

THE ORIGIN OF NEWHAVEN AND THE DRAINAGE OF THE LEWES AND LAUGHTON LEVELS

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Many local studies of physiographical changes in shorelines will inevitably need revision in the light of research on the processes of coastal evolution and of information sifted from the torrent of muniments which is annually cascading into the care of County Archivists. Amongst such matters which can now suitably be re-discussed are the evolution of the entrance of the Sussex Ouse and the origin of Newhaven, subjects of a well documented study by Morris¹ which has become generally accepted.² Several of Morris' conclusions can now be shown to be irreconcilable with new evidence which has become available since his paper was written and the present author has made fresh interpretations on the basis of the more adequate material at his disposal.

The sequence of the physical changes at the Ouse outlet up to the beginning of the sixteenth century has been established in outline and it needs only brief mention here. In Roman times the Ouse probably debouched at or near its present outlet and below the massive earthworks of Romano-British and earlier date on Castle Hill (Fig. 1). When sea level became fairly stable and the medieval inning of the marshes had become so appreciable as to restrict the tidal scour, longshore drifting gained an ascendancy and in consequence the mouth of the Ouse was deflected as far east as it could be to Seaford Head.³ Seaford was the medieval gateway to the Ouse valley but it suffered increasingly from silting and in the sixteenth century a new outlet called the 'new haven' was made through the shingle bar and west of the old mouth and a settlement grew up near it which was called Newhaven. Morris' paper is at its most speculative concerning the diversion and history of the Ouse outlet in the sixteenth and seventeenth centuries and it is this aspect with which this paper will be primarily concerned.

According to Morris, ' . . . it seems that shortly before 1565 the shingle beach was destroyed during a storm, between the Tide Mills and the Buckle Inn, and that the new outlet was immediately termed 'Newhaven'. When the more direct outlet was made early in the

¹ F. G. Morris, 'Newhaven and Seaford: a study in the diversion of a river mouth,' *Geography*, vol. 16 (1931), pp. 28-33.

² J. A. Steers, *The coastline of England and Wales* (1964), pp. 624-644; S. W. Wooldridge and F. Goldring, *The Weald* (1953), pp. 101-2.

³ F. G. Morris, *op. cit.*, p. 29.

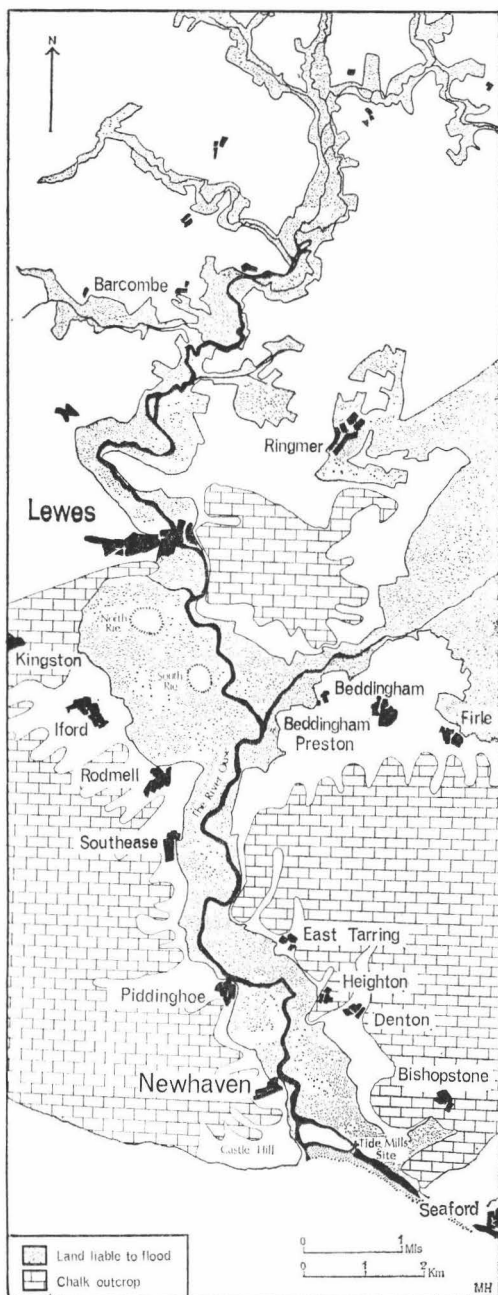


FIG. 1. The Ouse and Loughton Levels.

seventeenth century, the name Newhaven was transferred and gradually superseded the name of Meeching.¹

Four aspects of this critical period in the history of Newhaven deserve fresh consideration: the agency responsible for the initial diversion of the outlet; the date of its formation; and the site of the breach. The question as to whether there was a later and more direct outlet also needs examination.

