

# THE BUILDING OF PADBURY BRIDGE

S. EVELEIGH

Approximately two thirds of a mile from Padbury Village, along the A413 road, the named 'Padbury Bridge', spans the brook of the same name. This brook was called the Ouse River by older inhabitants, or 'The Twins', according to the Ordnance Survey Map of 1991.

The earliest existing reference to a crossing is on the 1590 All Souls Estate Map of Padbury [Fig. 3]. Not until the 1742 Wendover-to-Buckingham Turnpike Act [15 Geo II], was the crossing officially mentioned, the Act referring to a "ford or large water called the Padbury River, running through and across the road". [Fig. 1] The existing bridge was classified as only a bridleway or horse bridge. At certain seasons of the year, the river overflows "especially after rains, becoming so deep and rapid that carriages are not able to pass or repass".

Continuing, the Act states that "a fair large stone bridge should be built, fit for carriages of all sorts, and called the Padbury Bridge"; designated as a County Bridge.

The Buckingham end of the 1742 Padbury Bridge consisted of brick and stone, spanning the deepest crossing of the brook, whose depth was the result of water erosion. The brook formed a wide sweep with shallows bordering the eastern bank. The side elevation of the bridge [Fig. 2] together with a proposed temporary wooden bridge is probably the only surviving drawing showing the old two-arch bridge. Whether the wooden bridge was intended to be built abutting the old bridge is debatable as it would have resulted in a total length of 208 feet which is 45 feet more than the width of the brook.

A tracing from a 1795 map [Fig.3] shows the width of the brook at the bridge site presenting a

water-and-marsh crossing of 165 feet. This width created a pool sufficiently shallow to allow the brook to be easily forded during the dry months. The pond-like character at the bridge site is also evident from a survey of this section of the turnpike road by John King, 1823 [Fig.2].

For a given volume of water the width of the brook would permit shallower water than elsewhere, with access to the end of a road leading from Padbury. This road descends gradually to the water level; a ford was practicable beside the southern side of the bridge.

The 1878 Ordnance Survey Map shows a slight bulge on the road [Fig. 3] probably showing where the road deviated to the bridge site. A field investigation [7th February, 1995] on the eastern bank revealed a roadway approximately 12 feet wide sloping through the bank into the brook. From this point the view westerly showed the site of the old toll gate [Fig. 3]. On the western bank there was evidence of a matching cut sloping into the brook in line with that on the eastern bank.

On examination, the outline of the brook did not resemble the circular pond shown on the Padbury Inclosure Map of 1795 [Fig. 1] and the turnpike route as surveyed by John King in 1823 [Fig. 4]. However the sweep of the brook's course to the left was much in evidence. The eastern bank was approximately 3 feet above water level at that time. The bank was relatively flat, with scrub and small trees, extending to a wire fence beyond which lay the road, slightly higher. On this ground a tide mark consisting of dead organic material was evident, as was the flattened grass lying in the direction of flood water flow.

The old bridge site dating before 1590 [Fig. 3, and shown on the All Souls Map of that date] was

