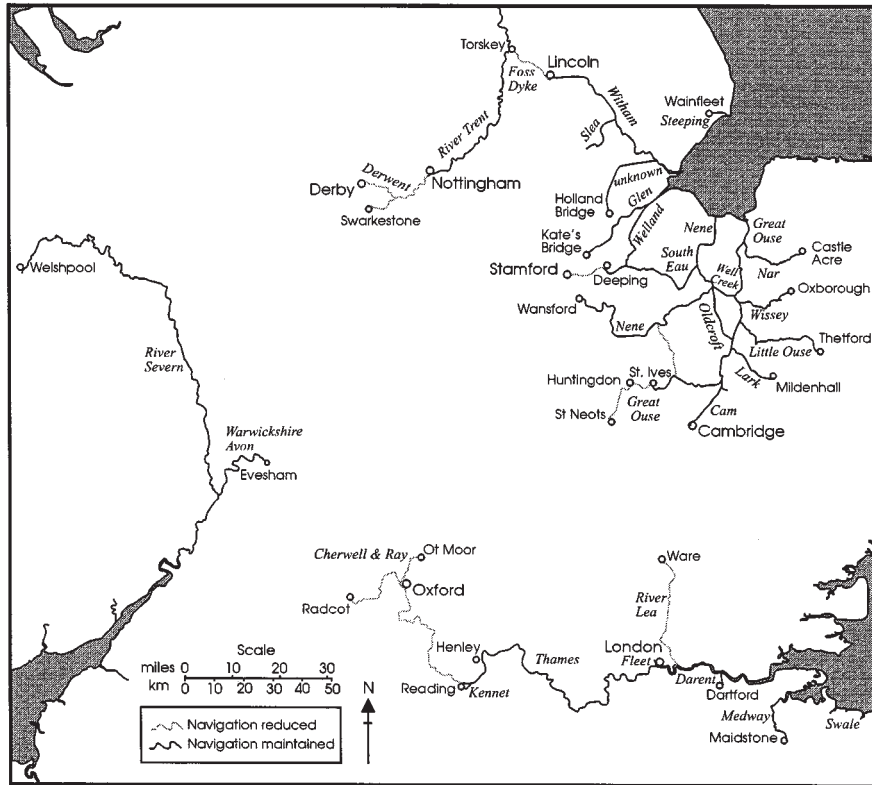


Figure 2. The decline in river navigation in the late Middle Ages.

divers other disturbances be daily made, reised, enhaunced and enlarged".<sup>[65]</sup> To try and rectify the problem, the level of fines was sharply raised. Still, the failure of the normal legislative process to deal with the problem was tacitly accepted two decades later when Henry VII passed a law dealing with obstructions around Southampton.<sup>[66]</sup> This statute noted that navigation into Southampton was becoming difficult owing to the building of weirs and permanent fishnets. If the existing legal process were in any way effective, it would have been possible simply to order commissioners to affect removal. However, it must have been recognised that this would not work, for instead a drastic measure was imposed that stated that within a set area during the following 20 years, anyone would have the right to destroy any obstructions they found and those who interfered would be fined £40.

From the comments and measures within this body of legislation it appears that the number and size of obstructions on navigable waterways was increasing during the late Medieval period. Since this conclusion is supported by the creation of the commissions into obstructions to navigation and since in a number of cases it has been possible to prove that particular watercourses ceased to be navigable during the Middle Ages, there is good reason for believing that there was a wide-scale reduction in the extent of river navigation during the late Medieval period (Figure 2).

#### *The cause of the decline in navigation*

If the extent of England's navigation declined, some attempt must be made to explain the change. This is a difficult issue to address, for there are a number of factors that

could have been at work and it is possible that unknown factors, such as a secular decline in precipitation levels, may have contributed to the decline. However, the comments of contemporaries and the available literature suggest two main possibilities that should be explored.

The first, and perhaps simplest, explanation for a decline is that the number of obstructions increased until it was impossible, or at least uneconomic, to use the upper sections of some rivers. On the basis of the legislation and complaints observed above it would appear that the main cause for the decline in navigation was the increasing encroachment on rivers by mills and fish-traps. Yet, although there is evidence that the number of mills on England's rivers was increasing until 1300, Langdon's study of the English milling industry suggests that their number decreased after this time.<sup>[67]</sup> On the face of it, it is difficult to square Langdon's study with the legislation and the complaints of river users. However, it seems possible that while some mills were abandoned, others may have been enhanced. This seems a plausible explanation, since most of the post-1350 legislation referred to above was concerned with the enhancement of existing mills rather than the building of new ones. The total number of obstructions, including those that resulted from neglect rather than intent, may thus have increased despite the reduction in the number of mills.