Morris' belief that some natural phenomenon was responsible for the initial change in the outlet was based on the traditional version of the event communicated to Elliot, an eighteenth century antiquary, and handed down by Horsfield in 1835.² Morris appears to have overlooked that another early writer, Lower, was at variance with Horsfield on this point and wrote:-

'... in the sixteenth century, by the application of art, the Ouse was made to debouch at or near its ancient point ...'³

Fresh evidence, not accessible to Morris, makes it clear that Lower was correct and that the 'new haven' was an artificial cut made through the encumbering shingle to mitigate the flooding in the Lewes and Laughton Levels and to facilitate navigation by providing a deeper, more direct, and safer outlet. The drainage aspect, which was the inevitable corollary to a deeper channel, has not previously been discussed; indeed the improvements of the late eighteenth and early nineteenth centuries have been hitherto considered the earliest.⁴

The condition of the Lewes and Laughton Levels to 1537

The gradient of the Sussex Ouse is so excessively slight that much of Lewes is actually below the level of high tides⁵ and the Ouse valley was thus particularly vulnerable to flooding. At Domesday, the whole width of the valley floor probably formed a tidal inlet along the edges of which were poised settlements at the very margin of the waters engaged in salt-making and fishing in addition to agriculture.⁶ By the early fourteenth century, highly-prized meadow had been inned and embanked⁷ but its value was increasingly reduced by the recurrent inundations during the later middle ages resulting from the fall in the relative level of land to sea and the increased storm-tide frequency. Despite the raising (*exaltand*) of the banks,⁸ winter flooding was common in the fourteenth century

¹ *Idem*, op. cit., p. 31.

² T. W. Horsfield, *The history, antiquities and topography of the County of Sussex*, vol. 1 (1835), pp. 276-7.

³ M. A. Lower, *A compendious history of Sussex*, vol. 2 (1870), p. 58.

⁴ A. D. Hall and E. J. Russell, *A report on the agriculture and soils of Kent, Surrey and Sussex* (1911), p. 57.

⁵ J. A. Steers, op. cit., p. 311.

⁶ *Victoria County History, Sussex*, vol. 1 (1905), p. 463.

⁷ East Sussex Record Office (subsequently abbreviated to E.S.R.O.) Glynde MS. 996 (1307-1308 A.D.).

⁸ E.S.R.O., Glynde MS. 996.

and frequently the flood waters remained throughout the summer on the lower meadows and, occasionally submerged crops on the bordering flanks.¹ In the spring of 1422 a Commission of Sewers was appointed to restore the banks and drainage between Fletching and Seaford which suggests that, as elsewhere along the Sussex coast, the valley was devastated by the great flood of the autumn of 1421 which also created havoc in the Netherlands.² Less is known of its condition later in the fifteenth century because few estates were being directly farmed by the manorial lords but that a deterioration had taken place is indicated by the changing condition of the Archbishop of Canterbury's land at Southerham, where some four hundred acres of meadow were converted into a permanent fishery (*piscatura*) known as the *Brodewater* which supplied bream and other fish to grace his lordship's table.³

More complete information is forthcoming for the early sixteenth century, by which time it is clear that the drainage of the Levels had virtually collapsed. The low-lying estates of Lewes Priory in Southover, Kingston and Iford were at the Dissolution 'almost the whole year under water' and valued at less than two pence an acre.⁴ This was evidently the usual condition of the whole Levels for in 1537 it was reported that 'all the level upwards (of Seaford) lay in a marsh all the summer long'⁵ and this is confirmed by other accounts of 'great rewyn' and that 'when abundance of water cometh by rain or other floods of the sea it is yearly drowned and overflowed with water.'⁶ The extent of the land liable to this annual inundation in the early sixteenth century was more than 6,000 acres⁷ from which we can infer that the whole valley from

¹ For example, one of the tenements of Beddingham manor was reported submerged in 1333 and meadow at *Wydehamme* in Beddingham and at Itford was noted as flooded in the summers of 1342, 1348 and 1351 (E.S.R.O., Glynde MSS. 973, 997 and Sussex Archaeological Trust, subsequently abbreviated to S.A.T., Barbican House, Lewes, G. 44/3, 44/6). The Beddingham meadows were again inundated in summer for five years in the 1360s and for three years in the 1380s but appear to have been relatively dry in the 1370s. Cropland was flooded in 1368 and 1384 (E.S.R.O., Glynde MSS. 998-1002). The meadow at Hamsey was said to have been inundated 'many times' in 1405 and to be 'merely marsh not capable of being mown,' which represents a marked deterioration in the condition of this land since 1294 (Public Record Office, subsequently P.R.O., C 137/48/8 and C 133/71/19).