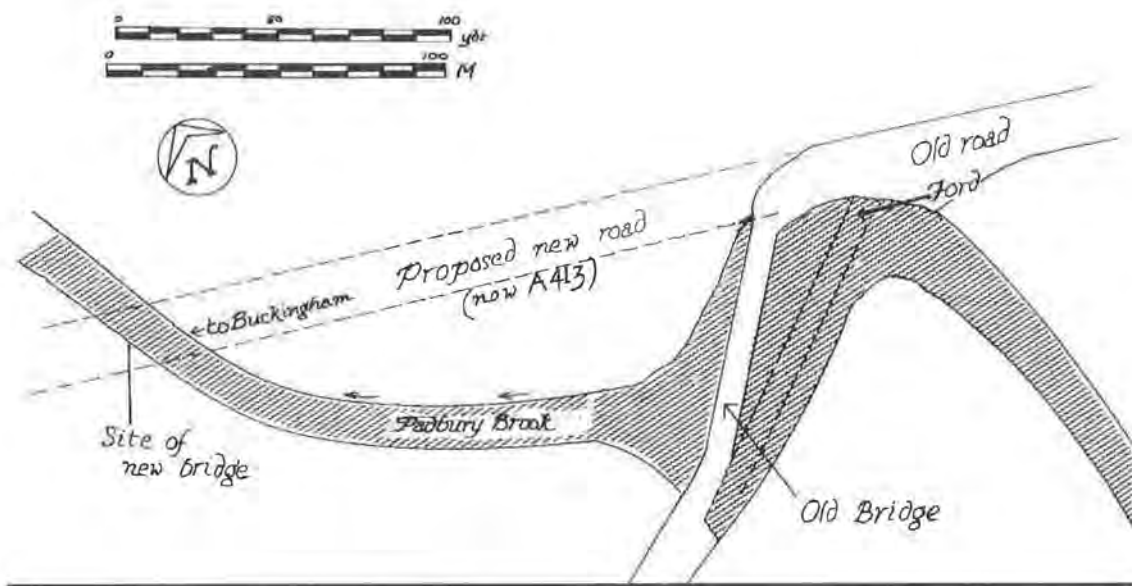


Fig. 1: The sites of the old and new bridges at Padbury, based on the Inclosure map (BRO T3/62/1).

upstream from the present Padbury Bridge, constructed in 1828. The earliest existing Minutes of the Turnpike Trust refer to a Padbury Brook crossing [10th April, 1795].<sup>1</sup> Estimates were ordered for the construction of a wooden bridge fixed to the western end of the existing stone bridge; it had to be sufficiently strong "to allow the passage of sheep and other small cattle especially during the rainy season". This was intended to eliminate difficulties encountered by small farm animals in fording the brook when excessive rain or snow melt caused the water level to rise.

Although no contemporary drawings of this proposed wooden structure exist, it would be expected that a wooden pier would have connected the bridge to the eastern bank like that illustrated in Fig. 2.

Later in the year – 5th June 1795 – the Trustees ordered that a second two-arch bridge be built contiguous with the 1742 bridge. The cost was set at "Thirty shillings per rod for workmanship, the Commissioners finding all Materials". There is no evidence that this work was ever started.

Two other Minutes relate to the raising of the road at the bridge's western approach [June, 1795<sup>2</sup> and April, 1797<sup>3</sup>]. This had to be "higher than the water mark, for the accommodation of passengers in such a manner as the Commissioners think most expedient". This order appears to have been intended "to prevent flood water from entering passenger coach interiors", when passing through water at least axle deep covering the bridge approaches.

#### *The Old Bridge Site*

Figure 1 is an enlargement of a plan of the old Padbury Bridge site, with a new road system connecting the new bridge north westerly to Buckingham and south easterly to Aylesbury.

This enlargement gives more detail of the old bridge than previous presentations. A ford is apparent on the south side of the bridge, the approaches of which were observed during a field visit during February, 1995. The bridge, having a length slightly in excess of three chains, or 200 feet, exhibits an unexplained bend along its length.

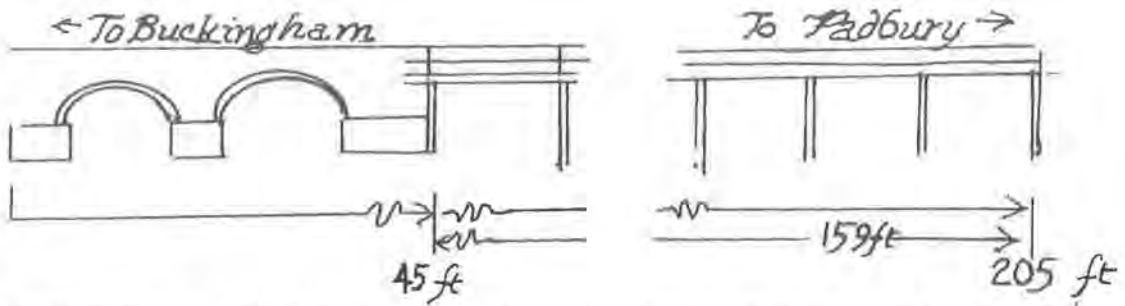


Fig. 2: Old Padbury Bridge, N elevation, showing the wooden extension to the E, proposed but probably never built. (Copied from sketch in BRO, T3/31/2/4.)