The second explanation for the reduction in navigation is that the population decline of the fourteenth–fifteenth centuries reduced the pressure to maintain navigation. This is an attractive explanation because the fall in urban demand for bulk goods, such as grain and fuel, can be shown in the case of London to have reduced the need to acquire subsistence goods from such great distances.<sup>[68]</sup> Since rivers like the Lea were opened-up in the sixteenth century specifically to provide food to the growing population of London, it would be unsurprising if the decline of navigation in the later Middle Ages occurred because the drastic decline in the city's population reduced the demands on the waterway. On the other hand, although the decline in population might explain the lack of pressure to maintain or expand navigation in the fourteenth–fifteenth centuries, it does not explain why some rivers appear to have ceased to be navigable in the thirteenth century. For instance, the Derwent was not navigable after 1260, the Great Ouse was blocked above St Ives after 1287 and the Foss Dyke was clearly silting-up by the very start of the fourteenth century. Since the population decline did not set in until the fourteenth century, the decline in navigation on these rivers cannot have been due to a decline in urban demand.

## Conclusion

The primary purpose of this paper was to reevaluate Edwards and Hindle's radical thesis. Through a close examination of the evidence on which their position was based it was shown that their conclusions cannot be relied on at face value. Still, the approach which Edwards took was in itself valid and when evidence of the type he collected is placed in a tighter chronological framework, his methodology can be used to demonstrate that there were important changes in the extent to which England's waterways were navigable in the Medieval period. In itself this helps to explain part of the discrepancy between the findings of Edwards and Langdon. This is because Edwards's most convincing evidence for extended navigation comes from the eleventh–thirteenth century, while Langdon's study is derived from fourteenth-century accounts, by which time the extent of navigation had already begun to decline. Nevertheless, the research still revealed that the extent of England's 'A' route rivers was never as great as Edwards



and Hindle suggest. This means that while navigation may have had a major impact on economic and urban development in some parts of the country, its impact could not have been as pervasive as they suggest.

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### Acknowledgements

The research for this paper was conducted at the Centre for Urban History, University of Leicester, for a ESRC-funded project on 'Urban hierarchy and functions in the East Midlands in the late Middle Ages: a pilot study' (R000235902). For their comments and assistance in writing this article, I would like to thank John Blair, Peter Clark, Chris Dyer, Jim Galloway, Annie Grant, Ken Jones, Shirley Jones, Jane Laughton, John Langdon, Charles Phythian Adams and Roy Pinkerton.

### Notes

- [1] J. Edwards and B. Hindle, The transportation system of Medieval England and Wales, *Journal of Historical Geography* **17** (1991).
- [2] J. Langdon, Inland water transport in Medieval England, *Journal of Historical Geography* **19** (1993) 2.
- [3] J. Edwards and B. Hindle, Comment: inland water transportation in Medieval England, *Journal of Historical Geography* **19** (1993) 12–4. The unresolved nature of the dispute has been noted in a recent review article: R. Britnell, Review of periodical literature published in 1993, *Economic History Review* **48** (1995) 153.
- [4] B. Campbell, J. Galloway, D. Keene and M. Murphy, *A Medieval Capital and its Grain Supply: Agrarian Production and Distribution in the London Region c. 1300*, Historical Geography Research Series **30** (1993) 60; R. Szostak, *The Role of Transportation in the Industrial Revolution: A Comparison of England and France* (Montreal 1991) 50.
- [5] Campbell *et al.*, *A Medieval Capital and its Grain Supply*, 60–3; J. Galloway, D. Keene and M. Murphy, Fuelling the city: production and distribution of firewood and fuel in London's region, 1290–1400, *Economic History Review* **49** (1996) 458–9.
- [6] Campbell *et al.*, *A Medieval Capital and its Grain Supply*, 111–44; Galloway, Keene and Murphy, Fuelling the city, 468.
- [7] R. Peberdy, *The Economy, Society and Government of a Small Town in Late Medieval England: a study of Henley-on-Thames* (unpublished PhD thesis, University of Leicester 1994) 105–6, 269.
- [8] W. Stubbs (Ed.), *Chronica Magistri Rogeri De Houedene*, Vol. II. (London 1869) 223–4.
- [9] H. Colvin, Dale Abbey—Granges Mills and other buildings, *Journal of the Derby Archaeological and Natural History Society* **60** (1939) 153; *Cal. of Patent Rolls*, 1364–7, 138; *VCH*, Warwick, Vol. VIII, 481.
- [10] Edwards and Hindle, The transportation system of Medieval England and Wales, 128.
- [11] J. Edwards, *The Transport System of Medieval England and Wales—A Geographical Synthesis* (hereafter Edwards, thesis) (unpublished PhD thesis, Salford University 1987).
- [12] Langdon, Inland water transport, 4–5.
- [13] Edwards, thesis, 331–4; *Cal. of Liberate Rolls*, 1226–40, 99; *Cal. of Patent Rolls*, 1281–92, 116; *Cal. of Close Rolls*, 1333–7, 53.
- [14] A. Davies, The river trade and craft of Montgomeryshire and its borders, *The Montgomeryshire Collections* **44** (1935) 54.
- [15] M. Wanklyn, The Severn navigation in the seventeenth century: long distance trade of Shrewsbury boats, *Midland History* **13** (1988); R. Whitworth, *Advantages of Inland Navigation* (London 1776) 54–5.
- [16] Edwards, thesis, 275–6; *Cal. of Patent Rolls*, 1354–8, 96; *Cal. of Close Rolls*, 1354–60, 246.
- [17] Edwards, thesis, 275; *Cal. of Patent Rolls*, 1324–7, 310.



