[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 Mills and people in England 1300–1540* (unpublished paper, Centre for Metropolitan History, London May 1997).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.

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

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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,[1] 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

on milling in the later middle ages.[2] It seems to me a timely moment to outline some of these results as they apply to river transport, and to provide another viewpoint for the issue.

As has been pointed out by several commentators, from early times mills began to have a significant impact, for good or ill, upon inland water transport.[3] They were not the only objects to do so, since fishing weirs could also have a major impact, but mills tended to be mostly permanent structures and, once established, maintained a strong presence on England's waterways.[4] It is thus highly advantageous to have a good sense of the evolution of English milling across the middle ages in order to judge what was happening to inland water transport. Among other things, it may help to clarify certain contradictions, such as Jones's point that complaints from merchants and other river users about mill obstructions tended to increase in the later middle ages even as mill numbers were in decline.[5]

In fact, although Jones is quite right about the decline in the number of water-mills in later medieval England (as I shall outline shortly), the emphasis should rather be on their basic continuity in numbers from at least the late eleventh century. This, of course, is hardly surprising given their number in the Domesday Book (1086), over 6000 of them according to Darby,[6] and Margaret Hodgen's map of most of these mills shows them on virtually every waterway in England, except in the north (in any event, an area poorly covered in the Domesday Book).[7]

What is particularly intriguing is what happened from 1086 to the beginning of the fourteenth century. From a sample of 342 manors (discussed below), which I used to analyse the milling situation in the later middle ages, it was possible to relate the number of early fourteenth-century mills on 197 of these manors to those which existed on these same manors in the Domesday Book. Surprisingly, across the country as a whole the sample showed very little movement in water-mill numbers over the period—224 water-mills in 1086 against 218 on these same manors in the early fourteenth century.[8] Furthermore, the 218 mills in the early fourteenth century included so-called 'industrial mills' (mostly for fulling but also a few for other purposes like forging). Since these industrial mills may often have been added onto sites with pre-existing water 'corn' (i.e. grain) mills, it may be that the water corn mills are a better indicator of the number of actual water power sites. In the sample of 197 manors there were only 197 [*sic*] of these water corn mills. Assuming all the Domesday mills were for grinding grain,[9] this suggests a decline in water power sites of slightly over 12 per cent from Domesday to the early fourteenth century. Although some of this decline was undoubtedly due to water-mills attached to demesnes reverting to tenant status,[10] which are harder to pick up in the mainly account-based evidence I used for the 1300–1540 period,[11] it is unlikely that the number of water-mills increased much overall across the country as a whole.[12] Perhaps most importantly, there was a striking regional variation in the fortunes of water-mills from 1086 to the early fourteenth century. In the sample, for the western and northern parts of the country, the number of water corn mills in fact increased by 60 per cent, as the surplus water power resources these regions still enjoyed were more fully exploited.[13] In the south-east part of the country, on the other hand, water corn mills declined by 40 per cent in the sample, as marginal water-power sites were abandoned in favour of the incoming windmill.[14]

The results of this sample, plus the work of others, has highlighted three features of the development of water-milling from 1086 to, say, the beginning of the fourteenth century that are particularly pertinent to the eventual configuration of the inland water transport system. The first is that river systems in the west and north were continuing to be colonised by water-mills, while in the south and east there may have been a

certain freeing of river systems from mills, particularly after the arrival of the windmill. Second, there seems to have been a move from smaller to larger water power complexes, accompanied by a greater capital investment in weirs, pond systems and the like, as I shall discuss in more detail shortly.[15] Third, and very much connected to the second point, there seems to have been a movement from lesser water-courses to more major ones.[16] This can be seen in Peberdy's study, for example, where only 18 of the 25 places he identified as having water-mills on the Thames by the early fourteenth century had mills in 1086.[17] Holt has detected a similar pattern for the Great Ouse and the Nene, where the number of Huntingdonshire water-mills on these two rivers increased by 30 per cent from 1086 to 1279, despite a sharp decline in water-mill numbers for the county as a whole.[18]