An original plan of the bridge by W W Slingo, 1826 does not show this bend. The length of 200 feet compares closely with the length of 204 feet as detailed on the bridge elevation.

The western end of the ford is discernable as a shallow sloping inlet parallel to a hedgerow leading, to the Claydon-Gawcott junction. At the sharp curve of the brook its channel widens abruptly, undoubtedly the result of civil engineering dredging operations.

The course of the brook is now some 30 feet away from the main road, raised about 3 feet above the flat river bank where evidence of overflow was apparent at the time of the field visit. It can be deduced that the line of the road has been moved to the north, a minor re-alignment, taking place once access to the ford was unnecessary for transport and also to raise the level of the road above flood level.

#### *Road re-alignment in the Padbury area*

Why was the new bridge sited one hundred and thirty yards downstream from previous crossings?<sup>4</sup> The 1795 and 1823 maps show where the bridge was constructed following comments in the 1742 Act, which condemned the previous crossing as totally inadequate.

After deliberating on reports of the problems of traffic movement across the existing bridge, or ford, the Trustees of the Turnpike Trust formulated a construction specification for a new bridge.<sup>5,6</sup> The Document was signed and individually sealed by eight Trustees amongst whom was Sir Thomas Francis Fremantle of Swanbourne. The builders,

William Slingo the Elder and William Slingo the Younger also signed the Document appending their seals. [12th May 1827]

The preamble to the 1827 specification stated that the new bridge should cross the River at a point judged best by the Surveyor of the work. The change in position was possibly influenced by two reasons:

- 1) To construct a more direct road between Padbury and Buckingham eliminating the existing right-angle route which led due west from the old bridge to the road junction by Laurel House [Fig. 3] and thence north to Buckingham. The proposed new road joined this northerly route approximately half a mile from the north western end of the new bridge. This section of the turnpike road eventually became part of the A413. The realignment followed recommendations contained in the 1810 Act [50 Geo III]: "For more Effectually repairing and improving the Road from Wendover to the town of Buckingham".<sup>8</sup> This Act was influenced by the proposals of the two most eminent early nineteenth-century road and civil engineers, McAdam<sup>9</sup> and Telford.<sup>10</sup> Their theories were acclaimed by the Marquis of Buckingham during the course of a meeting in Aylesbury [1821], when scientific methods of road construction, together with costs incurred were discussed.
- 2) The new site agreed with the specification with respect to the ability of the ground to withstand the loads imposed by the weight of the bridge without any problems of subsidence. Also to withstand extra loads on the foundations imposed by passing traffic.

