ART. XIII.—*The historic crossings of the river Eden at Stanwix, and their associated road-systems.* By ROBERT HOGG, B.Sc.

Read at Carlisle, May 3rd, 1952.

1. FOREWORD.

THE purpose of this report is twofold: firstly, to record recent discoveries of the remains of historic bridges found in 1951 in the bed of the River Eden at Stanwix, during the Cumberland River Board's work of widening and deepening the channel; and secondly, to review the available evidence for these river crossings and their road systems to serve as a basis for their further study in the field.

The remains of at least three bridges were found either *in situ* or as loose structures on the bed of the river and they have been identified as follows:—

(i) A quantity of detached sandstone blocks from Hadrian's Wall bridge found embedded in gravel some yards to the east of the conjectural crossing position.

(ii) The remains of two piers or jowels of the late 16th century wooden Priestbeck Bridge found on the present course of the river almost on the line of the modern bridge.

(iii) A mid-water pier of the 17th-century stone Priestbeck Bridge found close to the north bank of the river at a distance of sixty yards to the east of the present bridge.

A search was also made for the remains of the Roman road bridge which carried the trunk road from Carlisle to the north. It will be explained below, however, that

in the light of further investigation of this aspect of the subject it is now considered that the site of the Roman road bridge will probably lie to the south of the present course of the river in a position that can conceivably lie within the public park.

As the Roman episode is so widely separated both in character and time from the earliest of the medieval records, it has been thought best first to trace the post-Conquest development of the crossing systems from the 12th century to modern times and to treat those of the Roman period as a separate section at the end of the paper.

The report which follows is therefore arranged under the following headings:—

2. The topography of the Eden Valley at Carlisle.
3. The medieval bridges.
4. The 17th and 18th century bridges.
5. The modern bridge.
6. The development of the post-Roman roads.
7. The Roman roads and bridges.
8. Acknowledgments.
   Appendix.

2. THE TOPOGRAPHY OF THE EDEN VALLEY AT CARLISLE.

The map (fig. 1) shows the topography of the Eden Valley in the Carlisle neighbourhood. In this a broad flood plain of thick alluvium is shown bounded by higher ground composed almost wholly of boulder clay. Within the limits of the medieval city the solid formations (these are composed of shales stretching northwards from the old gaol site and sandstones southwards from this point) have an average cover of some 27 feet of superficial deposits of which the upper 12 ft. at least are of heavy black occupation earth and the remainder boulder clay. In the river banks, Stanwix Shales crop out only at the

base of Etterby Scaur; the whole of the remainder of the great meander scars at Etterby and Greeny Bank on the north side of the river, and at the Castle on the south bank, are of boulder clay. This factor is of importance. As the rate of erosion of boulder clay is greater than that of rock there has been a comparatively greater recession of the sides of the valley, with a consequent greater destruction of the historic sites situated upon them, than there would have been had the valley been cut in rock. The erosion of the valley sides has been due in all probability more to the action of sub-aerial agencies than to the direct action of the river, i.e., evidence of the erosion of the valley sides is not proof of a shift in the position of the river channel. In any case the almost

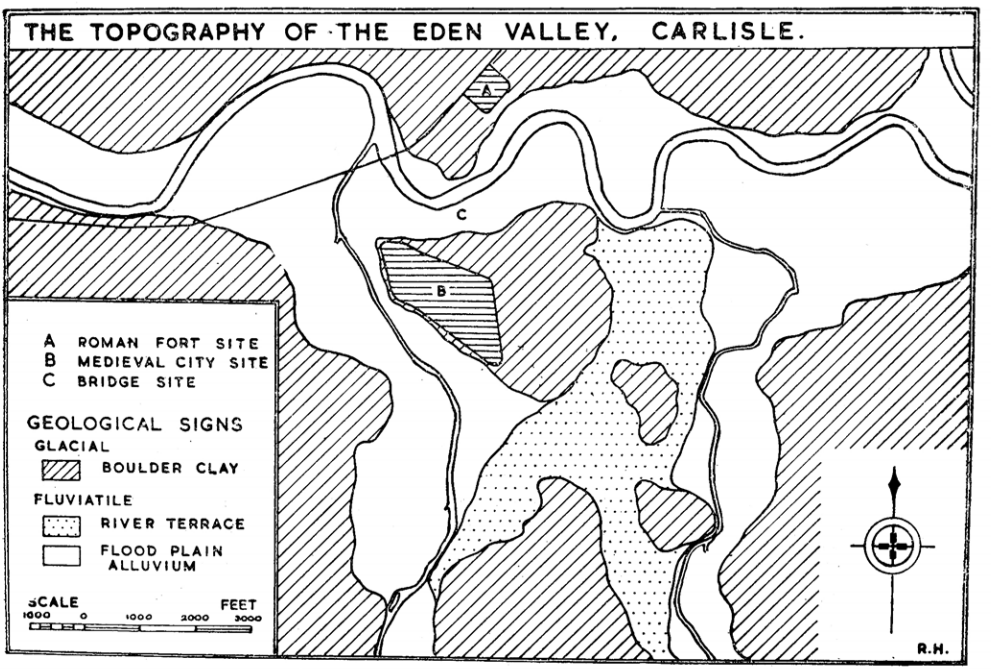


FIG. 1.—The relation of the principal occupation features to the topography in the Carlisle district. Based upon the one-inch Geological Survey map of the area.

total destruction of the Vallum diversion to the south of the Roman fort at Stanwix (J.R.S. xxxi (1941), Plate XII) and the probable erosion of the *vicus* of this fort (CW2 xxxi 70) is proof of considerable post-Roman erosion of the north bank of the river to the east of Stanwix Bank, and again there is evidence of similar changes at Hyssop Holme Well to the west as described by Pennant in the 18th century (*Hutchinson,* ii 579).

It will be seen from the map that at the points of confluence of the tributary rivers with the main river the flood plain broadens considerably, but that at Stanwix Bank between these two positions it is relatively narrow and is bounded on both banks by firm ground. This position is therefore the natural bridge site and it has been so used throughout historic times. Immediately to the south of the bridge site is an elevated area of clay ground which is almost isolated by the marshy tracts of the three rivers. This position obviously has considerable strategical advantages which have made it the principal occupation site in the area.

One other topographical factor concerns us, namely, the changes in the course of the River Eden at the historic bridge site. 17th-century maps of the Carlisle district show the River Eden bifurcating some 250 yards to the east of Stanwix Bank and maintaining a double channel for some 400 yards. The origin and subsequent history of this bifurcation can be traced. In a letter from the Privy Council to Lord Scrope and the bishop of Carlisle dated 29 or 30 January 1571 (CW2 iii 133), reference is made to the overflowing of the River Eden at Carlisle and the danger that this was causing at the bridge. This breach in the river bank is illustrated in an MS. of the Cottonian Collection (Cott. MS. Aug. Vol. I 12; reproduced by R. S. Ferguson: *The Royal Charters of Carlisle*, Appendix iii, para. 3) and there are further references to it in state papers relating chiefly to the efforts of the lord warden and the bishop to obtain subscriptions towards

the cost of repairing the breach from the people of Westmorland and even from "the bishopric (Durham) and other places within the presidency of York." (CW2 iii 134, 137 and 141; CW1 xv 117).