² P.R.O., C.66/404, m. 13d. The consequences of this and other late medieval floods affecting the Sussex coast are discussed by the present writer in a paper entitled 'Agriculture and the effects of floods and weather at Barnhorne, Sussex, during the late middle ages,' published in this volume of the *Sussex Archaeological Collections* (S.A.C.) pp. 69-93.

³ S.A.T., G8/25-41 (1424-1448 A.D.) and Lambeth Palace muniments 1302-1304 (1456-1462 A.D.).

⁴ P.R.O., *Valor Ecclesiasticus*, vol. 1 (1810), p. 329.

⁵ E.S.R.O., Glynde MS. 84.

⁶ S.A.T., G8/50. Evidence in connection with a Bill of Complaint heard in Chancery.

⁷ E.S.R.O., Glynde MS. 84.

Seaford to Sheffield Bridge in the north and to Laughton along the Glynde Reach flowing in from the east was generally a lake for most of the year and useful only for fowling and fishing. Even the Ries, large islands of Gault Clay rising above the flood level, were almost valueless because of their inaccessibility and merely supported the rabbit-warrens of Lewes Priory¹ (Fig. 1).

This deplorable condition of the Ouse Levels was not acceptable at a time of growing economic activity and rising population. Concurrently, the navigation on the Ouse and the accessibility of Seaford to sea-going vessels had worsened. As Morris has stated, there was probably a shingle bar right across the river mouth at Seaford exposed at low water and affording only shallow depths at high tide and thus gravely impeding the evacuation of fresh water from inland. The most satisfactory solution for both the needs of navigation and drainage would have been an artificial cut through the shingle bar to which a straightened and deepened channel could be directed.

The artificial cut and creation of the 'new haven'

This was, in fact, the means adopted. Such a shortening of the course had long been anticipated, reference being made, for example, to the possibility of a 'new haven' in 1528,² but its construction was deferred for nearly another decade. The Prior of Lewes and the nobility and gentry with responsibilities along the main sewers then consulted Dutch engineers as well as the successful reclaimer of St. Katherine's marsh near the Tower of London.³ In 1537 a water scot was levied on all lands liable to flood and an endorsement on the account book (in the same hand as prepared the account) explains that 'this book was made . . . for cutting the haven right to the sea now called new haven: before it [the river Ouse] went out at Seaford by the old haven . . .'⁴ Confirmation that this project was completed is provided by other sixteenth century documents. About 1550 it was reported of the *Brodewater* that 'before the haven was made the said Brodewater for the most part was overflown all the year'⁵ and at a further inquiry into land-ownership in 1587 it is again confirmed that marshes called the Oldhaven at Seaford had been 'the only haven for barks and other vessels before the new haven was cut out . . .'⁶

¹ P.R.O., *Valor Ecclesiasticus*, vol. 1 (1810), p. 329.

² W. D. Peckham (ed.), *The Acts of the Dean and Chapter of the Cathedral Church of Chichester, 1472-1544*, Sussex Record Society, (subsequently abbreviated to S.R.S.) vol. 52 (1952), p. 84.

³ Sir H. Ellis, 'Commissions of sewers for the Lewes Levels,' *S.A.C.*, vol. 10 (1858), p. 98.

⁴ E.S.R.O., Glynde MS. 84.

⁵ S.A.T., G8/50, evidence of William A. More; P.R.O., C.1/1336/1. The information derives from a Bill of Complaint, undated, but addressed to Richard, Lord Rich, who held office as Chancellor between 1547 and 1551. The decree in Chancery relating to this law suit is dated 1553 (P.R.O., C.78/7/56.)

⁶ P.R.O., E.134, 29/30 E/12, Mich. 3. Evidence of Nicholas Eston and others.