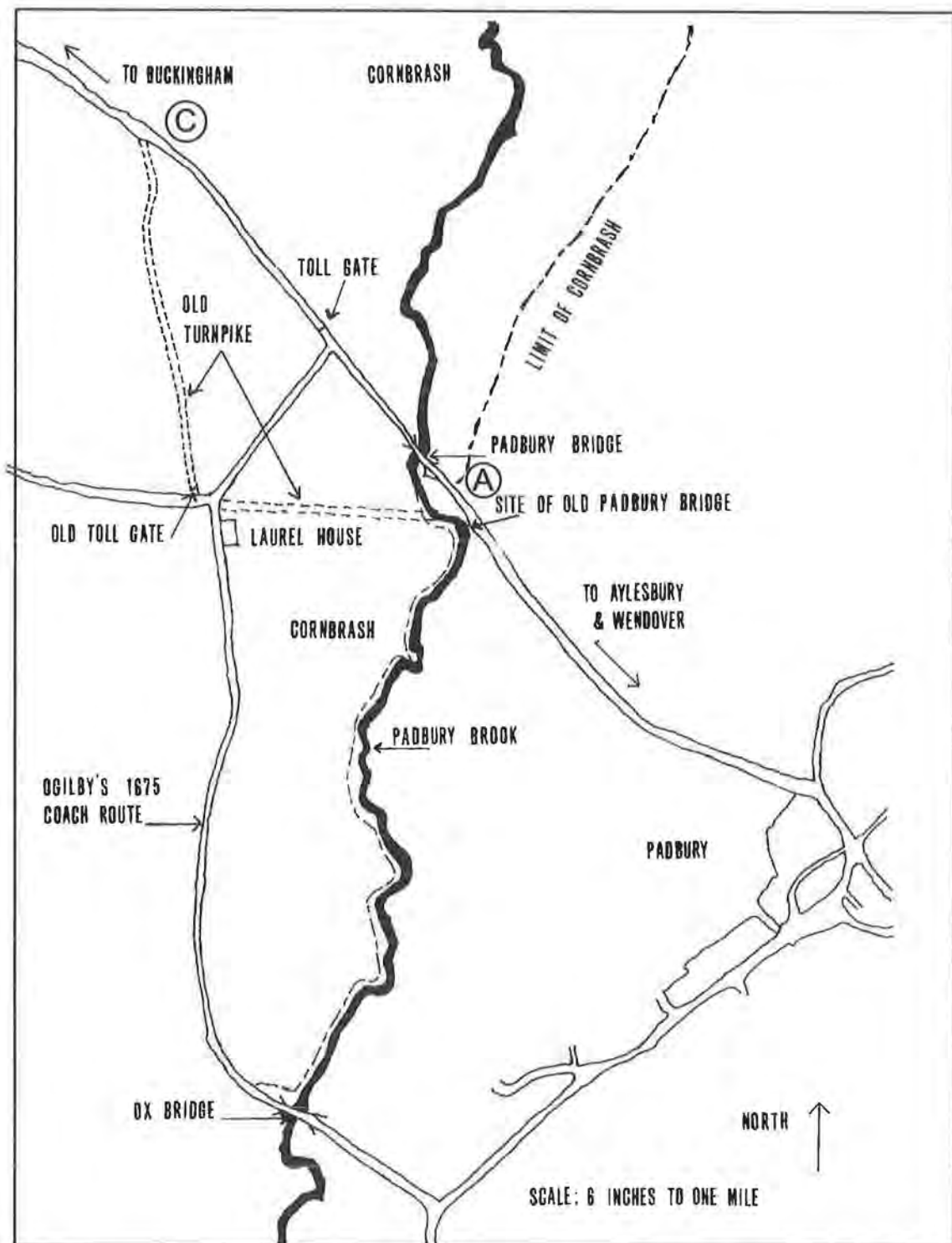


Fig. 3: Bridges and roads between Padbury and Buckingham. (based on OS 6": mile 1st edn). The spot marked 'Site of Old Padbury Bridge' is the site of both the 1742 bridge and of the earliest bridge at Padbury, marked on the 1599 map of All Souls College estate, copy in BRO, MAR/1/14 (Original in Bodleian Library)

The specification refers to the quality of rocks and the existence of a stratum of cornbrash, so important "for making good the foundations of the piers" supporting the bridge. The existence of this rock within the Oxford clay must have been known to the Trustee surveyors. As a geological feature a stratum of cornbrash exists on both sides of the brook. On the east side the stratum tapers to a point just south of the bridge, whilst on the west side the stratum continues for approximately half a mile southwards [Fig. 3].

Instructions in the specification for the bridge emphasise the importance of a rock substructure or stratum. Using a probe the rock was found to be 3 feet below ground level. The probe investigation took place under an arch of the present bridge – field work studies February, 1995.