In 1597 the breach was still open and in a submission from the citizens of Carlisle for its speedy repair it is now referred to as "the new goytt", i.e., the new channel (*Municipal Records of the City of Carlisle,* 273). The breach, however, was never closed, but persisted as part of the 17th and 18th century bifurcation and still remains open to-day as the present course of the river.

The type of river development described above is of common occurrence in a valley tract which has reached a state of maturity and results in the isolation of acute meander loops with the formation of ox-bow lakes. Another example of the same phenomenon occurred in the River Eden at Cargo and its interesting bearing on some litigation in 1783 is described by Hutchinson (ii 679). Once the nature of the phenomenon is understood the phases of its development can be deduced. Thus when the direct passage is first forced it is the narrower channel, but it will continue to develop at the expense of the older channel until this finally becomes silted up and isolated. Such a series of changes occurred subsequent to the 1571 breach at Stanwix and is clearly illustrated in contemporary maps of the neighbourhood. In Lord Dartmouth's survey of 1684 (R. S. Ferguson: *The Royal Charters of Carlisle,* Appendix ii, para 1) the north channel—called the Priest Beck—is still, 113 years after its formation, the narrower channel. Some 120 years later, however, a "Map of the Demesne Lands within the Soccage of Carlisle Castle" (*Ibid.,* para. 5) shows the Priest Beck to have developed into much the broader channel and many of the nine arches of the Eden Bridge across the southern channel to have silted up. The isolation of the older southern loop was artificially expedited at the time of the construction of the present

bridge in 1812, and the survey of Carlisle published in 1821 by John Wood shows the completion of the sequence of changes in which the south channel is represented by a vestigial ox-bow lake. The history of these changes implies of course that any bridge at present on, or that has formerly stood on, the present course of the river at the Stanwix Bank crossing must have been built later than 1571, and that any bridge built earlier than this date must have crossed the now defunct south channel.

3. THE MEDIEVAL BRIDGES.

The earliest reference to Eden Bridge (I am indebted to Mr Edwyn Jervoise, F.S.A., for kindly supplying me with details of the authorities for many of these early references) is an early 12th-century one contained in a grant of "a mill upon the bridge of Hedene to the Priory of Carlisle" by Henry I (*N. & B.* ii 243), although it is more than probable that an effort would be made throughout medieval times to maintain a bridge at this important crossing.

The medieval bridges were timber built and of such imperfect construction that they were in constant need of repair, funds for such work being collected by various means. Thus, in 1356, Bishop Welton granted an indulgence of forty days to all who should contribute towards the repairs of the bridge over the Eden between the city of Carlisle and Stanwix (*N. & B.* ii 456). On 14 March 1359 pontage, i.e., permission to collect tolls, was granted to the men of Carlisle for the repair of the bridge (*Calendar of Patent Rolls, 1338-61,* p. 185), and the grant was renewed for four years on 18 March 1382 (*Ibid., 1381-5,* p. 100). In 1516 an appeal was issued for funds for "re-edifying and building of a new bridge of xxj jowlles adionyng the wallis of the forsaid citie (of Carlisle) now being decayed and part fallen down" (*12th Report, Hist. MSS. Comm.,* p. 6; the original

document is in the Jackson Library, Tullie House, Carlisle). Eden Bridge is also frequently mentioned in 14th-century wills (*Test. Carl., passim*), the maintenance of the bridges and roads being regarded as a pious duty (*Prelates and People,* p. 87).

In times of crisis the bridge at Stanwix was often a focal point of conflict, as in 1296, during a great attack on the city of Carlisle by the men of Annandale, when the garrison defended the bridge and managed to break part of it down (Creighton, *History of Carlisle,* p. 49); and in the Order of the Watches for the Western Marches issued in 1553, Eden Bridge was to be watched by two men (*N. & B.* ii lxxxiv).

In all these references which are prior to 1571 there is mention of only one bridge which is called Eden Bridge, a circumstance which conforms to the deduction made earlier in this report that prior to this date the river was confined to a single channel. The channel formed by the breach of 1571, which was named the Priest Beck apparently after a small runner that previously held this course (*Cott. MS., Aug.* I 12), was still unbridged on the 22 April 1597, the day on which the citizens of Carlisle made their submission that "both the way at the new goytt and for amendinge of Eaden brige ende be spedely mended and that it be nott delayed and put of this somer" (Ferguson, *Municipal Records,* p. 273). The earliest reference to a second bridge is some four years after this date in the Act of 43 Elizabeth (1601) for re-edifying, repairing and maintaining two bridges over the River Eden. Both are here described as being great bridges of timber which provided the only passage from England into Scotland. Eden Bridge had lately fallen down and Priestbeck Bridge was in great decay (*Cal. of State Papers (Domestic) 1601-1603,* pp. 126-7). It would appear surprising that the Priestbeck Bridge should be in such decay only some four years after its construction, but we shall see that in the first place it was not very

substantially built, and again, it is very probable that there was some distortion of the facts to win support for the bill at a time when efforts were being made to establish better relations with Scotland. It is significant that in the wording of the bill emphasis is put upon the importance of the bridges as being the principal link between England and Scotland. By this Act of 1601, the two wooden bridges were replaced by two of stone (*Lysons,* p. 77); thus, the Priestbeck Bridge of *circa* 1597-1601 was the only wooden bridge to have been built across the 1571 channel, i.e., across the present course of the river. Therefore the wooden piling of mid-water piers or jowels of a wooden bridge, found in 1951 in the bed of the river on the downstream side of the modern bridge (fig. 2), may be ascribed with certainty to the late 16th-century Priestbeck Bridge.

These remains of the last of the medieval bridges at Stanwix are surely one of the most remarkable archæological discoveries of recent years, indeed, they are so rare, that it is highly probably that there is no surviving parallel. The preservation of these structures was due to a covering of gravel beneath which they lay buried and protected until their exposure was brought about in 1951 by the drift of the gravel cover into the recently deepened downstream channel. Two piers or jowels were found on the west side and partly beneath the modern bridge, although it would seem probable that a third pier intermediate to the two found may have been destroyed by the excavation for the pier of the modern bridge, and structural work of dressed red sandstone embedded in the south bank may be part of the south abutment. Of the two piers the southernmost one, although considerably damaged, is in much the better state of preservation and is described in detail below. The outline of the pier (fig. 3) is marked by roughly parallel rows of 3 in. by 3 in. wooden piles which are each some 3 ft. long and are pointed but not metal shod. The piles mark out a

FIG. 2.—(*a*) Remains of two mid-water piers of the 16th century wooden Priestbeck Bridge, Stanwix, Carlisle.
(*b*) Water-worn piles and block stone debris on the north side of the southernmost pier, seen from the east.

facing p. 138

pier shape having splayed cut-waters both upstream and down, with the longer axis 41 ft. and the shorter 15 ft., but there is an absence of precision in the marking out of the structure. Concentrated about the piles is a great mass of block stone which has been displaced and scattered by the ravages of floods. On the south side of the pier, outside the line of piles, the block stone is almost undisturbed and is at this point shown to have been carefully packed around the piles. The area within the perimeter of the piles is almost free of block stone, but from the study of the structure of the other pier it is probable that the inner perimeter of the piling was also faced with stone and the core composed of a mass of gravel.