There can therefore, be no doubt that the initial diversion of the Ouse outlet from Seaford in the sixteenth century was not due to a violent storm but to a carefully conceived plan to improve both the drainage and the navigation of the Ouse. It is not possible to date this event precisely but circumstantial evidence helps to narrow the uncertainty considerably. Morris departed from Horsfield, who thought it possible that the notorious storm of 1579 might have been responsible for the breach, and put it at 'shortly before 1565' in which year the name 'Newhaven' is mentioned in the earliest extant list of ports and havens. Its earlier origin, however, is proved by the presence of a Constable, a Crown servant, at Newhaven in 1557,¹ presumably holding the post which had been transferred from Seaford. By this time the haven must have been well established because, as already mentioned, it was certainly in existence about 1550 and according to Stowe, the Elizabethan antiquary, 'the harbour of a place called Newhaven in Sussex' was the landing-place of a French army in 1545.² Two other documents suggest that the foundation of the 'new haven' was even earlier. In 1539 commissioners appointed to survey the coast of Sussex regarded Seaford with its haven "a duckpool" as being no longer worthy of any particular defence³ and in 1540 salt and fresh-water sluices which had been maliciously damaged were replaced along the Ouse.⁴ Both these facts can best be understood by the acceptance of 1539 as the most likely date for the origin of the 'newhaven' and the associated drainage works. The improvement of the Ouse is thus likely to be one of the earliest canalisations in England, preceding similar proposals for the Arun, the head of Chichester Haven⁵ and the better known (and more ambitious scheme) for the Exe, by a generation and more.

The resulting drainage improvements

Before examining the site of the 'new haven' a consideration of its effectiveness as a drainage outlet is appropriate. The objectives of the Commissioners of Sewers in this regard appear to have been, as in the case of the early Fenland schemes, the creation of rich summer pastures and the provision of these can be regarded as part of the trend towards greater specialisation in cattle-keeping for which Sussex was becoming renowned. The evidence as to the

¹ J. Roche Dasent (ed.), *Acts of the Privy Council of England* new series, vol. 6 (1556-1558), (1893), pp. 274-5.

² John Stow(e), *The Annales of England*, (1600) p. 992.

³ F. G. Morris, *Physical controls in the historical geography of the Sussex ports*, unpublished M.A. thesis, University of London (1931) pp. 66-67.

⁴ Sir H. Nicholas (ed.), *Proceedings and ordinances of the Privy Council of England*, vol. 7 (1837), p. 66.

⁵ The Rev. M. A. Tierney, *History of Arundel*, vol. 2 (1834), p. 721; G. Slade Butler, 'Sussexiana Topographica,' *S.A.C.*, vol. 18 (1866), p. 87.

efficacy of the new sewers is less ample than one would wish but there does seem to have been a considerable improvement in the condition of the alluvial lands. The most specific record of change relates to the *Brodewater*, a four hundred acres tract of water and marsh in Beddingham which had earlier been a lake used for fishing and fowling. As a result of the new direct cut and the scouring of the water-courses by the Commissioners parts of this tract had become dry and grass-grown and the value of the whole greatly enhanced by about 1550.¹ This improvement was maintained and in 1616, for example, part of the *Brodewater* was still good pasture.² Elsewhere, other improvements can be detected; Lord Bergavenny had newly reclaimed (*nuper recuperat*) marsh at Rodmell in 1587 and at about the same time meadow in the Town Brooks at Lewes was lettable for 13s. 4d. an acre.³

By this time most of the valley floor had become meadowland not depastured by distant graziers as was the Pevensey Levels but partitioned amongst the neighbouring villages and largely held as commonland. The pastures were stinted generously enough to allow each holder of a yardland (about 12-16 customary acres) between 4-12 beasts and followers. Parts were allocated for mowing by an intricate arrangement and divided into shares known as lots, doles, hides or clouts, and meadow at Southease was made available to downland farmers at Telscombe as well as those at South Heighton. Generally speaking, grazing was prohibited after the hay harvest until the end of August when it was available until the end of November.⁴ The availability of these rich summer pastures permitted a beautifully balanced economy which would have comprised store cattle on meadows nearest the river, dairy cattle near the barns; corn on the Coombe deposits plastering the valley flanks and sheep walks on the higher Downs. The Iford farmer John Aridge with his eight oxen for a plough team, 21 cattle and 200 sheep was probably representative of the yeoman farmers of the district in the early seventeenth century.⁵

The drainage improvements, however, appear to have been short-lived. The frequency of summer flooding increased during the seventeenth century and the deterioration was so marked that the condition of the alluvial lands must have resembled that of the fifteenth century. Camden observed that the Ouse 'maketh a large mere' and 'often times it overfloweth the low lands about it to no

¹ S.A.T., G8/50. Evidence of William A. More and others.

