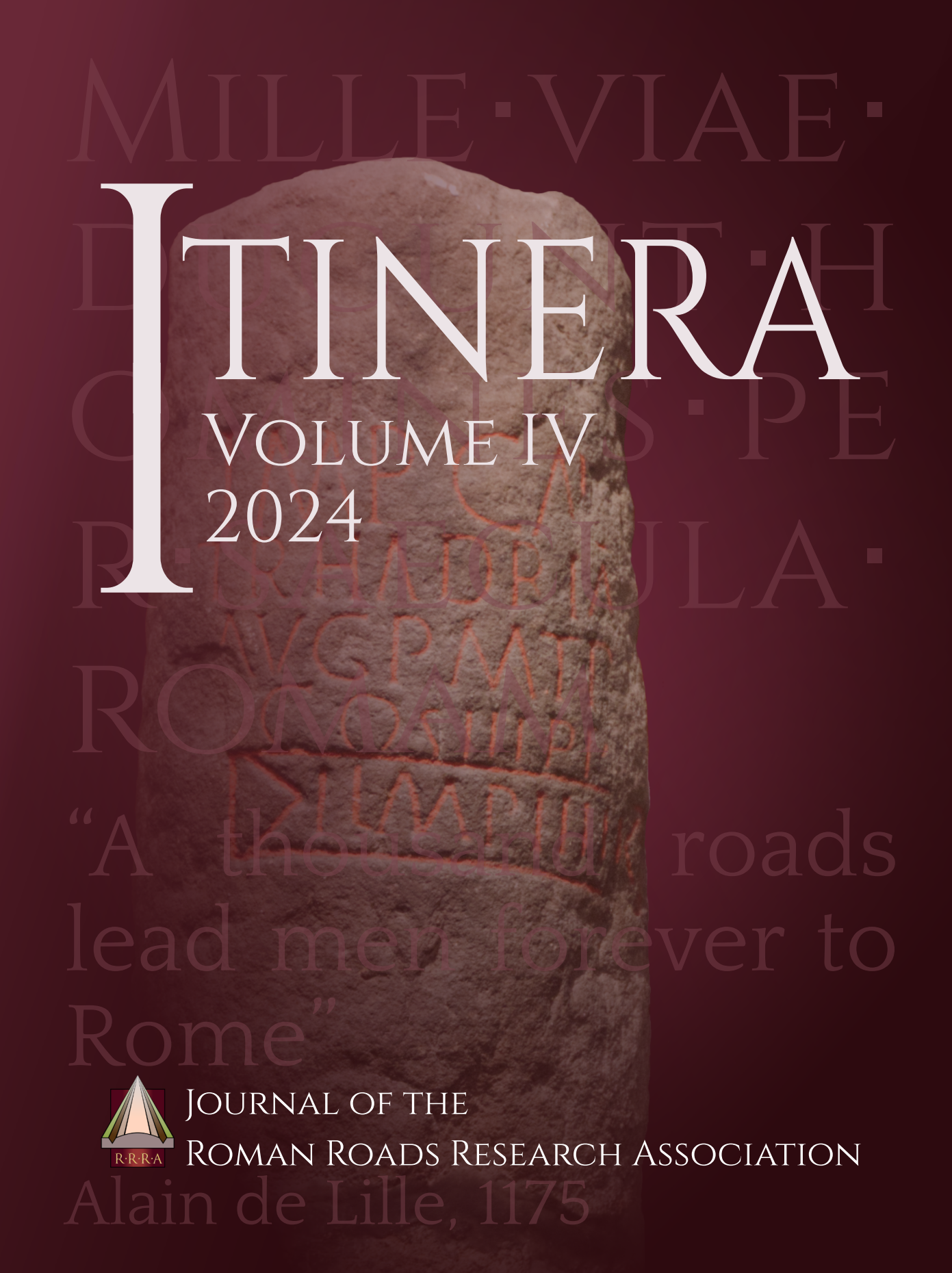


ITINERA

Volume IV
2024

"A thousand roads lead men forever to Rome"

Alain de Lille, 1175

Journal of the
Roman Roads Research Association

ITINERA

THE JOURNAL OF THE
ROMAN ROADS RESEARCH ASSOCIATION

VOLUME IV, 2024

Published by the Roman Roads Research Association



ITINERA
VOLUME IV

Published by the Roman Roads Research Association
Ellerbeck Cottage, Ellerbeck, Northallerton, North Yorkshire, UK. DL6 2RY
A charity registered in England and Wales No. 1163854

ISSN 2635-1579 (print)
ISSN 2635-1578 (online pdf)
ISBN 978-1-8383918-3-6

All individual contributions to *Itinera* remain copyright of the author(s) and copyright of the typographical arrangement of both print and PDF versions is retained by the RRRA. However, in support of open access to research, the PDF versions of any article that has been publicly released on our website or elsewhere (but not as early release copies to our membership) may be freely copied and distributed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License provided one year has passed following initial publication. You may not adapt or alter the work, and may not reproduce individual illustrations and photographs without the author's prior consent, since they often contain additional copyright licensing. The paper copy of this journal remains © RRRA and individual authors.

The Roman Roads Research Association is not responsible for any statement made, or opinion expressed, in *Itinera*. Individual authors are solely responsible for the content of their articles.

Typeset in Gentium Basic and Cinzel by the Roman Roads Research Association
licensed under the SIL Open Font License, Version 1.1

© the Roman Roads Research Association 2024

Contents

v About the Association

vi Editorial

Articles

1 - 38 NIGEL R ROTHWELL, Verulamium to Calleva Atrebatum: R163 and the River Thames Crossing

39 - 66 ISAAC MORENO GALLO, The Construction of Roman Roads

67 - 96 PAUL BOOTH, Aspects of the Roman Road Network in the Oxford Region

97 - 120 MICHAEL J HOLMES, The Network of Local Roman Roads Centred on the Glynde River Crossings in East Sussex

121 - 174 DAVID RATLEDGE, Some Roman Roads around Exeter: a Tribute to the Late Hugh Toller

175 - 218 MIKE HAKEN, Viae Vicinales in the North-East Midlands

A Focus on: the North End of the Devil's Causeway

219 - 220 LINDSAY ALLASON-JONES, A Focus on: The North End of the Devil's Causeway

221 - 234 LINDSAY ALLASON-JONES & ADRIAN OSLER, The Devil's Causeway: a Tidal Issue

235 - 240 LINDA BANKIER, Crossing the River at Berwick-upon-Tweed

241 - 254 DAVE ARMSTRONG, The Devil's Causeway: Current Understanding and Future Work

255 - 274 JOHN POULTER, The Planning of the Devil's Causeway in Northumberland

275 - 290 BILL BLYTH, The Devil's Causeway - A Preliminary Investigation of its Presence at Berrington, Northumberland

Roman Roads in 2023

291 - 292 MIKE HAKEN, A proposal for numbering non-standard Roman roads in Britain