As indicated, a major contributing factor to the trends was the development of more effective water control systems. Altogether, there were three major components in accessing and controlling water power for mills: leats; millsponds; and milldams or weirs. The first two of these could be created without necessarily harming inland water transport. The third—a weir or milldam thrown across the river—undoubtedly had a more severe impact. Weirs may have had beneficial consequences for river transport, as Davis argued some time ago,[19] but ultimately led to restrictions in the inland water transport system. In terms of the larger rivers, it seems that leat systems were first adopted, where a water-trench was dug a suitable distance up-stream, so that the water drawn off the river would have enough of a fall to run the mill before dumping into a tail-race to rejoin the river further downstream. At Old Windsor a leat was dug across a loop in the Thames to drive a vertical water-mill as early as the seventh–eighth century.[20] Similarly, at Abingdon (then in Berkshire, now in Oxfordshire), Abbot Aethelwold allegedly had a kilometre-long leat dug to lead water, again off the Thames, to the Abingdon Abbey mills in the tenth century.[21] Eventually, though, the technology was developed enough to throw a weir across the river. In the Abingdon case, this was seemingly done by the early fourteenth century,[22] but other evidence suggests that this was part of a European-wide phenomenon that began no later than the twelfth century.[23] Thus, excavations at Castle Donington (Leicestershire) have revealed a milldam that was thrown across the Trent in the early twelfth century,[24] and references to the *wara* of a mill abound in the documents from the thirteenth century onwards.[25] The construction of the weirs could range from simple earth dams to more complicated affairs involving two parallel lines of oak piles driven into the river bottom, in between which posts were slid 'wattles' or wooden screens made of twigs. The space between the two lines of piles and wattles was then filled in with brushwood, gravel, stones, and other matter.[26] On smaller streams the same thing was done to create a millpond or series of ponds so characteristic of many mills in England.[27] In all cases a head of water was created, and some of this water was drawn off by a side channel or mill race to power a mill either at the dam itself or connected by a leat some distance downstream. Many weirs, especially on larger rivers, also had a 'flash' or flashlock, essentially a removable part of the dam that would allow water to spill into the downstream river channel. Boats going downstream could shoot these flashes or be winched up if going in the other direction.[28]

As a result, by the beginning of the fourteenth century mills and their weirs had already wrought tremendous change upon the waterways of medieval England. For the period after 1300, vastly increasing documentation allows us to track mill numbers more closely over the years. Table 1 has been constructed from the milling histories of 342 manors for the period 1300 to 1540. This sample of manors, based upon estates which had a long-running series of documents, and especially manorial accounts,

TABLE 1 *Water-mill and water corn mill numbers in medieval England, 1300–1540 (number of mills at 1300 = 100)*

All water-mills*				Water corn mills			
Year	Mill index	Year	Mill index	Year	Mill index	Year	Mill index
1300	100	1430	84	1300	100	1430	80
1310	100	1440	83	1310	99 (100)	1440	78
1320	97 (99)	1450	86	1320	97 (99)	1450	80
1330	97 (100)	1460	85	1330	96 (99)	1460	79
1340	95 (100)	1470	85	1340	95 (100)	1470	79
1350	93 (96)	1480	85	1350	91 (95)	1480	79
1360	91 (92)	1490	86	1360	88 (89)	1490	79
1370	90 (91)	1500	88	1370	85 (86)	1500	80
1380	91 (92)	1510	88	1380	87	1510	81
1390	91	1520	91	1390	86	1520	81
1400	89	1530	97	1400	83	1530	83
1410	87	1540	96	1410	82	1540	82
1420	85			1420	80		

* That is, water corn mills plus fulling and other industrial mills.