Mr Edwyn Jervoise, F.S.A., who has examined a photograph and plan of this pier, has suggested that we

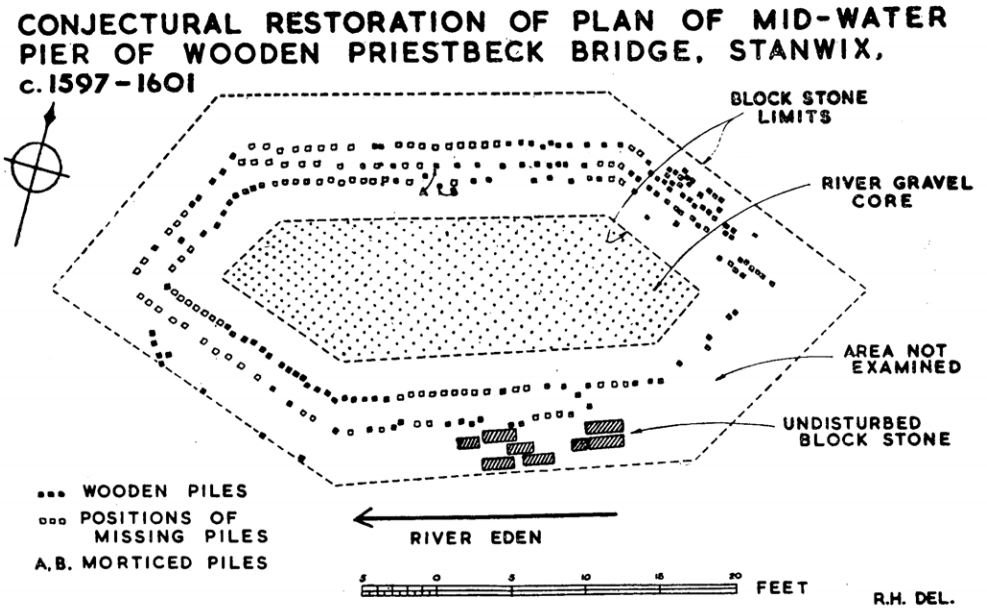
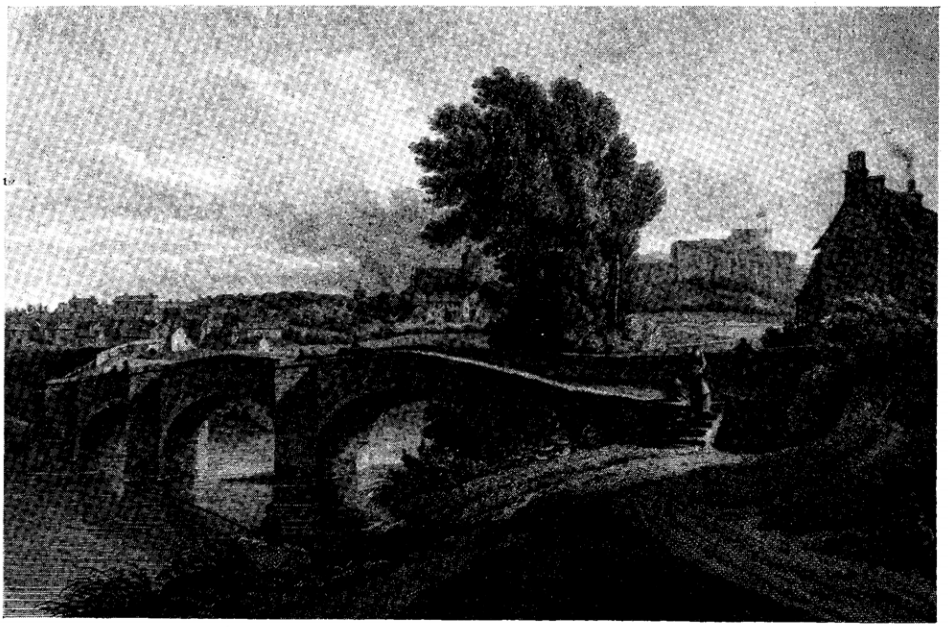


FIG. 3.—Plan of mid-water pier of the 16th century wooden Priestbeck Bridge, Stanwix, Carlisle.

are probably dealing here with a stone pier for a wooden bridge, and the interpretation of the remains would appear to conform to this conclusion. These loosely built sub-structures would be constructed without the use of any device to provide a water-free excavation. Hence a cement-bound structure was not possible and the use of the block stone is explained. The piles were thus necessary to act as a revetment to retain the inner facing of block stone and they are still functioning in this manner in the surviving fragment of the northernmost pier. The concentration of piling was increased where the water-pressure was greatest; there are thus three rows on the north face and a relatively heavy concentration on the upstream cut-water. The outer mass of block stone presumably protected the piles from floating objects which might cause their displacement. The loose structure so formed was in fact little more than a stabilised area of that part of the bed of the river which formed the core of the pier and into which would be driven the trestle legs to carry the superstructure of the bridge. Two morticed piles (fig. 3, A & B) survive on the north side of the pier, and there would probably be corresponding ones on the south side which are now lost. These piles would carry cross-batons fixed to the trestle supports of the superstructure. We may therefore visualise the complete bridge as being little more than a raised cat-walk some 12 ft. broad, with a wooden hand-rail at either side, raised on the trestle supports of the piers some 12 ft. above normal water level.

4. THE 17th AND 18th CENTURY BRIDGES.

Illustrations of and references to the two stone bridges which were built under the Act of 1601 over the double channel of the River Eden at Stanwix occur frequently in contemporary records. The engraving of the Priest-beck Bridge reproduced in this report (fig. 4a) and that



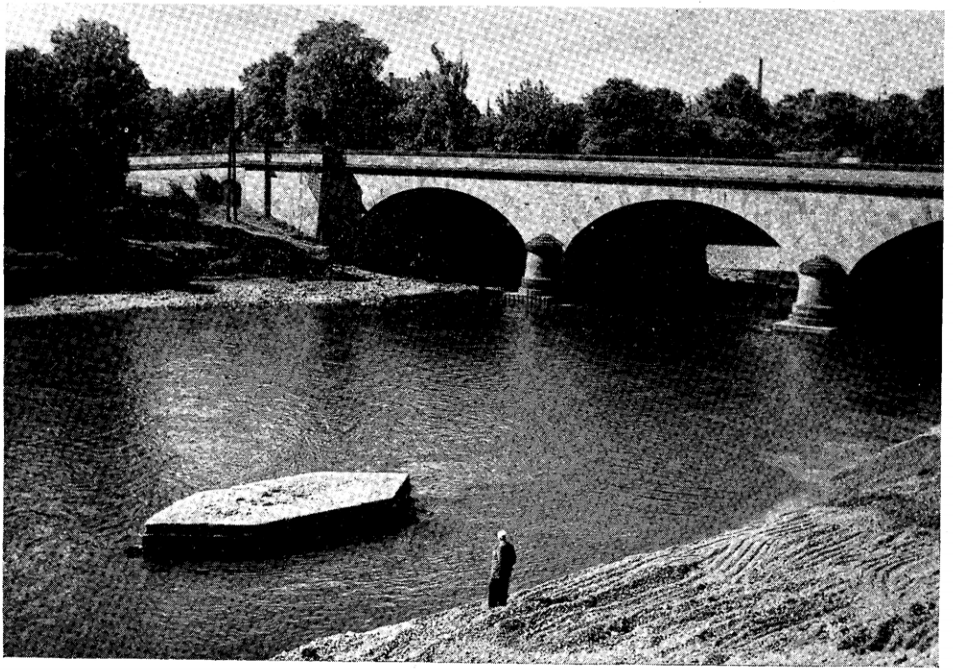


FIG. 4.—(*a*) Engraving showing 17th century stone Priestbeck Bridge, Stanwix, Carlisle.
(*Reproduced by kind permission of the Public Library and Museum Committee, Carlisle*)
(*b*) Mid-water pier of 17th century Priestbeck Bridge found in 1951.