- [18] P. Clark and L. Murfin, *The History of Maidstone: The Making of a Modern County Town* (Stroud 1995) 46.
- [19] M. W. Barley, Lincolnshire rivers in the Middle Ages, *Lincolnshire Architectural & Archaeological Society: Reports and Papers* 1 (1936) 10, 14.
- [20] Edwards, thesis, 198; *Cal. of Patent Rolls*, 1334–8, 148, 203.
- [21] *Cal. of Patent Rolls*, 1364–7, 138.
- [22] *Cal. of Patent Rolls*, 1374–7, 322.
- [23] Edwards, thesis, 198; C. Flower, *Public Works in Mediaeval Law*, Selden Soc. 32 (1915) 292.
- [24] Barley, *op. cit.*, 10–1.
- [25] *Cal. of Patent Rolls*, 1301–7, 88–9, 406; 1317–21, 547; 1327–30, 150; 1350–4, 93, 204; 1361–4, 545; 1367–70, 346–7; *Cal. of Close Rolls*, 1369–74, 11; 1374–7, 508.
- [26] Edwards, thesis, 275; *Cal. of Memoranda Rolls*, 1326–7, 80.
- [27] C. Chalkin, Navigation schemes on the upper Medway, 1600–1695, *Journal of Transport History* 5 (1961–2) 107.
- [28] Edwards, thesis, 277; *Cal. of Patent Rolls*, 1358–61, 187.
- [29] This information was provided by John Blair (Queen's College, Oxford), along with a number of other references that demonstrate that the upper Thames was navigable in the thirteenth century: British Library, M.S. Cotton Nero A xii, ff.47v–50.
- [30] Edwards, thesis, 268; *Cal. of Patent Rolls*, 1266–72, 610.
- [31] Edwards's high Medieval evidence includes references to Oxford claiming tolls on river traffic in the eleventh century and to corn being sent by water from Wallingford to Rayleigh (Essex) in 1266: F. S. Thacker, *The Thames Highway—General History* (London 1914) 13–4; *Cal. of Patent Rolls*, 1266–72, 26.
- [32] H. Colvin (Ed.), *The History of the King's Works* I (1963) 282.
- [33] *VCH*, Hertford, Vol. III (London 1912) 383.
- [34] Edwards, thesis, 279; *Cal. of Liberate Rolls*, 1251–60, 444, 447; Campbell et. al., *A Medieval Capital and its Grain Supply*, 59, 194.
- [35] J. Burnby and M. Parker, *The Navigation of the River Lee, 1190–1790*, Edmuntton Hundred Historical Society, Occasional paper, New Series 36 (1978) 1–4.
- [36] City of London Record Office, *Repertories* 14, f. 365.
- [37] Burnby and Parker, *op. cit.*, 5–7.
- [38] Edwards, thesis, 220, 225; *Cal. of Patent Rolls*, 1338–40, 284–5; D. Summers, *The Great Ouse—the history of a river navigation* (Plymouth, 1973) 25.
- [39] C. Tebbut, *St Neots: The History of a Huntingdonshire Town* (London 1973) 84.
- [40] Edwards, thesis, 225; J. Willard, Inland transportation in England during the Fourteenth century, *Speculum* 1 (1926) 372.
- [41] Tebbut, *op. cit.*, 85.
- [42] Edwards, thesis, 188; C. Hadfield, *The Canals of the East Midlands* (1970) 31; Colvin, Dale Abbey, 153; *Cal. of Charter Rolls*, 1226–57, 96.
- [43] Edwards, citing Hadfield, *op. cit.*, 31, suggests that the mills were removed by Edward I. Hadfield bases this assertion on a comment by Colvin, Dale Abbey, 153, that the King set up an inquiry to resolve a dispute over the mills. However, since this dispute was over ownership of the mills, rather than over the damage they were doing to navigation, there is no reason to believe that they were removed: *Cal. of Patent Rolls*, 1281–92, 93–4.
- [44] Edwards, thesis, 188–9.
- [45] A 'barge-load' (or caretate) of lead equalled 24 fotinels of 70 lbs a piece—i.e. 1680 lbs—and a 'cart-load' of lead equalled 30 feet of 6 stones a foot, at 13.5 lbs a stone—i.e. 2430 lbs. That a 'barge-load' and a caretate were the same thing is suggested in the *VCH*, and is apparent in the 1322 account that Edwards cites. This account states that the lead he refers to was sold at 44s. the caretate and that this came to £143 for 65 barge loads. Since this works out at 44s. per barge-load, a caretate and a barge-load must be the same thing: *VCH*, Derbyshire, Vol. II, 324, 328.
- [46] *Cal. of Memoranda Rolls*, 1326–7, 43, No. 262.
- [47] Edwards, thesis, 189; *Cal. of Patent Rolls*, 1377–81, 147–8.
- [48] *Cal. of Close Rolls*, 1377–81, 32–3.
- [49] Edwards, thesis, 338; J. Rogers, *A History of Agriculture and Prices in England*, Vol. IV (Oxford 1882) 696–7.
- [50] M. Beresford, *New Towns of the Middle Ages* (London 1967) 501.
- [51] Edwards, thesis, 338; J. Forde-Johnston, *A Guide to the Castles of England and Wales* (London 1981) 159; *Cal. of Liberate Rolls*, 1260–7, 289.