² S.A.T., G8/16.

³ E.S.R.O., Bergavenny Accounts, 1587-1594, f.34 and 1594-1600, f.38. (The style 'Bergavenny' was in use until 1720 when the present form of 'Abergavenny' was adopted). S.A.T., Woolgar MS. i, f.277.

⁴ S.A.T., Aber. I, fs. 74, 88, passim; S.A.T., Acc. 891, fs. 12-13; W. Figg, 'Tenantry customs in Sussex—the Drinker acres,' *S.A.C.* vol. 4 (1851), p. 307; W. H. Godfrey (ed.), *The book of John Rowe*, S.R.S., vol. 34 (1928), p. 69.

⁵ J. Cooper, 'The hundred of Swanborough,' *S.A.C.*, vol. 29 (1879), p. 132.

small detriment¹ This is corroborated by other evidence. The villagers at Iford, for example, were once again raising and strengthening the river banks each September early in the seventeenth century and at Firle the tenants scoured the sewers in a vain attempt to keep the meadows dry.² In 1648 the Ouse outlet was reported 'no ways fit to sewe the level or four navigation'³ and in 1664 the Levels were again said to be 'hurtfully surrounded' by water and urgently in need of drying.⁴ Despite this nothing, in fact, was effectively done to ameliorate the condition of the Levels for more than a century. Throughout the eighteenth century the Ouse valley was regularly inundated in winter and was often still flooded throughout the summer. In 1716 grazing land near Lewes was said to be scarce,⁵ presumably because of the inadequate drainage, and as late as 1767 the dryness of the low-lying land in summer depended on a period of north-easterly winds when the waters would be driven off the meadows.⁶

The site of the outfall

This deterioration in the condition of the Levels was due to problems at the outfall. Morris, following Horsfield, who again drew upon tradition, concluded that the site of the breach through the shingle was at some point east of the present mouth of the river and between the Tide Mills site and the Buckle inn.⁷ To strengthen his argument Morris adduced cartographic evidence which, he suggested, confirmed the location at the point mentioned. As the site of a possible *natural* breach resulting from floods or storms Morris' suggested site was a very plausible one but considered, as it now must be, in the light of an artificial cut, it becomes inherently improbable, seeing that it was at the weakest and most unstable point of the shingle spit and lay insufficiently westwards of the Seaford exit to permit a direct cut to supersede the marked rectangular eastward course of the Ouse below Meeching. Furthermore, if Morris' location of the 'new haven' is correct then it is necessary to assume that the direct exit at or near the present, and so marked on a detailed map of 1620,⁸ was constructed subsequently to the more easterly site favoured by Morris. Neither Morris, nor the present writer, has found evidence in support of such a sequence of events.

The two maps cited by Morris in support of his contention that the sixteenth century 'new haven' was not at the site of the present

¹ W. Camden, *Britannia* (1610 edition), p. 315.

² S.A.T., Aber. I, fs. 19, 32, 154, 194 and *passim*; S.A.T., Acc. 891, f. 90.

³ F. G. Morris, *op. cit.* (note 1), p. 31.

⁴ S.A.T., WG. 880.

⁵ S.A.T., DN. 184.

⁶ E.S.R.O., Glynde MS. 2772, letter dated 15th April.

⁷ Morris, *op. cit.*, p. 31.

⁸ The original of this map (which was not traceable when Morris wrote his paper) is in the custody of Messrs. Lewis, Holman and Lawrence, Solicitors, 86 High Street, Lewes. A copy is held by the E.S.R.O. (PD. 137).