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of the Eden Bridge in Nutter's *Carlisle in the Olden Time* are two of the best delineations of these bridges.

The Priestbeck Bridge is shown in 18th-century engravings as a narrow, slightly hump-backed bridge. The carriage-way was flanked by low parapet walls with plain flat copings. The piers were diamond-shaped with cut-waters both up and downstream which rose between the arches as splayed buttresses which terminated in projecting bays in the parapet walls. There were four elliptical arches having spans of 60 ft., and the alignment of the fourth arch to the south abutment was some 16 degrees west of that of the other three.

The crossing position chosen for the Priestbeck Bridge was some 60 yards upstream from that of the direct approach road via Stanwix Bank, a movement away from the traditional crossing position probably introduced to lessen the gradient of the immediate approach. This crossing position had not been used before, nor after the dismantling of the Priestbeck Bridge in 1812 has it been used since.

The short diversion from Stanwix Bank to the north end of the Priestbeck Bridge which had to be built for this new lay-out, and the old property which flanked it, called Eden Terrace, survived as a vestige of the Priestbeck Bridge crossing until 1932, when the whole of it was demolished and the present memorial entrance to Rickerby Park was built upon the site. This appeared to remove the last trace of this 17th-century crossing, but in September 1951 a mid-water pier was exposed in the bed of the river, near the north bank, with the form and in the position of those of the Priestbeck Bridge: its identification as being part of this bridge is therefore certain.

The pier was completely buried in a gravel reach of the north bank, but the gravel cover had been less than a foot in thickness and the subsequent drift of this material into the recently deepened downstream channel brought about the exposure of the pier. During subsequent work

of deepening the channel in the vicinity of this pier a search was made for additional remains of the bridge but none was found.

The pier (fig. 4b) is faced with blocks of red and yellow sandstone from the local New Red Series, and it has a sandstone rubble core. It has splayed cut-waters both upstream and down which give it an overall length of 32 ft. 10 in. and a breadth of 13 ft. It has a base to provide for a carriage-way 16 ft. 10 in. in overall breadth.

Three courses of the foundation masonry of the pier survive and these rest upon a timber raft set upon gravel of the river bed. The facing stones are well-dressed blocks of sandstone which are in places cramped together with iron cramping bars. Each stone bears on its outer face a mason's mark in the form of an A1, some of which marks are in an inverted position. The distance from the west extremity of the pier to the nearest pier of the modern bridge is 176 ft. 6 in.

From the south end of the Priestbeck Bridge the road to Carlisle bore slightly westwards and traversed the small island which separated the two channels of the river to reach the north end of Eden Bridge. This bridge was longer than the Priestbeck Bridge, having nine arches as against four, but from contemporary engravings it would appear to have resembled the latter closely in form.

The relatively greater length of the Eden Bridge corresponded of course to the greater breadth of the south channel at the time of the construction of the bridges in 1601, but 200 years after this date, due to causes already explained, the Priest Beck had developed into the wider channel and the four arches of the Priestbeck Bridge were then having to conduct a volume of water far in excess of what they had been designed to carry. Other factors were also contributing to the obsolescence of these bridges. Their narrow carriageways were becoming increasingly inadequate to cope with the growing volume of vehicular traffic especially at the time of the fairs which

were held on the island site between the bridges. Traffic accidents causing the deaths of cattle were stated to have increased the growing public demand towards the end of the 18th century for the rebuilding of these bridges (Hutchinson, ii 584), but their ultimate replacement by the present bridge in the early years of the 19th century was due to considerations of national rather than of local concern.

5. THE MODERN BRIDGE.

In the early years of the 19th century the Government, in an effort to improve relations with Ireland, ordered a survey to be made for a new road between Carlisle and Portpatrick. The commission for this work was granted to Thomas Telford, the brilliant Dumfriesshire-born civil engineer, who between 1802-10 made three separate surveys of the proposed road line (Sir Alexander Gibb, *The Story of Telford,* p. 181). The River Eden crossing at Stanwix was surveyed in March 1808 as part of this work, and the results, published by Parliament in 1809, offered a most effective solution of the difficulties created by the obsolete 17th-century bridges. Telford suggested that an embankment should be constructed to confine the river to the northern channel which was to be straightened and enlarged to carry the extra volume of water. The two old bridges were then to be pulled down and a single bridge of five arches, with a width of 28 ft. from parapet to parapet, was to be built over the widened northern channel on a crossing position some 25 yards to the west of the Priestbeck Bridge. The road from the north was to be carried southwards on an arched causeway over the dry southern channel. By an Act of Parliament of 1807 the Government made a grant of £10,000 towards the cost of the proposed improvements and work on them was finally begun in the autumn of 1812 (Lysons, p. 77). The architect who designed the new bridge was Robert Smirke, Junr., R.A., later Sir

Robert, who amongst many other important public works commissions was the architect for the British Museum, and whose father, Robert Smirke, R.A., was born at Wigton, Cumberland (*D.N.B.*). Smirke had earlier been engaged on Lowther Castle and probably owed both the commission for the Eden Bridge and the Court Houses, Carlisle, which he also designed, to the influence of Lord Lonsdale (*Carlisle Journal,* 10 February 1816). He modified Telford's survey in two important respects, i.e., by moving the proposed bridge line slightly westwards and so directly aligning it with the approach road down Stanwix Bank, and by re-designing the bridge. Telford's drawings for the bridge (copies of them are in the Jackson Library Collection, Tullie House) show a hump-backed structure, more ornate than that built by Smirke, with unequal arch spans, fluted inter-arch buttresses surmounted on stepped, diamond-shaped piers, and with an ornamental dentil course situated some 4 ft. beneath the coping, but if the writer may express a preference it would be for the bridge as built. The cost of the work to the County was almost £60,000 and was considered so excessive that an enquiry into the expenditure was ordered and further public work postponed for some years. The bridge was widened to twice its original width in 1932.