covered virtually all of England.[29] Setting the number of mills in 1300 at an index of 100, the water-mills on these manors were summed over the period 1300 to 1540 using a computer program.[30] The first set of columns in Table 1 shows the indices at ten-year intervals for all water-mills (including fulling and other industrial mills) in the sample. The figures in brackets for some of the years provide an alternative interpretation around the period of the Black Death, where the number of water-mills for each manor in 1348 was considered to be the same as that in the nearest preceding document for the manor.[31] The true experience for these years was probably somewhere between the bracketed and unbracketed figures. The table shows the expected drop in mills with the onset of the plague in the middle of the century, but after that the decline in water-mills was more gentle and, after the plague at least, was steady until the middle of the fifteenth century, reaching its nadir at an index of 83 in the 1440s. After this was a noted recovery, particularly in the early sixteenth century, when a sudden flurry of building fulling and other industrial mills in the 1510s and 1520s returned the number of water-mills as a whole to nearly what it had been in 1300. But, as mentioned above, many of these industrial mills were attached to already existing water-mill sites for grinding grain, a pattern already established by the early fourteenth century.[32] When only these water corn mills are computed, the situation is somewhat different, as shown by the second set of columns in Table 1. Again, the number of water corn mills declined sharply after the onset of the plague, with—once more—a gentle decrease after that. But the nadir was deeper, down to an index of 77 in 1447 and with a much more modest recovery in the late fifteenth and early sixteenth centuries.

If we assume, as above, that the number of water corn mills indicates the number of separate water control systems with their accompanying weirs, dams or other impedimenta, then the number of water-mill sites seemingly declined by something like 20–25 per cent from 1300 to about the middle of the fifteenth century. But this reduction was very much a maximum. Some of the industrial mills were undoubtedly on separate sites, especially when the fulling mill was the only 'mill' on the manor. There is also

the issue of so-called 'multiple' mills. These were the cases where a single water-mill site would drive two or more sets of milling stones.[33] The documents generally counted each set of stones as a 'mill', and so some of the reduction may have come about by deactivating one or more of these sets of stones without shutting down the entire mill site. Altogether, it seems likely that the actual drop in individual sites of water-mills was something between 10–20 per cent from the early fourteenth century to the middle of the fifteenth, with a modest recovery afterwards.[34]

It is difficult to assess what this decline of water-mill site numbers would have meant to the inland water transport system. If the reduction in mill sites was specifically directed towards opening up stretches of river for transport, then clearly an adjustment of this order would be important for the inland waterway system. But virtually all signs show that the dereliction of mills was random, usually a result of flooding or perhaps fire with the result that lords, lessees or tenants did not feel that the mill was worth rebuilding.[35] In the sample, only in the case of two water-mills each at Bitterne and Twyford (Hampshire) on the Itchen south of Winchester was there a deliberate decision in 1535–6 to tear down water-mills, possibly to clear the river for navigation, and this was patently a very new phenomenon at the time.[36] Otherwise, it is hard to see what real difference a 10–20 per cent decline would have meant. For example, of the 25 locations that Robert Peberdy has identified where water-mills impeded the passage of boats from London to Oxford in the later Middle Ages,[37] it is difficult to see what a random reduction of, say, five of these milling sites would have achieved. It might have made transport up and down the river somewhat easier, but it would not have had a transforming effect. In any case, derelict milldams may have been as much as an obstruction to river traffic as operating ones. Finally, there is a strong sense from the sample and work elsewhere that failed water-mills in the later middle ages were more likely to be on secondary tributaries than on main arteries like the Thames, where milling concerns required much more investment and were unlikely to have been abandoned lightly. Thus, for instance, it is notable that none of Peberdy's 25 identified milling locations actually lost their mills over the course of the later middle ages.[38] Such a policy agreed well with the spirit of rationalisation adopted by many lords to their milling concerns, where the most profitable mills, often on major watercourses, continued to be supported while more marginal ones were abandoned.[39]