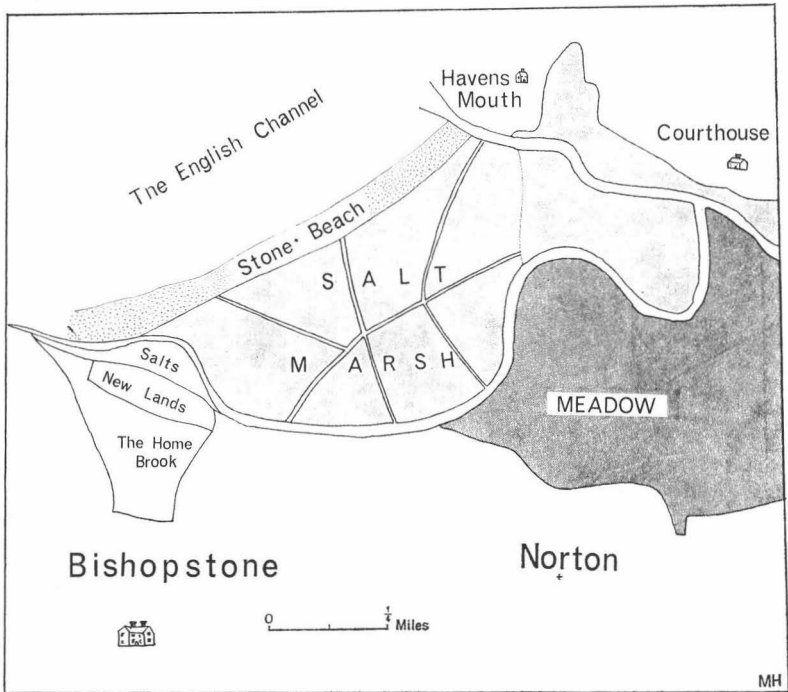


FIG. 2. The Ouse outlet in 1620 (based on Randall's map)

exit of the Ouse were Saxton's map of the county of Sussex (1579) and the Palmer-Covert map of 1587 which is the earliest detailed survey of the Sussex coast to survive.¹ Morris' conclusion that this cartographic evidence 'plainly suggests that the outlet was near the present Tide Mills' is very surprising. Saxton's county map is on too small a scale to permit any positive deductions concerning purely local configuration; moreover, as has been observed, Saxton's delineation of river courses and other natural features is generally diagrammatic and often misleading.² This map does not allow us, in Steer's phrase, 'to connect with reasonable certainty historical evidence and physical form'³ and it should be eliminated from the discussion.

The Palmer-Covert map is in a different category (Fig. 2). This was compiled, under the direction of persons intimately familiar

¹ M. A. Lower (ed.), *A survey of the coast of Sussex* (1870).

² E. Heawood, 'Some early county maps,' *Geographical Journal*, vol. 68 (1926), p. 329.

³ J. A. Steers, 'The coast and the geographer,' *Advancement of Science*, vol. 11 (1954), p. 171.

with the coastline and rivers of Sussex,¹ with the express intention of distinguishing features which were defensible or in need of defence. We should expect, therefore, that harbours and possible landing places would be carefully delineated and this is, indeed, the case. The scale of the map, nominally 1.25 inches to a mile, but, in fact, variable, is sufficiently large to depict natural features and although wrongly orientated it is a carefully executed work according to the cartographic standards possible at the time. The accompanying report helps to clarify any ambiguities arising from deficiencies in the mapping.

When the map and the report are examined in conjunction the evidence is overwhelmingly in support of an Ouse exit in 1587 at or very near the present one at Newhaven. The report states that 'between Brighthelmstone [Brighton] and Newhaven the coast is all high cliffs . . .' whereas immediately to the east of 'new haven' landfalls were easy and to be expected.² Such a description of the coastline is perfectly correct if the then 'new haven' lay at its present site but manifestly inaccurate if, as Morris affirmed, the site of the 'new haven' then lay a mile or more along the shingle bar encumbering the Ouse. The map and report helps us in another particular. The outlet of the Ouse is shown flowing past steeply rising ground on the right bank and commanded by a defensive point on a cliff top (marked as site F on the original map) which must have lain on Castle Hill (which has been fortified for centuries) and this was the interpretation made from the map by Lower, who edited it in the first instance.³ Thus far from supporting an Ouse entrance a mile or more eastwards of the present one the map and report can be regarded as establishing that the outlet then in use was almost identical to that of the present.

There is also further evidence, unused by Morris, which indicates that a breach between the Tide Mills and the Buckle inn could not have been the Ouse outlet in the later sixteenth century. Witnesses submitting evidence in the law suit of 1587, mentioned earlier, refer to marshes called 'oldhaven . . . the only haven before the new haven was cut out . . .' and salt marsh which lay between this 'old haven' and the walls of a parcel of land called Newlands.⁴ These lands are clearly to be identified on the map of the Lewes Levels drawn in 1620 (Fig. 2) and which can probably be attributed to the cartographer George Randoll.⁵ This map, drawn to a scale of eight inches to a mile, is the earliest large-scale map of the Ouse outlet.