6. THE DEVELOPMENT OF THE POST-ROMAN ROADS.

In late medieval times the main road north from the walled city passed through the Scotch Gate (fig. 5, diagram 1) and crossed the single loop of the river via a wooden bridge into the broad King's Meadow where it immediately forked (*Cott. MS.*, Aug. I. 12). One branch of this fork continued directly northwards to the top of Stanwix Bank where it turned due west on its way to Rockcliffe and Gretna via the wath across the River Esk

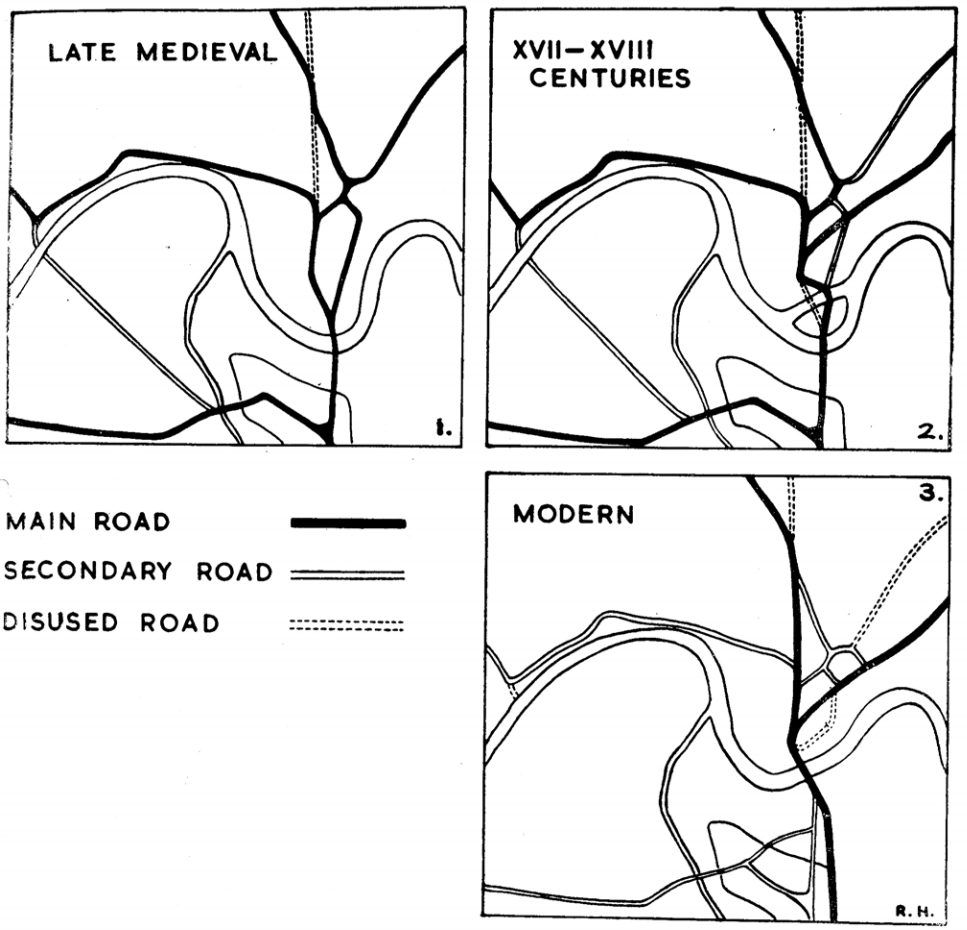

FIG. 5.—The approach roads to the Eden bridge crossings at Stanwix, showing their development from late medieval to modern times.

at Greenbed, and so into western Scotland (CW1 viii 374). Prior to the construction of the Kingstown to Gretna section of the Carlisle to Glasgow road in 1820, the road to Gretna via Rockcliffe was the main route into western Scotland. It was linked with the Carlisle to Beaumont road by the many waths which crossed the River Eden and Solway estuary west of Carlisle, i.e., the Etterby Wath, Rockcliffe Wath, the Peat Wath opposite Castletown House, and the Stoneywath at Sandsfield (CW1 ii 152 ff.). The other branch of the King's Meadow fork bore north-eastwards across the alluvial plain of the River Eden and reached the top of Greeny Bank on the east side of Stanwix churchyard around which it passed via Church Lane into old Stanwix. From there the road divided, one branch went northwards along Knowe Road to Longtown, and the other eastwards along the line of the existing bridle path through the Knowefield estate to Tarraby, Houghton and beyond (CW2 ii 275).

As an accessory means of river passage the waths remained in use until within living memory, but as the roads improved their importance decreased, but they were not finally rendered obsolete until the speed and comfort of modern transport overcame the inconveniences of the circuitous crossing via the bridge.

The late medieval road communications with the north were disrupted by the 1571 breach in the River Eden (Diagram 2). The reorganization of the bridge system in 1601 which this forking of the river necessitated has already been described, and the corresponding modifications to the approach roads is shown in the diagram. Not until 1751, however, was there any major road development. In that year, by an Act of 24 George II, provision was made for "the laying out, making and keeping in repair a road proper for the passage of troops and carriages from the City of Carlisle to the town of Newcastle-upon-Tyne" (Road Commissioners Book of

Orders, MS. Jackson Library, Tullie House). This Act was one of the immediate effects of the Jacobite Rebellion of 1745, which exposed the strategic weakness of the absence of any direct line of communication suitable for the passage of heavy baggage between Carlisle and Newcastle.

At a meeting of the Road Commissioners held at the Bush, Carlisle, on Tuesday, 25 June 1751, it was resolved: —

"That the making of the Road Do begin at John Bousteads Housè at Stanwix bank, that it be carried the whole way in as streight a Direction as the ground will admitt. That it go along the Lane to Luke Fishes, thence through Widow Bells Close by Draw Dykes. Through Draw Dikes Grounds to the Wood bridge near Lancelot Clemisons, from thence through Mr Hoskins Ground to the 2 Ash Trees in Crosby Lane from thence Through Crosby Lane by High Crosby from High Crosby over Newby moor to the River Irthing at the Ford near Rule Holme."

The Articles of Agreement between the Commissioners and the contractors for this section of the road were drawn up, signed and sealed, on the 18 July 1751. They provided for a road 27 ft. in breadth "to be stoned with Good and Sufficient Stone Twenty feet wide in the middle thereof, the said Stone to be broke to such size as the Surveyor shall think fit and the Stone in the Crown or Center thereof to be laid on to the thickness of Fifteen Inches and from thence to slope of on each side to the Thickness of five Inches and also to Gravell the whole of the said Road from side to side to the satisfaction of the Surveyor . . ." The ditches on either side of the road were to be one yard wide and there had to be a one year period of maintenance. The price to be paid was 12/- per seven yards. The Commissioners record their indignation at "the persons who came out of Yorkshire having combined together and demanded an exorbitant price of 20 shillings per rood."

This road became the principal one to the east from Carlisle, reducing the older route through Tarraby and

Houghton to secondary status, that section of it through the Knowefield estate being subsequently rendered obsolete. The only other piece of important road construction subsequent to the building of the Carlisle to Newcastle road in 1751 was the making of the entirely new section of the Carlisle to Glasgow road between Kingstown and Gretna in 1820. A cast iron lamp bracket inscribed "Thos. Telford, Engr. 1820" from the parapet of the old bridge which carried this road over the River Esk, can be seen in the Carlisle Museum gardens. The new road provided a direct route into western Scotland and thereby by-passed the more circuitous routes via Rockcliffe or Beaumont (Diagram 3). The effect of this reorganization of the western road system was to rob such places as Beaumont and Rockcliffe of the importance which they had held in medieval and later times and to reduce them to their present day status of old world villages (CW1 viii 377).

The meaning of certain vestiges of older road systems will now be apparent, e.g., the flight of steps into Rickerby Park from Brampton Road marks the line of the medieval road from Carlisle to Stanwix; the arched causeway at the foot of Rickergate stands on the medieval bridge site; while the meaning of the bridle path to Tarraby has already been explained. But further than this, vestiges of Roman planning can be detected and it is well illustrated by the small medieval road complex which occurs on the Roman fort site at Stanwix (Diagram 1), and the direct convergence on the natural bridge site of the modern trunk roads from both the north and south.