Two bridge designs were submitted to the Trustees for consideration both having three arches. The rejected design, slightly humpbacked, was shorter in length than the approved design. The Trustees [4th April, 1827] adopted a plan devised by a Mr Provis for the elevation and dimensions of the bridge [Fig. 4]. Stone used for the foundation piers and buttresses "shall be of stone from the Padbury, Thornborough or Buckingham pits whichever is best known to resist the joint action of ice and water".

Six tenders were received from people familiar with bridge construction. Costs ranged from a maximum of £2,440.0.0. to a minimum of £1,218.11.0., with a tender of £1,329.15.3. presented by William Slingo and his son.

At a meeting on the 26th April, 1827, the Trustees accepted the Slingo tender. Participants in this decision were Sir F. J. Fremantle, two gentlemen designated 'Esquire', and five Anglican clergy.

#### *A Change in Stone Specification*

Stone used for bridge arch construction was specified to be from Headington, just east of Oxford. This stone would have been transported by barge along the Oxford canal, joining the Grand Junction Canal at Braunston, eventually reaching the entrance to the Buckingham branch or arm, which was opened to commercial traffic on 1st

May, 1801. Unloading the stone would have taken place at the Buckingham Wharf approximately 2 miles distant by road from the Padbury site. The whole journey would have involved two modal splits: road-canal-road, the canal acting as a trunk route of an approximate distance of 80 miles.

On the 11th September, 1828 the Trustees requested that Messrs Slingo should reduce the cost of stone used in bridge construction, as it had come to their notice that local Padbury stone was being used in the construction of certain sections of the bridge in preference to Headington stone.

The Surveyor of the turnpike road advised the Trustees that in his assessment the difference in cost between using Padbury stone and Headington stone amounted to £179.14.7½., which was considered to be a large amount. Messrs Slingo maintained that the Padbury stone, when quarried, actually cost as much as Headington stone. The contractors admitted that because they had used Padbury stone, the Trustees were entitled to deduct under the heading of carriage a rate assessed at 5¼d. per foot, which for a total footage of 2,283 feet amounted to £49.18.1. Eventually Messrs Slingo accepted a deduction, slightly in excess of, £69 in their contract for building the bridge in consideration of the difference in costs of procuring Padbury stone instead of that from Headington. This total of £69 was the approximate aggregate of £49.18.1. for carriage and £19.5.0. for the cost of the stone; from these figures, transport costs represent 72% of the total.

#### *Demolition and Sale of the Old Bridge.*

Minutes taken at several meetings over a four-year period indicate slow progress in dismantling the old bridge and selling or using the material. Conflicting decisions were made regarding the use of this material and the inability to find a purchaser.

During May and June, 1828 Minutes reveal the Trustees advertising for tenders from persons interested in the purchase of materials from the dismantled bridge. As no tenders were offered the Trustees considered that all materials obtained from the dismantling should be used for "the purpose" of the turnpike road. This can be assumed to



mean that stone and rubble would be used as road metal.

Another proposition was ordered by the Trustees in October, 1828, proposing that the old bridge should be sold either as a whole or in lots, if not previously disposed of by private contract, the dismantling and removing of all materials to be undertaken by the purchaser on or before the 1st August 1829. A Buckingham auctioneer (Mr Harrison) was contacted requesting that he should auction the bridge materials at the earliest possible date

Getting no response, the Trustees wrote to Mr Harrison again in April, 1829, requesting him to procure a purchaser for the materials of the old bridge, and to inform them of a possible price which he could obtain – distinguishing materials useful for building purposes from any refuse.

It can be concluded that Mr Harrison was unable to find a purchaser, and in consequence the Trustees [April, 1832] ordered that a sufficient number of men should be assembled to dismantle the bridge, cleaning and stacking materials ready for sale – an auctioneer being employed for this purpose.

Following the completion of the new bridge, and its availability for the free passage of commercial traffic, the Trustees (11th September, 1828) instructed the turnpike surveyor to remove the parapet of the old bridge, placing the same in a position along the centre of the bridge's roadway, so preventing cattle and carriages being driven across.