¹ Palmer was a member of the West Sussex gentry and Covert had a seat at Slaugham on a headwater of the Ouse. W. Camden, op. cit., 313.

² M. A. Lower, op. cit., fs. 4-5.

³ M. A. Lower, op. cit., p. 4.

⁴ P.R.O., E.134 29/30 Eliz., Mich. 3. Evidence of Nicholas Eston and others.

⁵ E.S.R.O., PD. 137. The map is similar in style to Randoll's map of Lewes dated 1620 (E.S.R.O., PM. 19).

It shows the Ouse exit at or very near the present one and the eastward arm of the Ouse, the old course, completely blocked by shingle. There is no sign of a breach through the shingle bar nor of the course of the Ouse which is shown on the Admiralty map of 1698¹ (Fig. 3) as flowing immediately behind and parallel to the shingle before breaking through to the open sea at the Tide Mills site. From the information on the map it is clear that the 'Old-haven' and lands subject to the law suit of 1587 were sited on the eastern arm of the river and close to the site of the present Buckle inn. From the testimony of witnesses it can be ascertained that 'newlands' was reclaimed when the 'new haven' was cut out and was first cropped about forty years before 1587. During the reclamation numerous old anchors were discovered and it seems that rapid silting had subsequently taken place. Such a process would hardly have ensued had this course of the Ouse been the main outlet as Morris has asserted. We are thus obliged to look for 'newhaven' at the exit of another branch of the Ouse and the evidence suggests, if it cannot be said to prove beyond all doubt, that this was along, or close to, the present course of the river.

The likely sequence of events at the Ouse outfall was thus probably as follows. About 1539 the Ouse was straightened and directed to a point at or very near the present outlet thus creating a 'new haven' whose name eventually superseded that of Meeching. In 1566 it was reported that there was no harbour in the Hundred of Flexborough (which extended to the left bank of the Ouse and included Seaford) but 'only a stone beach'² and thus it seems that Seaford had by then already decayed. Further confirmation of the decline of the 'old haven' is provided by the evidence of 1587. By 1620 the eastern arm of the Ouse then a minor water-course, did not reach the open sea but appears to have flowed into a lagoon (traces of which are still observable on Yeakell and Gardner's map 1783, and even later) and presumably seeped through the encumbering shingle near the Buckle inn. The new exit failed to function satisfactorily doubtless owing to the considerable eastward longshore drift of beach material. It is shown as being slightly deflected on the 1587 map and Morris found that it was blocked on several occasions in the seventeenth century. This repeated blocking of the outfall must be the primary reason for the deterioration of the drainage of the Lewes and Laughton Levels to which reference has already been made. It also forced the Ouse to flow eastwards again, parallel to the shingle spit, and at some time between 1676 and 1698 it broke through to the open sea at the Tide Mills site.³

¹ B.M., K. MAR 111, 67.

² Morris, thesis cited, 68.

³ Christopher Gunnon's chart, dated 1676, shows the mouth of the Ouse at approximately its position in 1620 (Bodleian, Rawlinson Ms. 1A 185). The opening at the Tide Mills site is first shown on an Admiralty chart of 1698 (British Museum, K. Mar. 111, 67).