In summary, then, the pattern up to the beginning of the fourteenth century was for a relatively small increase *at best* in water-mill numbers overall from 1086 to the beginning of the fourteenth century, but a much more substantial increase in mill weirs or dams and of a notable movement of mills onto more major watercourses. Once this pattern had been established, as purveyance accounts seemingly show it in the late thirteenth and early fourteenth century,[40] the boundary between navigable rivers, on one side, and mills and other impediments on the other, was always going to be difficult to shift. The decline in mill numbers after 1300 and especially after 1350 brought little relief, because most of the mills on major rivers were quite viable financially and it was those on lesser streams that tended to drop out. More difficult to explain, as Jones pointed out, was the continued decline in the inland waterway system.[41] Despite the downturn in their numbers overall, new water-mill sites were in fact occasionally constructed during the later middle ages, and these might have contributed to the hindering of river transport. But it does appear that many of these new water-mills were being created in very marginal situations, as in the case of the new water-mill built at Ivinghoe, Buckinghamshire, in 1396–7, at the substantial cost of £65 9s. 3 1/2d.,[42] but which was derelict scarcely ten years later, when it was replaced by a horse-mill.[43] The damming systems of existing mills might have been augmented, as

Jones has suggested,[44] but it is very unclear how much of this happened, if at all, and certainly did not come about because of fundamental improvements in weir technology during the later middle ages.[45]

It seems on balance that further decline in the water transport system in the later middle ages probably came for other reasons than the building of new water-mills or even the enhancing of old ones. Some of these might have been hydrological in nature, since, although this was a period of rather wetter weather in England, adjustments in water-courses, because of silting or even lack of water, were not unknown.[46] Perhaps more important were cost efficiency issues and the shifting of patterns of demand in the face of declining population, which favoured inland water ports that were further downstream, as Peberdy has argued for Henley in the later middle ages.[47] In any case, it was not until the early sixteenth century that more determined efforts were made to remove mills from potentially navigable rivers. This was only a tentative beginning, however; as Jones and others have indicated, major improvements to river navigation were more a feature of the seventeenth and early eighteenth centuries than the sixteenth.[48]

Altogether, the view from the mills reinforces the impression that the pattern of inland water navigation had essentially been set by the beginning of the fourteenth century. The advantage that eastern parts of the country had over the western parts was now established, and the primary heads of navigation for most of the important routes—Henley, St Ives, Yaxley, Lincoln, Nottingham, York—had already been set. As I was careful to indicate in my original contribution,[49] it has never been my intention to deny that a certain amount of river carriage upstream of these 'heads of navigation' could take place, but it seems clear from the evidence supplied by myself, Peberdy, and now Jones, that there must have been a very significant fall-off in terms of the volume of goods that were carried beyond such places as Henley, Nottingham, St Ives, Lincoln and York. In this regard, Peberdy's notion of primary and secondary navigation works well (and is certainly more elegant conceptually than talking about 'A' and 'B' routes) and begins to capture some of the subtlety in delineating a variety of water transport zones and the economies that they served.[50] In other words, we have to view water (and also land) transport from both a quantitative and qualitative point of view. Least of all should we delude ourselves that simply determining how far upstream water transport *might* have gone is a sufficient measure for assessing its impact upon national and local economies.

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Notes

[1] J. Edwards and B. Hindle, The transportation system in medieval England and Wales, *Journal of Historical Geography* **17** (1991) 123–34; J. Langdon, Inland water transport in medieval England, *Journal of Historical Geography* **19** (1993) 1–11; J. Edwards and B. Hindle, Comment: inland water transportation in medieval England, *Journal of Historical Geography* **19** (1993) 12–4.

[2] E. T. Jones, River navigation in Medieval England, *Journal of Historical Geography* **26** (2000) 60–75. The material he alluded to (p.13) comes from J. Langdon, *Technology and Economy in the Later Middle Ages: The Case of the English Milling Industry, 1300–1540*, in preparation.