293 - 384 Roman Roads in 2023: a Review of Recent Research and Fieldwork

385 - 388 DAVE ARMSTRONG & MIKE HOLMES, Newly Allocated Margary Road Numbers

Reviews

389 - 390 Tuna Kalayci (ed.), *Archaeologies of Roads.* (By Christopher Hadley, author of 'The Road')

391 - 394 Catherine Fletcher, *The Roads to Rome: A History* (By Christopher Hadley, author of 'The Road')

395 - 410 Index

People and Officers

ITINERA

Editorial Committee

Rob Entwistle (Hon. Editor)
Dave Armstrong
Dr. M. C. Bishop
Paul Booth
Mike Haken

Advisory Panel

John Poulter
David Ratledge
Dr. Pete Wilson

The Roman Roads Research Association also wishes to acknowledge the contributions of all the other individuals who have volunteered their time and expertise in the preparation, production and distribution of this volume, without whom it would not have been possible:

Keith Abbott
Colin Adams
John Ashcroft
Neil Buckley
David Brear
John Byde
Hannah Collingridge
Ian Dean
John Fare
Chester Forster
Neil Godfrey
Richard Hucker
Ian Jardine
Wayne Kirk
Mike Luke
Geoff Lunn
Simon Madison
Delwyn Matthews
Robert Matusiewicz
Paul Morris
Elliott Mouelhi
Dan Murphy
Eric Rose
Nigel Rothwell
Paul Seddon
Paul Smith
Ryan Smith
Matt Sparkes
Chris Webb
Richard Whaley

Contact Roman Roads Research Association

If you are interested in Roman roads or would like to know more contact us via our web site https://romanroads.org or by mail to one of the below;

Mike Haken (Chair) mike@romanroads.org

Dave Armstrong (Secretary) dave.armstrong@romanroads.org

Peter Webb (Membership Sec.) membership@romanroads.org

Rob Entwistle (*Itinera* Editor) itinera@romanroads.org

Chris Webb (Itinera Sales) itinerasales@romanroads.org

About the Association

by Mike Haken



The late Hugh Toller and I founded the Roman Roads Research Association to provide a focal point for what we thought was a fairly small group of individuals with an interest in the study of Roman roads and connectivity throughout the former Roman province of Britannia. I'm not sure that Hugh, who sadly died in 2016, could have imagined that at the end of April 2024 we would have an international membership totalling 556, a figure that continues to grow. We are a very broad church, ranging from those with just a general interest in the Roman period, through to professional archaeologists from both commercial and academic sectors, not forgetting those those like myself who have had a lifelong passion for the subject (some might say obsession!). The Association welcomes all new members, whatever their background.

The continuing growth in membership may well have been fuelled, at least in part, by some of the things we have achieved. For example, we have just concluded the fourth season of our online lecture series, which we launched in 2021 during the pandemic. As part of our key policy of ensuring that our work is always made as accessible as possible, our talks are open to everyone, are always free of charge, and regularly attract audiences of 200 people or more from across the world. Another excellent programme for our fifth season is being prepared by our Secretary, Dave Armstrong, and details will be released soon. You can catch up with previous seasons on our YouTube channel.

Since 2018, we have conducted over 200 Ha of geophysical survey with our own gradiometer cart, accurately identifying the course of many roads and examining Roman period sites along them. Our most recent survey, assisted by a group of local volunteers from Southwell (SCAG), was near East Stoke (*Ad Pontem*) in Nottinghamshire. This confirmed the location of the junction of RR59(x) from Ancaster with the Fosse Way, making the existence of RR59(x) now beyond dispute. We always welcome suggestions for other potential survey sites, no matter where in the country they might be.

Above all, however, our greatest achievement is *Itinera*, the only journal in the world dedicated to the study of Roman roads and transportation infrastructure. Published entirely in house by our large team of volunteers, we are proud that our standards are as high as most academic publishing houses. Indeed, As Rob Entwistle points out in the following Editorial, it is a measure of our growing credibility that *Britannia*, a journal of the Roman Society, guides authors of reports on Roman roads that would have previously been published in *Britannia* towards *Itinera* instead.

Looking forwards, the wealth of new research and discoveries that have been reported by *Itinera* have, if nothing else, highlighted the urgent need for an accurate map that reflects the true state of knowledge of the Roman road network in Britain, and the sites it served, since the national maps that do exist are either decades out of date or simply inaccurate and misleading. To rectify this situation we will soon be recruiting volunteers to assist with a nationwide project which aims to accurately redraw the map. In line with our Open Access policy, the results will all be made freely available.

Finally, I am sure that our enthusiastic membership will enable us to continue to expand and develop our activities, ensuring that the next decade is even more productive than our first decade has been.

Mike Haken
(Chair)
mike@romanroads.org

ITINERA IV, 2024
Journal of the Roman Roads Research Association
Web page: www.romanroads.org/itinera.html

Editorial

Robert Entwistle



The late Hugh Toller, co-founder of the RRRA with Mike Haken, was sadly lost to Roman road research when the Association was only a year old. Earlier I had become aware of his work through his part in identifying the long-sought line of the Lune valley Roman road out of Lancaster, my native town. Identifying it through Lidar and on foot, he followed its route up and over Lancaster Ridge towards Caton and the southern flank of the Lune valley.

It is therefore a pleasure to see David Ratledge's contribution to this volume of *Itinera*, a memorial to Hugh's work in the Exeter region, developed in the light of further studies. It is appropriate that this same volume contains a significant paper by Mike Haken identifying *viae vicinales* in the north-east Midlands which perhaps should no longer be regarded as somehow 'lesser' or 'minor'.

Itinera has a record of examining different aspects of Roman road studies, not necessarily restricted to our corner of the Roman empire. The 2024 volume sees a new contribution from the Spanish archaeologist and presenter, Isaac Moreno Gallo: the first publication in English of his work analysing road construction methods and transport development. His trenchant views provide a counterbalance to other accounts, reminding us that the evidence of the trowel is always subject to interpretation.

A new departure for this volume is the incorporation of a 'Focus' section with multiple papers exploring a single theme. The subject is the Devil's Causeway – a road which branches off Dere Street just north of Hadrian's Wall to head (via Learchild fort) determinedly towards modern-day Berwick and the mouth of the Tweed – where no Roman site is known. This theme originated in a 2023 conference held in Berwick-upon-Tweed and coordinated by Dr Lindsay Allason-Jones and the Border Archaeology Society with support from the RRRA, exploring the riddle of the road. Expert presentations have been developed into these papers. We would be happy to repeat, in future volumes, similar suites of papers focused upon a single theme or aspect: suggestions for themes and contributors would be welcomed by the Editor.

As always, this volume treats different geographical parts of Britannia, ranging from the south-west (Exeter) to the north-east (Berwick). Paul Booth explores aspects of the Roman road network in the Oxford area, Mike Holmes considers issues around the River Glynde in East Sussex, and Nigel Rothwell examines the possibilities for a Thames crossing linking St Albans and Silchester.