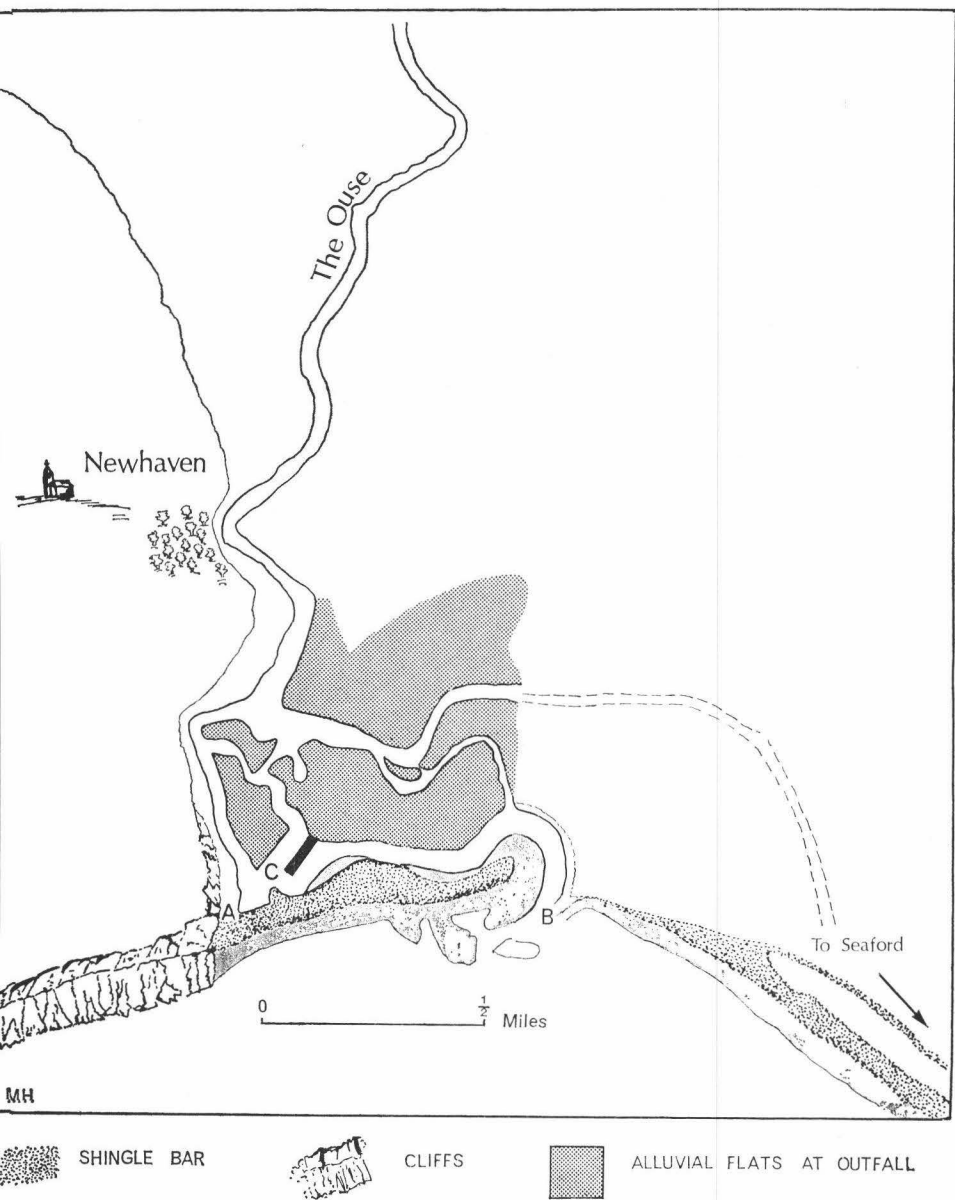


FIG. 3. The Ouse outlet in 1698 (based on an Admiralty chart). The site marked A was described as the 'ancient outlet' and that marked B was the 'haven's mouth' in 1698. Site C marks old wharfing ineffectually built to keep the outlet on its older course.

Thus the traditional version of the initial breach, though wrong in precedence, has some substance in fact and the storm to which Horsfield referred is likely to have been a seventeenth century one and should be regarded as one of those many other events which are wrongly attributed to the days of Elizabeth.

From 1731 the western exit was again in use but as late as 1766 a bar of shingle had again formed across the mouth¹ and was impeding shipping and the evacuation of fresh water from inland. These were matters not rectified until after 1791 when, on the basis of Smeaton's and other proposals, the Ouse was straightened at several points furnished with several important new feeder sewers and provided with a western breakwater at its outlet to arrest the longshore drifting of beach material.² Resulting from this engineering were the rich meadows fit for grazing for most of the year which drew forth favourable comment from William Cobbett.³ Thus after centuries of persistent but fruitless endeavour Man could at last claim to have harnessed the Ouse.

¹ Morris, *op. cit.* (note 1), p. 33; E.S.R.O., Glynde MSS. 2772, letter dated 3rd December, 1767.

² B.M., Add. MS. 9841; S.A.T., LM. 156, 160, 161; A. Young, *Annals of Agriculture*, vol. 22 (1793), pp. 223-4.

³ William Cobbett, *Rural rides* (Everyman edition), vol. 1, p. 73.