- [52] *VCH*, Warwick, Vol. VIII, 481.
- [53] F. Williamson, George Sorocold, of Derby: a pioneer of water supply, *Journal of the Derbyshire Archaeological and Natural History Society* **57** (1936) 49–53.
- [54] R. Peberdy, Navigation on the River Thames between London and Oxford in the late Middle Ages: a reconsideration, *Oxoniensia* **61** (1996) 312.
- [55] H. Clarke, The archaeology, history and architecture of the Medieval ports of the East Coast of England with special reference to Kings Lynn, Norfolk, *The Archaeology of Medieval Ships and Harbours in Northern Europe*, BAR International Series, **66** (1979) 156–8; A. Rogers, *The Making of Stamford* (Leicester 1965) 47 n. 53.
- [56] *Cal. of Patent Rolls*, 1281–92, 270; 1370–4, 35.
- [57] Edwards, thesis, 284; *Cal. of Patent Rolls*, 1292–1301, 114.
- [58] *Statutes of the Realm* (London 1810) Vol. I, 11.
- [59] *Ibid.*, 315–6.
- [60] *Ibid.*, 393.
- [61] *Statutes of the Realm* (London 1816) Vol. II, 109–10.
- [62] *Ibid.*, 136.
- [63] *Ibid.*, 170.
- [64] *Ibid.*, 225.
- [65] *Ibid.*, 439–42.
- [66] *Ibid.*, 572.
- [67] J. Langdon, Watermills and windmills in the West Midlands, 1086–1500, *Economic History Review* **44** (1991) 41; J. Langdon, *A Backdoor Route to Medieval Population Figures? Mills and people in England 1300–1540* (unpublished paper, Centre for Metropolitan History, London May 1997).
- [68] Galloway, Keene and Murphy, Fuelling the city, 459.

doi:10.1006/jhge.1999.0195, available online at <http://www.idealibrary.com> on IDEAL<sup>®</sup>

## Inland water transport in Medieval England—the view from the mills: a response to Jones

John Langdon

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Evan Jones has attempted to reconcile the difference between my position on inland water transport in medieval England and that of Edwards and Hindle,<sup>[1]</sup> and in general I think he has gone a long way in doing so. I certainly have no quarrel with his argument that the extent of the inland waterway system in medieval England changed significantly over time and that the pattern for the later medieval period at least was for a notable reduction of that system due to obstructions and other problems on previously navigable rivers or channels. But I also feel that the reasons for this particular sequence of events are still very unclear and that perhaps we have focused too much on the problem from the perspective of the boatpeople using the rivers, since, after all, it was not they who created the obstructions. In this regard, I would like to follow up on an allusion Jones made to material from a major work I am currently completing