7. THE ROMAN ROADS AND BRIDGES.

There are two aspects of the Roman problem: the Imperial frontier, i.e., Hadrian's Wall, and the Imperial road system. The positions of these two systems closely approximate in the region under consideration yet they

bear little relation one to the other in date, planning, or purpose, and are therefore considered separately below.

(a) *Hadrian's Wall and its river crossing.*

The line of the Great Wall from Stanwix westwards across the broad flood plain at the confluence of the rivers Eden and Caldew has been accurately determined by excavation (CW1 ix 167 f.); but one small discrepancy in this line may be conveniently recorded here. In November 1937 the writer examined the exposure of the supposed Great Wall foundations in the garden of Edendale, Marlborough Gardens, Stanwix, and showed that this stonework was not *in situ* but merely loose material which had been found by inexpert digging in North Ditch filling and set out to resemble Wall foundation. The south lip of the North Ditch was located 6 ft. from the garden wall which indicates a position for the site of the Great Wall in the garden of the adjoining property.

In 1886 R. S. Ferguson made a determined effort to find the position of the Wall bridge (*Ibid.*, p. 171), but in spite of the considerable energy with which he prosecuted the work the results were completely negative. In the light of additional evidence these results may now be explained. Deep trenching was undertaken in the low-lying ground at the Hyssop Holme Well on the north bank of the river at a point immediately below that on the top of the scarp to which the Wall had been traced. No structural remains were found. It has been explained (above, p. 134) that because of the recession of the scarp face here much of this terrace is of post-Roman origin. Further trenching was carried out on the opposite side of the river in a position on the east bank of the River Caldew near its point of confluence with the River Eden, but again no remains were found. Recent discoveries would now appear to place the site of the bridge some distance north of this position.

Thus the only reference to structural remains of the

bridge was the frequently quoted observation by Camden of the large stones which he saw in the river and which he presumed were from the bridge foundations (Ed. 1600, p. 704). These stones were never subsequently reported nor were they visible in recent times. When the River Board began their work in the sector containing the bridge site their rediscovery was, however, anticipated, and at the end of August 1951 a considerable quantity of sandstone blocks was located by the bucket of the drag-line excavator in the bed of the river and removed to the bank. In the sector where these stones were found the river bed was lowered 6 ft. at the centre and 2 ft. 6 in. nearer the bank. The bed-rock was not reached and the whole excavation was carried out in gravel. The stonework was found concentrated in two areas of the river bed, one 15 ft. from the south bank, and the other 83 ft., on a crossing position which is some 40 yards upstream from the conjectural crossing as shown on O.S. maps.

The material recovered consisted of some eighty to ninety sandstone blocks of average size, 34 x 19 x 12 in., together with a smaller mass of fragmentary material. None of these stones answer to the voussoirs of arches as at Willowford (CW2 xli 214), but four have splayed sides (fig. 5) and are presumably from the cut-waters of mid-water piers. All the stone is fairly heavily worn by water erosion, the socket holes too are considerably worn and with one exception, in which a lead cramp remains, all the cramping structures are missing. We can therefore conclude that whatever structure the stonework formed part of was in a completely disintegrated condition at the time of its discovery.

Most of the stone is the typical local dark-red St. Bees sandstone, but there are three blocks of a pinkish gritty sandstone and about six of a pale cream colour. One block shows a passage from cream to red so that it is probable that all the stone came from the same local quarry.

In about sixty blocks structural features are completely absent or there are only lewis holes present. In the remainder there are socket holes of two types: in ten instances there are large dove-tailed sockets (figs. 3, 4 and 6) similar to those used to-day in the dove-tailed slate cramp; and in others a smaller type of socket with associated grooves for use with a metal cramping bar (nos. 2 and 5). In six of the blocks there have been cut shallow recesses (nos. 1 and 2) which would probably be filled with cement and serve a purpose similar to that of a frog in brickwork. Four of the stones have joggled corners (no. 6) the purpose of which is uncertain. The faces of most of the stones show rough metal-tool dressing as shown in the diagram, while in a few instances this is a diamond-type of broached work (nos. 1 and 2).

One block bears a centurial inscription of Vesnius Viator which has already been recorded by Mr Eric Birley (CW2 li 179 f.), who shows it to be suggestive of a Hadrianic date for the bridge. This inscription has now been removed to the Carlisle Museum.

In no instance can any of the above stonework be ascribed to the superstructure of the bridge, which may probably have been of wood as at Newcastle and Chesters (*Handbook,* 10th Ed., pp. 46 and 77), and this conforms too to the tradition that a wooden bridge did cross the river at this point (CW1 ix 170). As for any surviving remains of the bridge, it would appear reasonable to conclude that there is a distinct probability of the south abutment at least being recoverable. The presence of stonework embedded in the gravel bed of the modern channel is proof that the river has not shifted its position in this reach much since Roman times. What movement has occurred must have been towards the north due to pressure from the River Caldew keeping the principal river permanently directed northwards against the great scar at Etterby.

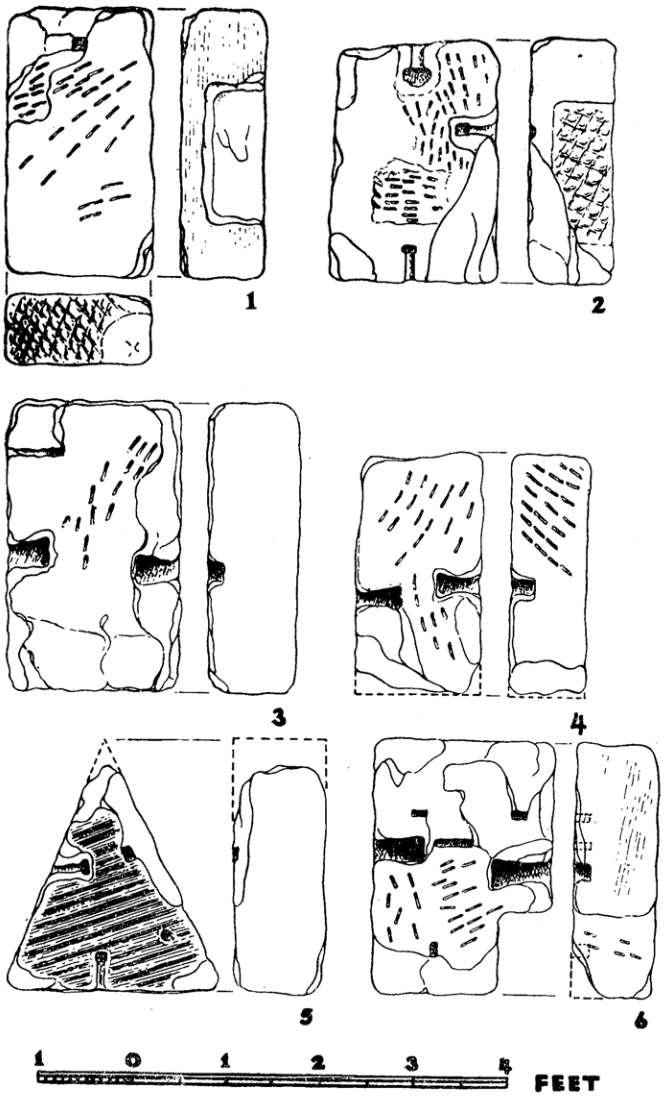

FIG. 6.—Water-worn sandstone blocks from Hadrian's Wall bridge, found in the River Eden at Stanwix, Carlisle, August 1951.