In a full volume, however, we regret the lack of papers on Wales and Scotland, even though these countries are represented in our annual round-up across Britain. Potential contributors suggesting interesting papers on these areas of would find us warmly receptive. *Itinera* continues to welcome every submission from contributors established or new, and if necessary, will endeavour to advise authors where further work is needed for key improvements. A short proposal to the Editor of what is intended, before making a full submission, is often helpful.

Editorial

We take pride in a professional standard of production maintained entirely through the work of volunteers: our editorial board (Mike Haken, Dave Armstrong, Mike Bishop and Paul Booth, all of whom contribute endless hours to the production of each volume); our academic advisor (Pete Wilson); our index compiler (Chester Forster); and postmaster (Chris Webb). Without the dedicated work of the whole team Roman studies would be the poorer.

We are greatly heartened by the respected position that *Itinera* has achieved in the short period of its existence. The long-established journal, Britannia, acknowledges this in specifying that submissions on Roman roads for their annual update section should be limited to brief summaries of the main points of interest if accounts are also published in *Itinera*, with our journal cited for those fuller reports.

An important part of our role, alongside publicising research, is (through the RRRA) the regulation and classification of new discoveries, as Margary's original system of nomenclature strains to adapt to an expanding known road network. This volume therefore contains a list of newly attributed numbers and a proposal from Mike Haken on the classification of non-standard Roman roads.

This year we have taken the decision to slightly reduce the font size to bring *Itinera* more into line with other similar journals and to control printing costs. Even so, readers will find that 2024 marks a bumper issue: the largest volume we have yet produced.

We trust that RRRA members and all readers will enjoy and profit from this 2024 volume of *Itinera*.

Robert Entwistle

(Hon Editor, *Itinera)*

itinera@romanroads.org


R·R·R·A

ITINERA IV (2024) 219 - 220
Journal of the Roman Roads Research Association
Web page: www.romanroads.org/itinera.html
Itinera (print): ISSN 2635-1579
Itinera (online pdf): ISSN 2635-1587

A Focus on: The North End of the Devil's Causeway

by Lindsay Allason-Jones
President: Border Archaeological Society
lindsay.allason-jones@newcastle.ac.uk

Questions as to the exact route of the Devil's Causeway at its northern end have been asked for many years. There are also several subsidiary questions to be answered: where is the most northerly confirmed sighting of the road? Does it cross the Tweed between Tweedmouth and Berwick-upon-Tweed and, if so, how? If the road heads purposefully to Tweedmouth, why was this its destination and is there a fort waiting to be discovered there?

In an attempt to answer these questions, the Border Archaeological Society invited members of the Roman Roads Research Association and the Northern Roman Frontiers Seminar to join them for a day conference in Berwick-upon-Tweed in October 2022. Sadly, this event had to be postponed due to 'works on the line' effectively making train journeys to Berwick from Newcastle and Edinburgh impossible on our chosen day. A second attempt was made in May 2023 and this time, despite a rail strike, a very successful conference was held, with lectures followed by a walk along the banks of the Tweed to allow people to familiarise themselves with the terrain.

Much that was new was discussed and it was suggested that the papers should be published so those who could not attend might discover what was discussed and those who did attend could digest the contents at their leisure. The members of the Border Archaeological Society are very grateful to the Roman Roads Research Association for allowing these contributions to be inserted into *Itinera IV*. Sadly, not all the speakers were able to prepare their papers for publication, but it is hoped that the following will provide much food for thought and move on the debate about the purpose of the Devil's Causeway.

© Lindsay Allason-Jones 2024, published by the Roman Roads Research Association


R·R·R·A

ITINERA IV (2024) 221 - 234
Journal of the Roman Roads Research Association
Web page: www.romanroads.org/itinera.html
Itinera (print): ISSN 2635-1579
Itinera (online pdf): ISSN 2635-1587

The Devil's Causeway: a Tidal Issue

By Lindsay Allason-Jones & Adrian Osler
lindsay.allason-jones@newcastle.ac.uk

Abstract

The following is a discussion as to whether the Devil's Causeway crossed the River Tweed at Berwick-upon-Tweed or was aiming for a port or fort on the south bank at Spittal or Tweedmouth. If there was an installation at the mouth of the Tweed, questions are then asked as to whether servicing such a facility was feasible, how difficult it would have been to sail regularly between the River Tyne and the Antonine Wall in the Roman period, and how long such a journey might take. Was the Tweed the only harbour along the route, or should we be looking for other harbours along the Northumberland coast?

Introduction

There are several puzzles regarding the north end of the Devil's Causeway, the first being where it might be. Locally, Sir Walter Aitchison is believed to have seen traces of the road at Springhill (Tweedmouth) in 1946, but the evidence is not as convincing as usually thought – see below (St. Joseph 1951). More recent work has confirmed the route of the road as far as Berrington (Blyth, this volume), but after that it is elusive although it is presumed it is heading towards the River Tweed. If it reaches the river, does it cross over to continue on its way north or was its target the south bank in order to service a fort or a coastal supply route? To dispose of the fort theory first: Frere admitted that 'no fort is yet known in Berwick', but he postulated, following Margary (1955, II, 209), that 'the place is clearly the destination of the road' i.e. the Devil's Causeway (2001, 291-2). He was sure enough about this to claim the postulated fort could be '*confidently identified with*' the *Oleiclavis* of the Ravenna Cosmography (2001, 292). Sadly, no Roman artefacts to support this theory have been found at Berwick in a convincing Roman context and it is hard to see where the fort would be, what purpose it could have served and how easy would it have been to access if the following arguments are taken into consideration.

Crossing the Tweed

If the road did continue northwards, there would be three ways to cross the Tweed estuary in the Roman period: by ferry, by ford or by bridge, but none of these options would have been easy at the

© Lindsay Allason-Jones & Adrian Osler 2024, published by the Roman Roads Research Association

time. Whilst there have been ferries across the Tweed since the medieval period, they have been largely seasonal ventures, such as those which ran for the tourists who flocked to Spittal in the 19th century. Ferrying a unit of soldiers across the river at any time of year would have been time-consuming, while moving horses or stock in this way would have been challenging, although by no means impossible if a pontoon-style rivercraft was used or the animals were encouraged to swim across shallow-water stretches upstream. It should be remembered, however, that the Tweed is tidal up to the Union Chain Bridge at Horncliffe, with an average daily variation between low and high tide which can be as much as four metres, considerably more when the Tweed is in flood due to adverse weather conditions nearer its source (*Berwick upon Tweed Tide Tables* 2023). Operating a rowing and/or poling ferry across the river within a mile of its mouth would have been subject to significant constraints of tide and weather.

