

Sheetlines

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The programme of local meetings continues to flourish. Two such events are reported on page 4, whilst the model of Schiehallion shown here was exhibited by Karen Rann in her recent talk in Cambridge about Charles Hutton and the invention of contours.

The next meeting will be in Highgate, London NW5 on Monday 10 December at 6:30 pm, at which John Davies will speak on *The secret Cold War mapping of London*, examining Soviet military maps in comparison with OS maps. For more information and booking, contact the editor.

We are keen to encourage more local meetings and any member interested in helping to arrange events in their own locality is urged to contact the editor. News of such events and other items of interest are regularly distributed by email to members on the email list. If you haven't received one recently, please ensure we have your correct current email address.

Plans are in progress for various activities in conjunction with the AGM, which will be on 11 May in Alnwick. The arrangements are not yet finalised, but we expect to sail to the Farne Islands on the Friday afternoon (picking up by coach from Alnmouth station on the East Coast mainline) and have a town walk on the Sunday morning. We are also planning visits to the Army Museum, Chelsea in April, Glasgow in June and Dennis Maps, Frome in July. Details of all these events will be announced by email and posted at www.charlesclosesociety.org/latest. Please register your interest now with Bernard Anderson (contact details opposite), to help us manage the numbers and so we can keep you advised of the latest plans.

The *Sheetlines* editorial chair will become vacant next year, and anyone interested in applying to occupy it is invited to contact the editor to discuss what the job involves.

Important reminder: Your CCS membership expires on 28 February. Please see inside the back cover for details of how to renew for 2019-2020.



CCS Chairman Gerry Zierler with Anne Taylor (left), head of map department at Cambridge University Library and Karen Rann, examining maps of Schiehallion laid out to accompany the talk about the invention of contours.

Visit to Cheshire archives and local studies

Bernard Anderson



A fascinating display of both facsimile and original maps and plans illustrating the history and development of Cheshire was arranged for the CCS visit to Cheshire archives and local studies by archivist Adam Shaw with the assistance of CCS member Michael Richardson.

Adam used original and facsimile maps to give an outline of the history of Cheshire from the time of the Domesday Book to the present day.

This showed the extent of the changes that have taken place with the passage of time. Initially comprising twelve hundreds it included areas that are now in Wales. More recently changes in local government mean areas have been lost to or gained from surrounding counties most notably Lancashire, Merseyside and Greater Manchester. More recently again Halton (Runcorn and Widnes) and Warrington became unitary authorities and most recently the Cheshire County Council has been replaced by two further unitary authorities – Cheshire East and Cheshire West and Chester. Cheshire now has just ceremonial significance.

The progressive development of mapping Cheshire was illustrated using a series of maps including those of Saxton (1577), Speed (1610), Blaeu (1645), Burdett (1777), Greenwood (1819) and Bryant (1831).

A second group of maps were those drawn at larger scales, for example the carefully surveyed plan of Vale Royal Manor House and Estate (between Northwich and Winsford) produced in 1616 and the enclosure map of the Commons of Cuddington from the late eighteenth century. Cheshire Archives have digitised Tithe Maps these show both land holdings and land utilisation. Like the digitised mapping produced by the National Library of Scotland it is possible to view the Tithe Maps alongside contemporary mapping.

As in other parts of the country, the industrial revolution had a major impact. A detailed plan produced by Francis Giles and deposited on 30 November 1830 showed an early proposal for a line linking Chester to Birkenhead. This clearly illustrated the preparation required for such projects since each plot of land through which the projected line would pass was clearly identified, although the book of reference which would have identified the owner of each plot and its use was not

on display. Eventually, a railway linking the two towns was built, but as Michael Richardson pointed out it was on a different alignment.

Still on the subject of railways, Cheshire is the location of perhaps the most famous of railway towns, Crewe. This town did not exist until the coming of the railway in 1837 and interestingly the town is named after the railway station rather than the reverse as the settlement served was Monks Coppenhall. The railway arrived prior to OS large scale maps and thus it was not possible to use these maps to illustrate the early influence of railways. However, the maps chosen did reflect the way in which the railway had resulted in the development of a large urban area.