(b) *The road bridge and the trunk roads.*

Included under this heading are the following features:

(i) The trunk road from Luguvallium to the north.
(ii) The Stanegate, i.e., the trunk road to the east.
(iii) The bridge which carried these roads across the River Eden.

Apart from certain deductions concerning the probable approach line of the north trunk road there is no record concerning any of these structures in this region. In the light of further evidence however (the determination of the site of Roman Stanwix in 1940, and the above considerations regarding the topographical changes which have occurred at the historic bridge site, are the most important pieces) an assessment of the probable location of all these features in the vicinity of Stanwix is now permissible.

(i) *The trunk road northwards.*

The probable line of this road from Westlinton to Stanwix as suggested by field reconnaissance has been described by Haverfield (CW1 xv 186 f.). This is the line subsequently recorded on O.S. maps. The note traces only the distant approaches of the road and does not make any mention of the probable position of its river crossing. Earlier, however, MacLauchlan had suggested the probable line of this approach road (*Memoir,* p. 75) as being from the north along the line of Knowe Road into Old Stanwix and then via the line of the later medieval road, i.e., Church Lane, Greeny Bank, King's Meadow, and so to the river. He suggested that this road probably by-passed a small two and a half acre fort situated to the west of it on Stanwix Bank. The recent determination of the site of Roman Stanwix as extending from the west side of the churchyard to Well Lane places it astride MacLauchlan's line and therefore rules it out as the trunk road position. The alternative route now suggested is that obtained by the direct continuation of

Haverfield's proposed road line, which will carry it past the Knowe Road position along Scotland Road and so to the river. This suggestion is supported by the following factors: it is a direct continuation of a well attested line —an important consideration because the road antedates the fort, so that any local deviations in its line must in all probability be related to the building of the fort and will therefore be secondary to its original planning; again, the new line by-passes the known position of the fort; and finally, it is a direct line to the natural bridge site and the town of Luguvallium which is its ultimate destination (fig. 7).

(ii) *The Stanegate.*

Nothing is known of the precise location of Agricola's Carlisle-Corbridge road at its River Eden crossing but there are some pointers which may be considered. We have noted that in medieval times the roads both to the north and east crossed the river by a single bridge. It is very probable that the Roman planning was similar, indeed, it would have been extremely disadvantageous for it to have been otherwise. The prospects of determining the Stanegate position immediately to the north of the bridge site, however, would appear now to be extremely remote, due to changes which have been effected in the topographical setting through the deposition of alluvium above the Roman level in King's Meadow and the post-Roman erosion of Greeny Bank. Further to the east, however, the prospects of the site having survived are better. In 1936, during the construction of the houses on the north side of Croft Road, Whiteclosegate, several Roman cinerary urns were found (Carlisle Museum Accession, No. 30-1936). This is in the same area as that in which other urns were found in 1872 as recorded on O.S. maps. These discoveries almost certainly mark the cemetery site of the Roman fort at Stanwix which by normal practice would lie in close

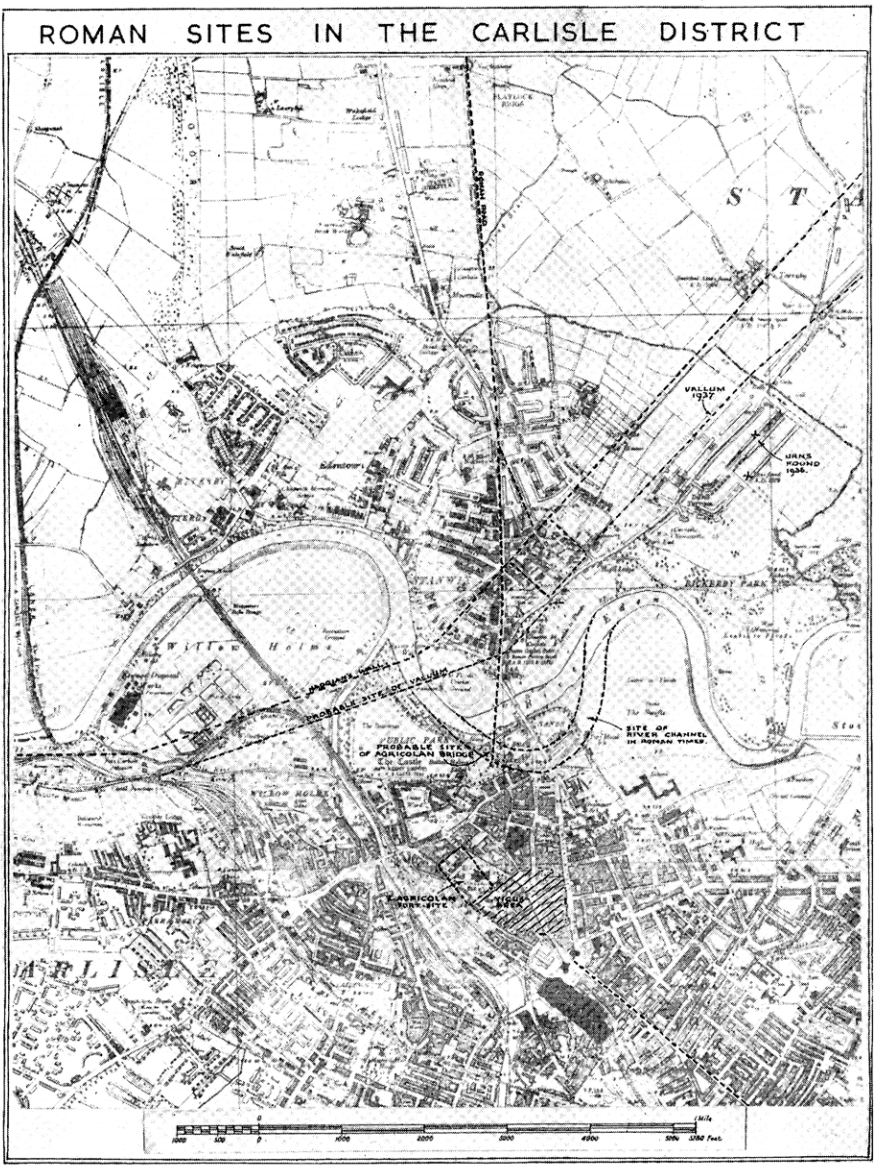

FIG. 7.—Ordnance Survey six-inch map of the Carlisle area over-printed with the locations of the principal Roman sites.

(Reproduced from the 6 inch Ordnance Survey Map, with the sanction of the Controller of H.M. Stationery Office.)

facing p. 155

proximity to the trunk road. We have thus two probable positions for the Stanegate line, i.e., Croft Road and the Roman road bridge position which should direct between them the line of future enquiries on this problem.

(iii) *The Roman road-bridge.*

The contention in the absence of any evidence that a road bridge crossed the River Eden at Stanwix in Roman times is of course pure hypothesis, but as we are dealing here with the passage of the main west route communications at their principal river crossing we can confidently assume that such a bridge did exist, and further, by analogy with the contemporary structure which took the main east route across the River Tyne at Corbridge, that the Stanwix Bridge would in all probability have a substructure at least of stone.