This tidal element of the River Tweed would also have limited the use of fords. Two fords are mentioned as early as 1541 in the survey by Bowes and Ellerker, one at Tweedmouth church and one at Berwick Streams (Hodgson 1828, 194-202), but the position of the fords across the Tweed has changed many times over the years, usually after the flash floods the river is noted for. The flow and depth of water in any river increases as it rounds bends, so fords tend to be situated on the straighter stretches, of which there are few in the lower reaches of the Tweed. For a ford to be usable, there also needs to be convenient access from both banks; due to the local geology, the Tweed has cut deeply into its bed, creating river cliffs which result in difficulty of access to the water in many places; at Berwick itself, the natural slope of the banks before medieval waterfront development would have been very steep, steep enough to make the passage in winter of pack animals and waggons a hazardous undertaking.

Although ferries and fords could have offered potential ways of crossing the river at Berwick for an army on the march, an advance was not simply a matter of moving troops and horses but involved complicated logistics. The Roman army did not travel light; in his description of the progress of Varus in AD 9, Cassius Dio mentions his army as having with them '*as many waggons and beasts of burden as in time of peace*' as well as '*not a few wives and children*' and '*a large retinue of servants*' (*Roman History* LVI.20.2-5). Moving such a horde across a river as complex as the Tweed would have taken a very long time but, once across, even a small unit would have needed supplies, even if only at irregular intervals, if it was to have a permanent or even semi-permanent presence (for evidence of the nature of such supplies, see Bowman and Thomas 1994). In the case of the River Tweed, a method of crossing which was not dependant on tides or seasons would have been required.

The building of the ramparts and walls considered militarily essential, firstly by Edward I and then by Elizabeth I, impacted on the banks of the River Tweed, with later industry further altering the course and width of the river. (Fig.1) As a consequence, the river today is much narrower and thus much deeper than in the Roman period - the 17th century bridge, which is still used today, is 355 metres long while the Royal Tweed Bridge, which was completed in 1928 and stands much higher above the river, is 430 metres long; in the Roman period a bridge in a similar position would have needed to be nearly 500 metres in length if it was to be well bedded into both its north and south banks. The technical difficulties of building a bridge of such a size should not be underestimated; later attempts at bridging the Tweed at Berwick with a wooden bridge were regularly thwarted by flash floods (see Bankier, this volume), and it was not until 1624 that a stone bridge was successfully completed. Roman stone bridges of any substantial length required abutments and piers (Bidwell and Holbrook 1989), no evidence for which have been found within the Tweed estuary. Unless it was built with a



Fig. 1. Berwick Quayside taken from the 17th century bridge showing the Elizabethan walls to the left, and the build-up of the Quayside as well as the width of the river at this point. Carr Rock is in the far background. Image: Lindsay Allason-Jones

deck that was high over the water, a bridge would also have seriously hindered river-borne traffic, limiting the number of hours in the tidal cycle when vessels could pass through without either grounding at low water or offering insufficient headroom to shoot it at high water. Likewise, it would have prevented seagoing craft from proceeding further upstream. This is not to suggest that the Romans did not have the technical capabilities to build very long bridges (as, for example, the Trajanic bridge across the Danube in Serbia) or high bridges with tall piers (as was built across the Tiber at Rome), but such monumental structures would leave noticeable traces which would have either been found or recorded by antiquarians and there is no evidence for either.

If the Romans did cross the River Tweed at Berwick, where were they going and what would the suggested fort have been guarding? Earlier scholars were convinced that the Devil's Causeway continued on to Newstead, with a postulated Roman fort or 'naval station' at St. Abbs (see Ainslie's 1789 map of Scotland; Sinclair 1834-45; and Stuart 1845), although William Roy found no traces of a continuation of the road through Berwickshire (1793) and no modern scholar has been able to substantiate these claims. The cliff top site at the Needles Eye, excavated by Pre-Construct Archaeology in 2005, is the only site of any size and suitable date immediately to the north of Berwick (NT 9880 5540: Proctor 2012). This site consists of a series of enclosures and was for most of its history a non-defended settlement with a subsistence economy based on mixed pastoral and small-scale

arable farming with an element of salt production. Salt was, of course, always important, but the *briquetage* evidence suggests that this production was probably seasonal and had mostly been abandoned by the early 1st century AD; as a consequence, it is unlikely that this was industry on a scale to have warranted the effort of building a bridge over the Tweed near its estuary or a fort for the protection of that bridge. Other than the *briquetage*, the Roman period finds from The Needles Eye constituted what has traditionally been seen as a typical Romano-British settlement assemblage in Northumberland (Allason-Jones 2009): a couple of pieces of glass bangle and one piece of 1st century samian (S. Gaulish Dragendorff 18 platter: AD 40-100).

Regular traffic heading north of the Tweed more probably kept to the flatter, more sheltered land to the west, keeping well away from the coast in order to avoid crossing many deep-sided ravines; the distribution of Roman sites in the Borders indicates that the nearest forts to the north are all sited well inland and mostly along Dere Street. It is also noticeable that the temporary camps which are known, at Norham, East Learmouth (south-east of Wark) and Carham, are all well to the west of Berwick and all on the south bank. Aerial photography suggests there may also be a marching camp behind Dove's warehouse at Tweedmouth, but this is yet to be confirmed.

The purpose of the Devil's Causeway

A circular argument has developed over the years that the existence of the road indicates that there must have been a port of some kind at the mouth of the Tweed or just inside the estuary, either at Spittal or Tweedmouth whilst, at the same time, a port could explain why the road is aiming for the coast. Wherever it was heading, building the road would have been a major engineering feat, requiring the crossing of several rivers between Halton Chesters and the banks of the Tweed, and it is unlikely that the Roman army would have gone to so much trouble for only limited benefit. It is also curious that, so far, there is only one definite fort along the route of the road: the apparently short-lived Low Learchild (St Joseph 1951, 56; 1955, 85; *Journ. Roman. Stud.* 1957, 206; Birley 1961, 244-5; see also Armstrong, this volume) with a possible, but so far unproved, site at Wooperton (Gates and Hewitt 2007). Most of the other sites which have been suggested as possible fortlets over the years have invariably proved to be temporary camps - probably associated with the Agricolan advance (Gates and Hewitt 2007) - or rectangular settlement sites (eg Hartburn: Jobey 1973, who also discusses Brinkburn on the River Coquet, Hall Hill near Longframlington, Ferney Chesters to the south-west of Hartburn and Mitford). Sir Walter Aitchison in 1946 excavated a site he thought was a small fort or fortlet at Springhill reservoir at Tweedmouth but, despite the pottery including a now missing fragment of what was described as a late 3rd century mortarium, this is unlikely to have been a Roman military site (St. Joseph 1951, 56). Sadly, other than Hartburn few of these sites have been given a thorough excavation to prove the point one way or the other. One accepted fortlet has been surveyed at Longshaws (NZ 134 884), but this sits 3 km to the east of the known line of the Devil's Causeway and its relationship with the road is, therefore, open to debate (Welfare 2011). There has been a general presumption that other forts could have been ploughed out, but any fort that has been used for any length of time produces artefacts – see, for example, Elginhaugh, just south of Edinburgh, which was occupied for barely a decade (Allason-Jones 2007). No artefact scatter or, indeed, many single Roman artefacts have been found along the line of the Devil's Causeway except at river crossings (Allason-Jones 1996); Dere Street, on the other hand, has produced a regular scatter along its length (see Portable Antiquities Scheme database).