The Plan detailing the proposed alteration at Padbury Bridge [Fig. 3] indicates a new turnpike road aligned south east from the new bridge to butt the old road from Padbury where it turned to gain access to the old bridge at 'A', and north west to join the old turnpike road at 'C'. A branch road was also planned leading from the new road to the Claydon-Gawcott junction by Laurel House – the site of the original Buckingham toll gate. The proposal would reduce road distance between 'A' and 'C' by 285 yards. The old route from Padbury old bridge to Buckingham was aligned essentially along the sides of a right-angled triangle. This road

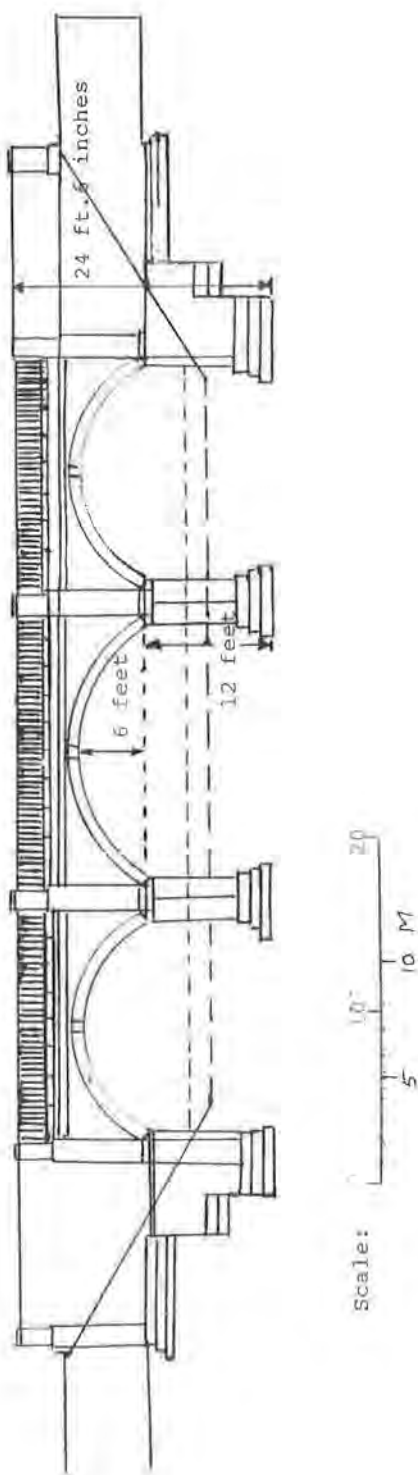


Fig. 4: Design for the new Padbury bridge, 12 May 1827, BRO t 3/33/9/1.

realignment eliminated John Ogilby's 1675 route between the Claydon-Gawcott junction and the turnpike road. With the lapse of time this road has fallen into disuse; sections of it today only exist as footpaths.

The land which the new road traversed was owned privately as part of the estates of two people: Mrs Sarah Holloway and William Osborne Hammond, Esq., as indicated on the Plan. To purchase the land required for the road, the Trustees offered to pay Mrs Holloway £120 per acre with extras for conveyancing. Mr Hammond was also offered £120 per acre, a sum reduced to £105 per acre following discussions. No reasons were recorded for a difference in the value of adjacent estates, classified as arable land by John Ogilby in 1675.

Delay occurred in the conveyancing of Mrs Holloway's land, completion being withheld until the Trustees ascertained the total area required for both the new turnpike road and the branch road leading to the Claydon-Gawcott junction. However, the Trustees were ready to pay £328.10.0 for the value of the land already taken at the rate of £120 per acre; interest and payment for damages sustained to be settled eventually at the completion of the business.

The price the Trustees paid for the land seems rather excessive when compared with the costs incurred for the construction of the new road network. Tenders for these road works were adver-

tised with four submitted ranging in cost from a low of £753 to a high of £900. A tender of £770.0.0, submitted by Thomas Morriss and William Morriss was accepted by a committee consisting of seven Trustees. These included: William Selby Lowndes, Esq. of Winslow, R. Dayrell, Esq. and five Anglican clergymen.