The determination of the probable location of the road bridge site follows logically from the two deductions previously made in this paper, i.e., that the approach line of the north trunk road was via Stanwix Bank, and that the functional river channel in Roman times was the now defunct south channel of the 17th-18th century bifurcation of the river. Thus, by continuing the Scotland Road/Stanwix Bank line for the Roman trunk road southwards across the present course of the river to the position of the dried-up channel (fig. 7), a position for the Roman crossing is reached some 60 yards west of the arched causeway which we have already noted marks the medieval crossing position. There is no certainty of course that the Roman crossing-point so deduced is in fact the site of the Roman bridge, but the burden of evidence would appear to support this conclusion. Thus, the line so drawn is a more direct one to the site of Luguvallium, its destination, than that via the medieval crossing on the line of the modern causeway; again, the medieval crossing is directly aligned with Rickergate and the Scotch Gate of the medieval city, a circumstance which

would appear to be derived essentially from medieval planning and bear no relation to the Roman. We can thus permit ourselves to say that there exists the intriguing probability that the site of the earliest of our great road bridges may lie in an accessible position in one of our public parks.

Roman Carlisle.

We add here some notes on the site of Roman Carlisle. The position of the north rampart was determined in 1890 as in part lying between Abbey Street and Castle Street on the line of the present Museum buildings (CW1 xii 344); the approximate position of the west rampart may be inferred from the east scarp line of the River Caldew as pointed out by Dr R. C. Shaw (CW2 xxiv 101); by then making the tenable assumption that we are here dealing with a fort for a milliary infantry regiment, i.e., a fort some 570 x 330 ft. in size as at Housesteads, and aligning this fort so as to make the fullest use of the strategic advantages of the terrain, we may sketch in a position for the site which, considering the inaccessibility of its remains, may have to suffice for some considerable time to come (fig. 7). Mr F. G. Simpson has pointed out that within the fort site so determined the Norman church occupies a position corresponding to the consecrated area of the fort, and that the probability is that the Cathedral site has been used from late Roman times, through Anglian, to the present day, as a place of Christian worship. It should be noted too that the close relation of the trunk road system in this area to the fort site as determined above is further proof that this deduction must closely correspond to the exact position.

The archæological evidence for a pre-Roman settlement at Carlisle is negligible if not entirely non-existent, but one small scrap of such evidence has recently come to light and will serve to carry this history of the area back to where its origin certainly lies—before the Roman

episode. During the building of the Carlisle Museum in 1890 there was found, securely stratified beneath the Agricolan level at a depth of 18 ft., a small bone dart-head (CW1 xii 356). These dart-heads are characteristic of Iron Age A/B cultures of S.W. England and occur also in Broch contexts in northern Scotland, and they form part of the archæological evidence advanced by Professor Childe in support of his contention that the broch culture is a derivative of that of the S.W. Peninsula (*Prehistoric Communities,* 3rd ed., p. 247). This extremely rare, probably unique, pre-Roman object from the historic City area was therefore submitted to Professor Childe for examination, and the interesting report upon it which he kindly forwarded will be found in the Appendix to this report.

8. ACKNOWLEDGMENTS.

This report was compiled as part of the writer's professional duties as Keeper of Archæology, Carlisle Museum. He wishes therefore to express his indebtedness to the Public Library and Museum Committee of Carlisle Corporation for kindly allowing him the time and facilities which were required to undertake the work.

The writer's thanks are due also to his many friends who have given him practical advice and assistance. He wishes especially to place on record the kind co-operation and invaluable practical assistance which was always accorded to him in spite of the pressure of their own professional duties by Mr C. H. Caygill, Resident Engineer of the Cumberland River Board, and Mr L. G. Strong, Agent, Messrs. Dowsett Engineering Construction Ltd., Lincolnshire. The work of supervising the removal from the river of the Wall bridge stones was undertaken by Miss K. S. Hodgson and Mr Thomas Gray on the day of their discovery, and Mr Eric Birley made a special journey to the site on the day following. Practical assist-

ance and advice was given to him by the City Engineer's staff, Carlisle Corporation, of whom Mr T. G. Jones assisted with the survey of the remains *in situ*. Finally, his thanks are due to his colleagues at Tullie House, to Mr Kenneth Smith the Librarian and to Miss Snaith and Miss Ward on the staff of the Public Library for the help given to him on the many occasions upon which he consulted them. The incidental cost of handling the Wall bridge stones was met by the General Purposes Committee, Carlisle Corporation, whose Chairman (The Worshipful, the Mayor of Carlisle, Mr Alderman George H. Routledge, O.B.E., J.P.) and Members of Committee, together with the Town Clerk of Carlisle, Mr H. D. Robertson, were conducted over the Priestbeck Bridge site by Mr F. G. Simpson who described to them the nature and implications of the new discoveries.

APPENDIX: *Bone dart-head from Carlisle.*

By Professor V. GORDON CHILDE.

Implements of this type made from marrow-bones, generally metapodials of sheep or goat, are common both in Iron Age A and B cultures of Southern England and in the broch and allied cultures of Scotland. In some the tapering end is rounded, while in others it forms a comparatively sharp point. As a consequence there is some uncertainty as to the use of the objects and Mrs Cunnington has applied to them the term "gouges" (*All Cannings Cross*, p. 85 f.), a view accepted by Sir Mortimer Wheeler (*Maiden Castle, Dorset*, p. 304 f.). These authorities incline to the view that the objects were used in connection with weaving, possibly as shuttles. On the other hand, Professor A. E. van Giffen has endorsed the older view that they were dart heads and this alternative receives some confirmation from the fact that a specimen from Foshigarry in North Uist (Childe, *Prehistory of Scotland*, p. 241) shows a rudimentary barb. It was noticed at All Cannings that all specimens belonging to the Iron Age B or Glastonbury complex have the proximal end of the bone as the butt, a conclusion confirmed at Maiden Castle. The butt of the well known specimen of Cunnington's Type A from Grimthorpe, E. Riding, belonging to the Arras group of Iron Age B, likewise seems to be the proximal

end of the bone. Too much of the bone has been sawn off the Carlisle specimen for certainty to be possible, but from the available outlines it does seem that this butt is probably the distal end, a practice more normal in Iron Age A. Examples of this family (probably Type C rather than Type B) have been found with Iron Age A pottery as far north as Breedon-on-the-Hill, Leicestershire (*Trans. Leics. Arch. Soc.*, XXVI, 1950, p. 38).

The late Sir Lindsay Scott recently demonstrated ("Gallo-British Colonists: the Aisled Round House Culture in the North", *Proc. Prehist. Soc.*, 1948, p. 46 f.), with the aid of pottery and architecture, what I had previously deduced from the distribution of bone types (including the type here under discussion)—an actual colonisation of North-Western Scotland from South-Western England about the beginning of our era. While Sir Lindsay Scott's colonists appear to have proceeded in the main by sea, there are some suggestions from South-Western Scotland (Childe, *Prehistory of Scotland*, p. 239 f.) that some parties may have proceeded also by land, though these may have been composed mainly, if not exclusively, of populations of Iron Age A affinities. It would be attractive to regard the pre-Roman dart-head of Type B from Carlisle as marking a stage on a route similarly marked by the find from Borness Cave on the coast of Kirkcudbright.