It has been argued that the Devil's Causeway was only used by cavalry and that is why there is only one definite fort. This seems rather unlikely - even if the road was primarily an early frontier (Hodgson 2017, 36, 72), any fort or fortlet along its length would have required provisioning, and that would have required carts and pack animals which move more slowly than cavalry horses. Harness pieces have been found at Berrington, however, which may suggest that some cavalry were using the road (see Blyth, this volume), although that might be stating the obvious.

A port on the north bank would, for reasons outlined above, have been usable only for goods from the area immediately north of the river. Whether the south bank site implied by the evidence was a port with permanent shoreside facilities or simply a temporary beach-based market, it might be postulated that it was intended to provide a place for the army to take on provisions from farms in North Northumberland. The problem with this suggestion is that the evidence, as it survives, still seems to indicate that most of what have been traditionally called 'Romano-British settlement sites' had been abandoned by the mid-2nd century AD throughout the county. There have, however, been recent suggestions which propose a well populated productive coastal plain with co-operative inhabitants continued beyond this date (Hodgson, McKelvey and Muncaster 2012), but if there were still farms, were these elusive farmers supplying garrisons to the north or to the south?

These questions may currently be unanswerable, but if the Devil's Causeway was intended to provide a supply route to or from the coast or included this in its remit, then there are also questions to be answered as to how easy it would have been for a merchant ship or military supply vessel of the period to ply these waters and thus use this suggested facility.

Coastal Traffic

The evidence is clear that the fort at South Shields was intended as a supply depot, particularly during the Severan advance into Scotland (Bidwell and Speak 1994), but how difficult would it be to sail a cargo from South Shields to Berwick in a Romano-Celtic vessel? We have more knowledge of Roman sea-going vessels in the Mediterranean than in Britain, but the remains of the 19 metre-long *Blackfriars I* found in the River Thames (Marsden 1994) and the 25 m *St. Peter Port I* from Guernsey (Rule and Monaghan 1993) would appear to represent the types of Romano-Celtic vessels that were crossing the English Channel on a regular basis and these would have been capable of sailing up the north-east coast (pers. comm. Prof. Boris Rankov; see also Ellmers 1996, 68-71). Calculations suggest that even the smaller *Blackfriars I* carried up to 60 tons of cargo, equivalent to 120 carts pulled by a single ox. This can be compared with Marcy's claims that 1000lbs was a cartload which a single ox could be expected to pull (Marcy 1849). The United States War Department's *Ordnance Manual* of 1862 considered 1500lbs per single ox cart load not unreasonable, although it is not clear how far it was expected the ox should struggle with such a weight. In the Roman period the *Cursus Publicus* had load limits which changed over time; according to the Codex of Theodosius in AD 368, an *angarias* (possibly a post-wagon) might carry a maximum of 1500lbs and a *raeda* (post-carriage) 1000lbs, but a post-horse was only allowed to carry 30lbs (*Cod. Theod*. 8.5.30). A later entry dated to AD 385 adds a limit of 600lbs for a *carrus* (cart) (*Cod. Theod.* 8.5.47), but the amounts allowed could vary, depending on the commodity being transported (*Cod. Theod.* 8.5.48). Whilst it is not always possible to be certain exactly how the Roman weights relate to modern weights, nor how fast the traffic using the *Cursus Publicus* would travel compared to ox carts carrying cargo, these equivalents do suggest a considerable

number of carts would be travelling up and down the Devil's Causeway during the sailing season, if the mouth of the Tweed played a major part in coastal traffic.

Further queries are: how long would passages take and how often would it be feasible to attempt them in a year? There are two matters that need to be taken into account to come to any conclusions: tidal influences and the nature of the presumed departure point, that is, the mouth of the River Tyne. Tidal influences, both in respect of range (height) and the character of the inshore tidal streams (currents) would have been much as today. As yet, however, there is no hard evidence regarding the hydrography of the Tyne's entrance in Roman times, although it will not have differed so significantly as, for example, the Caister-on-Sea (Norfolk) entrance and the Yare-Waveney (Norfolk) estuaries today (Ashwin and Davison 2005, 29). The Tyne's south bank may have featured an inlet near the Mill Dam (South Shields) and will have displayed extensive tidal flats at Jarrow, where the main river received the inflowing Don. As with all rivers along the north-east coast, the Tyne had an 'entrance bar', although a relatively navigable one, giving minimum and maximum depths of some two and six metres at low- and high-water of spring tide respectively. Rock reefs to the north and a 'hard sand' (shoal) to the south undoubtedly required seamanlike care upon arrival and strong onshore winds spelt danger, but once inside the entrance the natural harbour was safe and roomy. The exact location of the loading dock within this harbour at South Shields has yet to be found.

Historically, seafarers have been ambiguous about coastlines, welcoming the navigational advantages of 'sailing within sight of land', but wary of the physical hazards involved. The Romans, generally speaking, did not like to sail far from the shore and, if possible, avoided sailing at night (Casson 1994). Of course, our understanding of shipping in the Mediterranean, as recorded by the Roman authors, has influenced our ideas about sailing in the Roman world in general, but, as Boris Rankov has warned (pers. comm.), Mediterranean sailing habits may not be pertinent to the north-east coast of Britain, and, although relatively little is known about Iron Age sailing techniques or vessels in Britain, the documentary evidence for the nearby Atlantic Celts suggests that 'they were clearly seafarers of some competence, able to deal with the hazards of coasts, channels and archipelagos, and also take advantage of tidal flows' (McGrail 2001, 206-07).

The coast of north-east England and south-east Scotland can be dangerous sailing territory, with tidally limited river entrances, long stretches of cliff and/or reef and broad beaches with wide, impassable surf zones. In the 18th/19th centuries more sophisticated sailing craft than were available to the Romans came to grief with depressing regularity along the Northumberland coast – one gale which lasted for three days in April 1799 led to the loss of 14 sailing vessels between Blyth and Holy Island alone (Osler 2013, 14-15). It is, therefore, not improbable that Roman sailing ships, whether military or civilian, erred on the side of caution by avoiding the more frequent storms and short days of winter. Indeed, it is likely that Roman coastal traffic was confined largely to the summer months, utilising the longer daylight hours at 55°–56°N and the more clement conditions. Analysis based on modern weather data suggests that the opportunities for Roman (square-rigged) shipping's north-bound Tyne to Forth passages were best in springtime, whilst summer offered equality of chance for both north- and south-bound trips - although the former would gain the advantage of the coast's diurnal sea breezes. Sailings in early summer risked the region's notoriously dense sea fog, known locally as the 'haar' (Osler 2023, 6-8).