A specification for road construction was submitted by Thomas Morriss, one of the contractors, at a Trustee meeting held on the 8th August, 1827, the road having a foundation of well broken Padbury stone to a depth of 9 inches with a gravel covering of 6 inches. This specification was in preference to a previous specification with a gravel depth at 15 inches.

Percentages for combined road construction costs, and land purchase with legal costs were 52.2% and 42.8% respectively. This elementary analysis gives an indication of how unavoidable costs associated with land essential for road development were priced high by agents acting for the owners, for land classified as arable. This deduction is arrived at by comparison of land purchase costs with road construction costs.

Comparing costs derived from the preceding analysis allows us to assess cost of removing road metal from the old road, leading from Padbury Bridge, forming part of Mrs Sarah Holloway's estate, the sum involved amounting to £15; Mr King, surveyor to the turnpike trust, considered this to be a fair price.

*Treasurers accounts regarding the Padbury Bridge connecting road projects are as follows:*

4th June, 1829	- Mrs Holloway's interest on her purchase for land at Padbury Bridge:	£ 44. 17. 0
25th March, 1830	- Payment to William O. Hammond Esq.	£ 167. 1. 8
	Payment to Messrs Frere and Foster his solicitors:	£ 13. 1. 10
	Paid in cash to Henry Provis, Architect.	
	His bill relating to Padbury Bridge:	£ 68. 15. 9
	Paid in cash to Messrs Freshfield and Son, Solicitors of Mrs. Goodrich, their bill for business as to sale of her land for Padbury Bridge	£ 13. 7. 4
	Paid in cash to Mr. Thomas Hearn, their Agent at Buckingham for his charges.	£ 9. 5. 4
	<b>Payments Total</b>	<b>£ 316. 8. 11</b>

This sum excludes the payment of £328.10.0 paid to Mrs. Holloway on the 8th December, 1827. Thus the total cost of land purchased excluding the payment to Henry Provis was £576.3.2.

The cost of the bridge as extracted from Treasurers Accounts was:

20th October, 1827	-	Payment to William Slingo on account of Padbury Bridge	£ 693.	5.	1
1828	-	Paid to William Slingo	£ 643.	5.	1
1st May, 1820	-	Cash paid to William Slingo in full for the balance of his contract and for extra work at Padbury Bridge	£ 385.	5.	4
		<b>Payments Total</b>	<b>£1721.</b>	<b>15.</b>	<b>6</b>
		which together with the Architects fee of	£ 68.	15.	9
		<b>Payment Total</b>	<b>£1790.</b>	<b>11.</b>	<b>3</b>

As percentages of the total cost involved the following statistics evolve:

Bridge design and construction:	£1790.11.3	-	57.08%
Road construction :	£770. 0.0	-	24.55%
Land purchase and legal fees :	£576. 3.2	-	18.37%
			100.00%

As viewed across the fields from the, Gawcott-Claydon junction, Padbury Bridge displays a symmetrical, simple elevation. It is a lasting testimony to the Turnpike trustees, and their considered judgement in approving and adopting the design submitted by the architect and builder W. Slingo

One hundred and thirty years after it was finished the bridge retains its original design and charm. In 1950 the bridge was widened on each

side, to accomodate increased road traffic. Today the structure of the bridge is subjected to rolling loads seven to eight times greater then the heaviest single wagon crossing in 1828.

The durability of the bridge materials used can be assessed by a comparison with materials used in modern bridges, which need maintenance, or even replacement within a relatively short time of commissioning.

#### REFERENCES

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- Construction specification for the building of Padbury Bridge supra.
- (50 Geo III - 1810) "An Act for more effectually repairing and improving the Road from Wendover to the town of Buckingham in the County of Buckinghamshire. Buckinghamshire Record Office." Ref: T3/39/1.
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