Other maps on display showed the developments around Ellesmere Port first with the canal and then subsequently the Manchester Ship Canal and the oil refinery at Stanlow. Specific proposals for developments in Chester were drawn up in 1944 by Charles Greenwood surveyor for the City. The detailed large-scale plans showed what he had in mind only some parts were put in place. Later, Cheshire saw establishment of new town at Runcorn and with that development the replacement of the transporter bridge by a more conventional road bridge in 1961 (*below*). The increase in road traffic resulted in the construction of the Mersey Gateway opened in autumn 2017. There are now three road bridges although the new one is much further to the east.

Although formerly in Lancashire, Warrington was the site of another new town in Cheshire. Its development on land once part of the extensive Royal Ordnance Factory was again illustrated by means of maps and plans.





Local meetings – Wall, Staffs and Redbourn, Herts

The Midlands group (*above*) met at Wall to hear Bill Henwood's *reductio ad absurdum* of *The Contoured Map of the Thames Basin*. This map was produced by the Ordnance Survey because they could, and it was Bill's thesis that they couldn't, or at least didn't try very hard. The published date of the map was 1870, some time after the report which it was intended to accompany, and Bill was able to point to numerous anachronisms in the information depicted. His chief concern, however, was the contouring, which in some areas of the map was spot-on and in others, wildly off.

Throughout the map, villages and towns are indicated by a little circle with the appropriate name: even a cursory inspection reveals a lot of unnamed circles. Bill's view here was that they ran out of time to do the engraving.

An illustrated article by Bill Henwood describing the map will appear in the next issue of *Sheetlines*.

The Redbourn meeting (*opposite page*) comprised a series of 'show and tell' on the theme of railways and airfields.

David Watt showed, on behalf of Peter Jones and Caroline Watt, GWR network maps of 1930s, one of which included pictures of the abbeys and castles after which their locomotives were named; Quarter-inch air charts, an RAF edition of 1938 and a GSGS of 1943; and a 1933 LPTB one-inch composite map based on a Popular edition base map.

Bill Batchelor's contributions included a Tactical Pilotage Chart of the Kuwait/Iraq area, personalised to show where his son had served with the RAF, a 'one-off' produced by the Air Information Documentation Unit at Northolt bringing together all the civil air information over the south-east of England on one sheet, and a beautiful manuscript strip map of the railway line between Harpenden and Hemel Hempstead, known locally as the 'Nickey Line'.

Chris Dean produced an 1839 Bradshaw's railway map of Gt Britain, which include a depiction of the gradient profiles of all the major railways; a 'Citizen Map' of Glasgow railways, with several proposed lines; and a pocket-sized network diagram of the Blyth and Tyne Railway and its neighbours.

Roger Hellyer, who had separately asked participants to bring any examples of Quarter-Inch air maps ahead of the forthcoming Hellyer & Oliver publication on the Quarter-Inch, showed not only a 1928 Quarter-Inch air map produced as a proof for the covers but then maps as artefact, a set of maps contained within an



aluminium carrying/protective case the airman pulling out the roughly ten-inch square piece of map he needed.

Gerry Zierler discussed the Thames Water Company maps of the Lea Valley water catchment area (all 2500 sheets arrived still in their green metal storage cabinets) and then sheets covering Bletchley at 1:1250 probably from an early Milton Keynes development plan.

Frank Iddiols mentioned his new joint publication 'The Newlyn Tidal Observatory'¹ before opening a case of air charts, London Underground and/or Transport Museum maps, plans and books and the 1970 David and Charles reprint of John Cook Bourne's London and Birmingham Railway, with all its beautiful plates of early railway building and operation.

Stephen Hall showed the nineteenth century large-scale OS of the Caledonian mainline near Beattock summit. The OS erroneously depicted the aqueduct carrying the Evan Water as a normal under-bridge. How did this happen? Surely the surveyors got it right and the cartographers wrong, but then why over multiple editions when OS quality assurance was so stringent?