It seems likely that passage-making would be based on a simple strategy of day-sailing between successive anchorages or havens at which the ship could stop overnight, or maybe seek shelter in adverse conditions. Positing a conservative speed of 2–2.5 knots over a 'day' of 12 hours (in which the

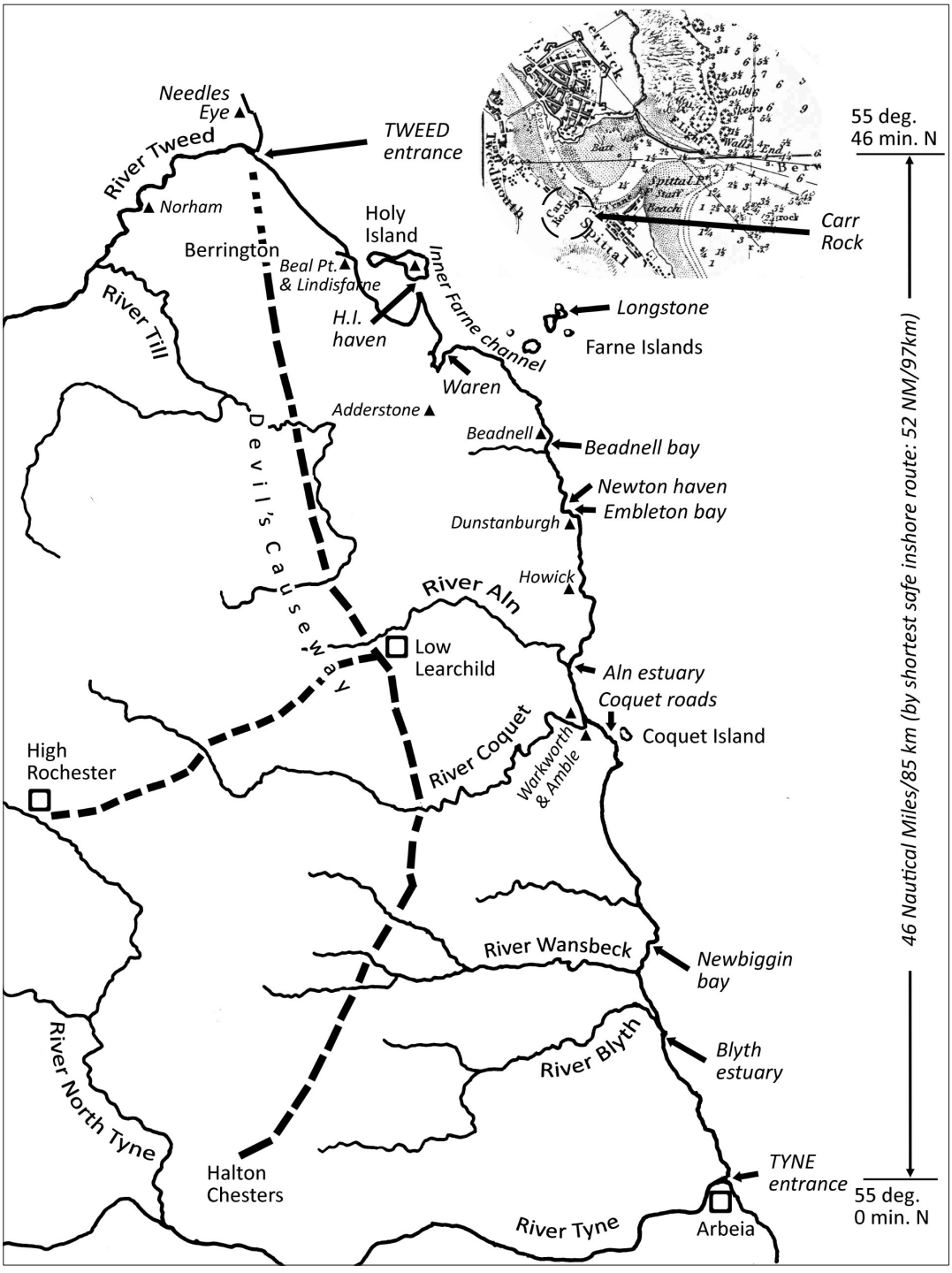


Fig. 2. The Devil's Causeway and the North East Coast, with locations referred to in the text (inset - Berwick harbour and approaches as of 1831).

tidal streams cancel out) then stopovers would be required approximately every 24-30 nautical miles or less. This would seem achievable on the Tyne to Tweed section of the route using, possibly, Blyth/Newbiggin, Coquet Roads/Aln estuary, Embleton Bay/Newton haven and Holy Island/Waren, as stopping points (Fig. 2). Experience, however, suggests this would have been much harder along the section from the Tweed (or Eyemouth) to Leith as this involves rounding St. Abb's Head into the Forth's open waters and traversing some 45 miles of cliff- and reef-lined coast before reaching the relative safety of Dunbar Roads. The few exposed anchorages in this section are tenable in offshore winds only (Osler 2023, 8-11). Fortunately, the route's final leg from Dunbar to Leith was less challenging.

When planning his trip, a putative 'Romano-Celtic' ship's master will have been aware of two unavoidable risks: passage through the Farne Islands and rounding St. Abb's Head. For the former he would, like most modern small boat sailors, probably have chosen the shorter inshore passage (Inner Farne Channel) rather than adding several miles distance and facing the elements and dangers further out around Longstone (Matt Moore pers. comm.). But whichever course was chosen, the master had to time his run through the Farnes' renowned 'tidal gate' precisely, ensuring clearance of the islands during the favourable six hours of tidal stream which, at fortnightly springs, could run at several knots. Elsewhere the tidal streams were modest, one knot or slightly more, but still quite sufficient to retard the ship's progress in light or unfavourable winds, requiring the master to anchor or even turn back (Osler 2023, 4-5). At St. Abb's Head these modest tidal streams prevailed, and the dangers of rounding the Head arose largely from the seas in the area having an unusual depth right up to the cliff face, making anchoring unfeasible. As a result, in order to get into the best position for rounding the Head into the Firth of Forth, a small sailing ship going north from the Tweed might need to anchor at least twice along the coast before attempting the manoeuvre (Matt Moore, pers. comm.).

What kind of passage times might have been achieved over the entire Tyne to Forth route? In attempting to answer that question it is useful to work from comparative data. During the 18th and 19th centuries the region's comparable small coasters regularly made the passage from Leith to South Shields in eight to ten days, whilst a full round trip – including loading and discharge – usually took about a month. Based on the factors outlined above, the minimum achievable trip between South Shields and the Antonine Wall might be estimated as at least ten days if conditions were favourable. However, it might easily have been twice that length (or more) if adverse weather or accident intervened. On average, a round trip of six to eight weeks can be envisaged, permitting two or three trips for each ship in a summer season; regrettably, there will also have been accidental losses. This has implications for the size of the fleet required, particularly in the Antonine and Severan periods.