[3] E.g. R. Davis, The ford, the river and the city, *Oxoniensis* **38** (1973) 258–67; J. Langdon, Inland water transport in medieval England, *Journal of Historical Geography* **19** (1993) 1–11; R. Peberdy, Navigation on the River Thames between London and Oxford in the late middle ages: a reconsideration, *Oxoniensis* **61** (1996) 311–40.
[4] For example, see Peberdy, *op. cit.*, 314–5.
[5] Jones, *op. cit.*, 11–2.
[6] H. C. Darby, *Domesday England* (Cambridge 1977) 361.
[7] M. Hodgen, Domesday water mills, *Antiquity* **13** (1939) 267.
[8] Actually the count at Domesday was 223 1/2 mills, since one of the mills was apparently jointly owned by another landholder. Here I rounded up to the nearest whole number.
[9] This assumption might be in doubt: see R. Holt, *The Mills of medieval England* (Oxford 1988) 149.
[10] For tenant or 'independent' mills, see J. Langdon, Lordship and peasant consumerism in the milling industry of early fourteenth-century England, *Past and Present* **145** (1994) 5–6; Holt, *op. cit.*, chap. 4.
[11] It is not impossible to do so. Even manorial accounts, which tend to concentrate on demesne mills, will often indicate tenant mills through entry fines or whenever such mills went derelict, thus resulting in a loss of rent, which was recorded in the 'Defective Rents' section of the account, or when a mill was newly created by a tenant, in which case it showed up in the 'New Rents' section. See Holt, *op. cit.*, 59, 114, who argues that manorial accounts and other demesne-oriented materials are almost totally ineffective in detecting tenant mills.
[12] The tenant mill complication might be balanced by the issue of multiple mills (see below), which were seemingly becoming more popular towards the thirteenth and fourteenth centuries: e.g., see J. Langdon, Water-mills and windmills in the West Midlands, 1086–1500, *Economic History Review* **44**, 430.
[13] That is, as represented by 91 manors in the (pre-1974) counties of Somerset, Devon, Cornwall, Cheshire, Derbyshire, Gloucestershire, Shropshire, Staffordshire, Warwickshire, Worcestershire and Yorkshire. See also Langdon, Water-mills and windmills, *op. cit.*, esp. 430–1, which shows the trend in more detail for the West Midlands.
[14] As represented by 106 manors in the counties of Cambridgeshire, Norfolk, Suffolk, Essex, Berkshire, Buckinghamshire, Hertfordshire, Middlesex, Oxfordshire, Surrey, Kent, Sussex, Hampshire, Wiltshire, Huntingdonshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire and Rutland. Holt, using different evidence, notes a similar pattern for many eastern counties, although he is inclined to attribute much of this to flaws in the documentation. See Holt, *op. cit.*, 109–11.
[15] For example, see Holt, *op. cit.*, chap. 7.
[16] This was a process remarked upon by Margaret Hodgen nearly 60 years ago: Hodgen, *op. cit.*, 262, 266. It should be said that much of this pattern was explainable to Hodgen in the straightforward progression from horizontal to vertical mills, a sequence now felt to be much more complicated than she originally thought. See Holt, *op. cit.*, 3–5, 118–22.
[17] Peberdy, *op. cit.*, 335–9. 23 of the 25 places had entries in Domesday, of which 17 had mills and 6 did not. Of the remaining two places in Peberdy's list, Abingdon was known to have mills before 1086 (see below). The other, Cleeve Lock (in the parish of Goring, Oxfordshire), like Abingdon, had no direct entry in the Domesday Book, but had the mill existed then, it would probably have appeared as a second mill under the entry for Goring. See Peberdy, *op. cit.*, 337.
[18] Holt, *op. cit.*, 109.
[19] Davis, *op. cit.*, 262–5.
[20] D. Wilson, *Medieval Archaeology* **2** (1958) 164; see also P. Clay and C. Salisbury, A Norman mill dam and other sites at Hemington Fields, Castle Donington, Leicestershire, *Archaeological Journal* **147** (1990) 289.
[21] C. Bond, The reconstruction of the medieval landscape: the estates of Abingdon Abbey, *Landscape History* **1** (1979) 69–70.
[22] According to Peberty, *op. cit.*, 339.
[23] Jean Gimpel provides details of three very large milldams built across the Garonne at Toulouse in the later twelfth century: J. Gimpel, *The Medieval Machine* (Harmondsworth 1977), 17–8; see also Clay and Salisbury, *op. cit.*, 288.
[24] Clay and Salisbury, *op. cit.*, 276–307.
[25] Langdon, *Technology and economy*; see also Peberdy, *op. cit.*, 335–9, for several examples of weirs across the Thames in the thirteenth century and afterwards.