A port on the Tweed

Returning to the Tweed and leaving aside the uncertainties of ship availability and seafaring competence, it is appropriate to consider the potential relationship of seaborne traffic to the presumed north end of the Devil's Causeway. Was there a deliberate convergence of land- and sea-roads? Historic evidence suggests that the Tweed estuary was never easy of access, owing to a strong cross current that might occur in the approaches, and the river's '*heavy freshes*' which, combined with onshore gales, frequently and '*materially change the positions of the sands [i.e. shoals] at the entrance*' (Baharie 1849, 37). Generally, there was a minimum clearance of about two metres over these,

although an expert 19th century hydrographer published the entrance depth as '*uncertain from shifting sands'* (Johnson, 1831); it probably differed little in Roman times. Nevertheless, once inside the Tweed's entrance, shipping found a relatively safe refuge and adequate mooring space, even a natural jetty:

> *'On the south side of the river is a large sand-stone rock called the Carr, projecting from the shore, round which is the deepest water and best anchorage in the river. Vessels generally moor there with a fast [rope] to a ring in the rock and an anchor in the stream'* (Baharie 1849, 36); (see Figs. 1 and 3).

Advantageously, there was also a shelving foreshore just upstream that was suitable for vessels needing to beach on the tide for purposes of loading and discharge, or repair. Significantly, or otherwise, the postulated stretch of the Devil's Causeway at Springhill, although open to doubt, aligns with this Carr Rock shore, making this point a strong candidate for the destination of the Devil's Causeway. Much further south it is also relevant to ask whether there are any side roads off the Devil's Causeway heading to the coast and other convenient ports or havens? So far there is little or no evidence for these, although the suggestion by MacLauchlan, in the mid-19th century, of a possible route along the valley of the River Aln between Alnmouth and Thrunton – ie the site of Low Learchild fort – may be worthy of re-examination (MacLauchlan 1864, 55, 57; Osler 2023, 14).



Fig. 3. The Carr Rock, on the south side of the river, was still used by merchant vessels in the 19th century. Photograph courtesy of the Crossman family and Berwick Archives.

Artefactual evidence for coastal activity

Do finds of Roman artefacts suggest the whereabouts of some of these other coastal candidates for Romano-Celtic shipping activity? There have been remarkably few finds of Roman date discovered along the coastal plain, even though many more Romano-British settlement sites are now being found than previously anticipated (Proctor 2009; Hodgson, McKelvey and Muncaster 2012). One unusual find is an altar fragment from Gloster Hill, near Amble (Fig. 4; *RIB* 1206), whose surviving inscription indicates it was dedicated '*To the goddesses of the Parade Ground ... the 1st Cohort....*'. This reference to a parade ground suggests the altar came from a full-sized fort, for which no evidence has ever been found in the area, suggesting that the artefact was probably brought to Amble by an intellectual cleric or landowner at a later period and is, therefore, of little help in identifying a Roman presence in the vicinity.



Fig. 4. Fragment of an altar from Gloster Hill, near Amble, dedicated to 'The Goddesses of the Parade-Ground'. RIB 1206. Courtesy of the Great North Museum and the Society of Antiquaries of Newcastle upon Tyne.

Coins are among the most common finds along the coast. As early as the mid-19th century, a coin hoard in a box with a bronze scale beam, bronze weights and an iron bridle was found at Adderstone (Archbold 1858; Tate 1863). In the early years of the 20th century, there was a donation to the Society of Antiquaries of Newcastle upon Tyne of five coins found at Norham (*PSAN* 2nd ser. 10 (1902), 168; for more recent coin finds from Norham, see PAS: NCL-99F5D8; NCL-C810DI; NCL-999E53). Other coin finds reported to the Portable Antiquities Scheme from the coastal plain include a sestertius of Trajan found near Amble (PAS: NCL-A69E11), other Roman coins from Beal Point (PAS: NCL-139DB2) and from Berwick itself (PAS: NCL-4EC612). At Warkworth a selection of coins of various dates was found with part of a distinctively Roman lock and a fragment of a key (coins: NCL-4751C4; NCL-8CE512; NCL-

8C9294; lock: NCL-7F9275; key: NCL-5265D4). It must, however, be noted that Roman coins have a habit of arriving on these shores in the luggage of tourists or people who have served in British military or the Merchant Navy in the intervening years; none of the coins listed above have been found in a recognizably Roman context.

At Dunstanburgh a settlement site was excavated in 1936 which, as well as Roman coins, also produced a bronze head-stud brooch, two button-and-loop fasteners, a fragment of a Roman helmet or shield binding, black burnished ware and samian ware, as well as the usual glass armlets (Bosanquet and Charlton 1936). That is an unusually rich assemblage for a settlement site in Northumberland, perhaps implying that its inhabitants had contact with a wider selection of Roman merchandise than most of their neighbours. The penannular brooch found by Tait in 1970 at Beadnell, was found in a re-used burial cist (Tait and Jobey 1971). More recently, a copper alloy phallic pendant has emerged at Howick (Fig. 5: PAS: NCL-D8AF10) and a copper alloy figurine of a naked male at Lindisfarne. Many of these loose finds could have arrived at their findspots in more recent times, but the amounts are beginning to add up to suggest more activity along the coastal plain than previously believed. Sadly, the findspots do not clump geographically in a way that might indicate sites in regular use by visiting vessels.



Fig 5. A copper alloy phallic pendant of Roman date found at Howick (Portable Antiquities Scheme: NCL-D8AF10).

Conclusion

The east coast of Northumberland has experienced much change over the centuries. Acres of land have been lost to coastal erosion, there has been considerable industrial activity and no river mouth in Britain is as it was in the Roman period, so a great deal may have been swept away or built over (Waddington 2010). The mouth of the Coquet changed dramatically in 1765, whilst the changes at the mouth of the Aln in the early 19th century, although less dramatic in timescale, were equally dramatic in effect (Osler 2022). At Berwick-upon-Tweed, the colossal Elizabethan walls complicate modern understanding of the original interaction of land and sea at the mouth of the Tweed.

Despite these hindrances to our knowledge, it is hoped that this paper has provided convincing arguments that the Devil's Causeway did not cross the River Tweed in order to access a Roman fort at Berwick-upon-Tweed or continue north into Berwickshire. The resulting presumption is that the road terminated in proximity to the safe anchorage of Carr Rock. Exactly why the road was aiming for this vicinity remains less clear; indeed, it is still open for discussion whether the road was heading for an existing port or if the building of the road made establishing a port economically or militarily feasible. If the target was a port, it is yet to be determined whether this was a supply depot with appropriately military shoreside facilities or simply a civilian beach market. Whichever it was, the complications of coastal traffic at that period suggest that the facilities may only have been used seasonally. It is also possible that other ports or havens between South Shields and the Antonine Wall remain to be found, as are the side roads leading to them.