[26] As at Castle Donington: Clay and Salisbury, *op. cit.*, 282–3, 286.
[27] An analysis of 32 mill sites from the repair accounts for mills indicates that 26 had millponds associated with them, while six others, often on major rivers, were of the weir and mill race kind; from Langdon, *Technology and economy*.
[28] See Peberdy, *op. cit.*; Davis, *op. cit.*, 265.
[29] Only three (pre-1974) counties were unrepresented in the sample—Befordshire, Dorset and Westmorland.
[30] For the methodology employed for this computerized method, see Langdon, Water-mills and windmills, 425–9.
[31] This corrected for the tendency of the program to smooth out the sharp decline of mills over the plague years; for more on this, see Langdon, Water-mills and windmills, 425–8.
[32] Langdon, Lordship and peasant consumerism, 15.
[33] See J. Tann, Multiple mills, *Medieval Archaeology* **9** (1967) 253–5; Langdon, Water-mill and windmills, 430.
[34] That the reduction of water corn mills in particular was not greater was due to the much more precipitous decline in windmills, whose numbers by 1540 had dropped to 45 per cent of what they had been in 1300.
[35] Any number of examples can be given for this. Some other mills went derelict for lack of water, such as the mill at Harwell (then in Berkshire, now in Oxfordshire) which went down for lack of water in 1388–9 and was never reactivated (from the bishopric of Winchester pipe rolls in the Hampshire Record Office: see especially HRO 11M59 B1/140, m. 13v and B1/141, m. 9v).
[36] The mills were torn down by order of the king's justices "of the sewers": Hampshire Record Office 11M59 B1/244. Although this could well have been for reasons of navigation, Commissions of Sewers often had other mandates, such as preventing the flooding of land. See T. Willan, *The Inland Trade* (Manchester 1976) 22.
[37] Peberdy, *op. cit.*, esp. 318.
[38] Peberdy, *op. cit.*, 335–9.
[39] E.g., Langdon, Watermills and windmills, 431–2.
[40] Langdon, Inland water transport.
[41] Jones, *op. cit.*, 12–13.
[42] Nearly half of this cost was involved in the excavations of the various ponds and leats: HRO 11M59 B1/147, m. 12v.
[43] Built at the much more modest cost of 108s. 4d. (in 1408–9: HRO 11M59 B1/155).
[44] Jones, *op. cit.*, 13.
[45] Judging from the repair and construction details sometimes given in accounts for these weirs, the basic fundamentals of their construction seemingly remained the same throughout the later middle ages.
[46] As in the case of the Foss Dyke and seemingly the Lea: see Jones, *op. cit.*, 5–6, 7–8. A number of water-mills also went derelict because of water shortage as at Harwell. See note 35 above.
[47] Peberdy, *op. cit.*, 333; see also Jones, *op. cit.*, 13.
[48] Jones, *op. cit.*, 6, 8, 10; see also Peberdy, *op. cit.*, 325; Willan, *op. cit.*, 22–5.
[49] Langdon, Inland water transport, 6–7.
[50] See especially Peberdy, *op. cit.*, 325.