Acknowledgements

The authors are very grateful to Matt Moore, Prof. Boris Rankov, Mike Haken and Dr. Rob Collins for their helpful advice and comments during the production of this paper, and to Michael Gallico, whose talk on tides made the authors aware that the topic of Roman maritime traffic along the north-east coast was one that required investigation.

Bibliography

Ainslie, J. 1789: *Scotland, drawn from a series of angles and astronomical observations.* Edinburgh.

Allason-Jones, L. 1996: 'Stray finds', *Archaeology in Northumberland 1995-1996*, (1996) 25-6.

Allason-Jones, L. 2007: 'Small finds' in *Elginhaugh: a Flavian Fort and its Annexe* by W. S. Hanson, Britannia Monograph Series No. 23. 396-443. London.

Allason-Jones, L. 2009: 'Some problems of the Roman Iron Age in N England', in W. S. Hanson (ed.), *The Army and Frontiers of Rome,* Journ. Roman Archaeology Supplement. Series 74, 218-224. Portsmouth, Rhode Island.

Archbold, J. 1858: 'Roman remains found at Adderstone, near Bamburgh, Northumberland', *Archaeologia Aeliana* 2nd Series, 2, 14-16. Also available at <https://doi.org/10.5284/1059353>, accessed Dec 2023.

Ashwin, T. and Davison, A. 2005: *An Historical Atlas of Norfolk*. Chichester.

Baharie, A. 1849: *The Improved Coaster's Guide and Marine Board Examination*. Sunderland.

Bidwell, P T. and Holbrook, N,1989: *Hadrian's Wall Bridges*. English Heritage Archaeological Report. 9. London.

Bidwell, P.T. and Speak, S. 1994: *Excavations at South Shields Roman Fort. Volume1.* Newcastle upon Tyne.

Birley, E. 1961: *Research on Hadrian's Wall.* Kendal.

Bosanquet, R. C. and Charlton, J. 1936: 'Excavations at Dunstanburgh Castle in 1931', *Archaeologia Aeliana* 4th Series 13, 279-293. Also available at <https://doi.org/10.5284/1059970>, accessed Dec 2023.

Bowman, A. K. and Thomas, J. D. 1994: *The Vindolanda Writing-tablets (Tabuae Vindolandenses II).* London.

Casson, L. 1994: *Travel in the Ancient World.* Baltimore.

Ellmers, D. 1996: 'Celtic Plank Boats and Ships, 500 BC – AD 1000' in R. Gardiner and A. E. Christensen (eds.), *The Earliest Ships: the evolution of boats into ships*. London, 68-71.

Frere, S. S. 2001: 'The Ravenna Cosmography and North Britain between the Walls', *Britannia* 32, 286-92.

Gates, T. and Hewitt, R. 2007: Some newly identified Roman temporary camps in Northumberland and their relation to the Devil's Causeway, *Archaeologia Aeliana* 5th Series, 36, 11-30. Also available at <https://doi.org/10.5284/1061172>, accessed Dec 2023.

Hodgson, J. 1828: *History of Northumberland,* Part 3, Vol. 2. Newcastle upon Tyne.

Hodgson, N. 2017: *Hadrian's Wall. Archaeology and history at the limit of Rome's Empire.* Marlborough.

Hodgson, N. McKelvey, J. and Muncaster, W. 2012: *The Iron Age on the Northumberland Coastal Plain.* Newcastle upon Tyne.

Jobey, G. 1973: 'A native settlement at Hartburn and the Devil's Causeway, Northumberland 1971', *Archaeologia Aeliana* 5th Series, 1, 11-53. Also available at <https://doi.org/10.5284/1060585>, accessed Dec 2023.

Johnson, E. I. 1831: *The East Coast of England from the Farn Island to Berwick*. London.

McGrail, S. 2001: *Boats of the World, from the Stone Age to Medieval Times*. Oxford.

MacLauchlan, H. 1864: *Memoir written during a survey of the eastern branch of the Watling Street etc*. London.

Marcy, R. B. 1859: *The Prairie Traveller: A Hand-book for Overland Expeditions, with maps, illustrations, and itineraries of the principal routes between the Mississippi and the Pacific,* United States War Department. Also available at <http://www.kancoll.org/books/marcy/>, accessed 10/8/2023.

Margary, I. D. 1955: *Roman Roads in Britain.* London.

Marsden, P. 1994: *Ships of the Port of London: First to twelfth centuries AD*. London.

Osler, A. 2013: *The Loss of the* Thetis*: 5th April 1799*. Lesbury.

Osler, A. 2022: *The Course of the Aln: 1600 – 1840.* Occasional Reports in Maritime History. 3 (2011; 4th ed. 2022). Lesbury.

Osler, A. 2023: *Tyne to Forth: a Potential Roman Sailing Route*. Lesbury.

Proctor, J. 2009: *Pegswood Moor, Morpeth. A Later Iron Age and Romano-British Farmstead Settlement.* Pre-Construct Archaeology Monograph 11. London.

Proctor, J. 2012: 'The Needles Eye enclosure, Berwick-upon-Tweed', *Archaeologia Aeliana* 5th Series, 41, 19-122. Also available at <https://doi.org/10.5284/1061250>, accessed Dec 2023.

Roy, W. 1793: *Military Antiquities of the Romans in North Britain.* London.

Rule, M. and Monaghan, J. 1993: *A Gallo-Roman Trading Vessel from Guernsey: the excavation and recovery of a Third Century shipwreck.* Guernsey Museum Monograph No. 5. Guernsey.

St. Joseph, J. K. 1951: 'Air reconnaissance of North Britain', *Journ. Roman Studies* 41, 52-65.

St. Joseph, J. K. 1955: 'Air reconnaissance in Britain 1951-5', *Journ. Roman Studies* 45, 82-91.

Sinclair, J. 1834-1845: *The New Statistical Account.* Edinburgh.

Stuart, R. 1845: *Caledonia Romana: a descriptive account of the Roman antiquities of Scotland.* Edinburgh.

Tait, J. and **Jobey**, G. 1971: 'Romano-British burials at Beadnell, Northumberland', *Archaeologia Aeliana* 4th Series, 49, 53-69. Also available at <https://doi.org/10.5284/1060544>, accessed Dec 2023

Tate, G. 1863: 'On Roman remains found at Adderstone, Northumberland', *Proc. Berwickshire Naturalists Club* 13, 262-3.

United States War Department. 1862: *The Ordnance Manual for the Use of the Officers of the United States Army,* 3rd Edition, U. S. War Department, Philadelphia.

Waddington, C. 2010: *Low Hauxley, Northumberland: a review of archaeological interventions and site condition.* ARS Report. Gateshead.

Welfare, H. G. 2011: 'The Roman fortlet at Longshaws, Northumberland', *Archaeologia Aeliana* 5th Series, 40, 118-30. Also available at <https://doi.org/10.5284/1061235>, accessed Dec 2023.