Bernard Anderson and Deborah Stebbing presented a 1939 Barts 'Administrative map of Britain's Railways', interesting for its inset of London showing lines to be taken over by London Transport but which weren't, but not showing some that were, a legacy of the outbreak of war possibly; then a little British Railways publication 'Rambling in Essex' containing a Harry Beck diagrammatic depiction of Essex railways and the front cover of which is a reproduction of a watercolour by Terence Cuneo; and finally a Soviet 1:100,000 covering Worcester, the only map Bernard had found showing the airfield at Pershore.

Caroline Watt was thanked for providing lunch, tea and cake.

Meetings organised by Lez Watson and David Watt respectively

Photos by Lez Watson and Julian Williams

Reports by Michael Spencer and Bill Batchelor

Next Midland Group meeting on 9 January is a 'show and tell'. For more information contact lez@watsonlv.net

Next Redbourn meeting, focussing on canals and roads, is on 16 March. For more information contact david-watt@outlook.com

If you would like to arrange a local meeting, please contact the editor.

¹ ISBN 978-0-9567528-4-0, a review will appear in April *Sheetlines*.

Surveying the surveyors: the landscape legacies of the Ordnance Survey

Keith D. Lilley¹

This article first appeared in British Archaeology (March 2018), volume 159, p. 22-27. It is reprinted here with thanks to the Council for British Archaeology (CBA): <http://new.archaeologyuk.org/british-archaeology-magazine>

Survey is very much a part of the archaeological toolkit. Look in almost any textbook on field or landscape archaeology and there will be a chapter dedicated to how to use surveying equipment – dumpy levels, total stations, and nowadays high-tech differential GPS and GNSS (Global Navigation Satellite Systems) – to fix the locations and coordinates of archaeological features, and map them. There is another link between archaeology and survey, however, which is relatively rarely explored. Neglected and largely forgotten are sites and monuments constructed and used by surveyors in their fieldwork. Hidden in the upland landscapes of Britain and Ireland are legacies of the early Ordnance Survey.

The OS itself is familiar to every archaeologist in these islands through its large-scale maps, used widely not just as a means of getting around but also as an important source in archaeological fieldwork and desktop study. The origins of the OS and its significance in the nation's psyche – as much a part of British cultural identity as the BBC World Service and the WI, some would argue – is well-trodden ground, covered by numerous books, TV series and radio programmes. But so often missing from this enthusiasm for the OS map is an appreciation of how the making of the nineteenth and twentieth-century maps themselves also shaped the British and Irish landscape.

The Board of Ordnance's early work in surveying the land was concerned with creating a scientific basis for determining and calculating key points. The technique was triangulation, used by the OS from its inception and in the proposal for mapping the nation at one inch to one mile (1:63,360). Triangulation was long known as a means for creating accurate maps through indirect measurements, by observing angles between known points such as church towers and hilltops. Proceeding from the 1790s into the nineteenth century, this trigonometrical survey left its mark in the British (and later Irish) landscape. This tangible imprint of the surveyors' work offers some interesting archaeological insights into how the OS and its surveyors operated some 200 years ago.

Occupying summits

From its earliest days beginning under William Roy in the 1740s and 1750s in Scotland, the OS has long played a role in fostering field archaeology through recording antiquities and marking these on its larger-scale maps. Yet the OS has its own "field archaeology" in the landscape through which its past activities can be

¹ Keith Lilley, recently appointed a CBA trustee, is professor of historical geography at Queen's University Belfast and a CCS member.

traced. This archaeology of survey relates to the fieldwork of the surveyors themselves, and one of their most important operations: triangulation.

The triangulation of Great Britain and Ireland under the OS eventually covered the two islands with a network of trigonometrical “stations” that were key to fixing the control points on which accurate mapping depended. Triangulation networks not only connected the two islands to each other, however. They also, early on in the OS’s work, linked Britain to similar networks on the near continent, in France and Belgium. The stations established in Britain and Ireland were part of this ambitious international programme of the Enlightenment in Europe, to survey and map according to the latest scientific principles using the most modern survey instruments available.

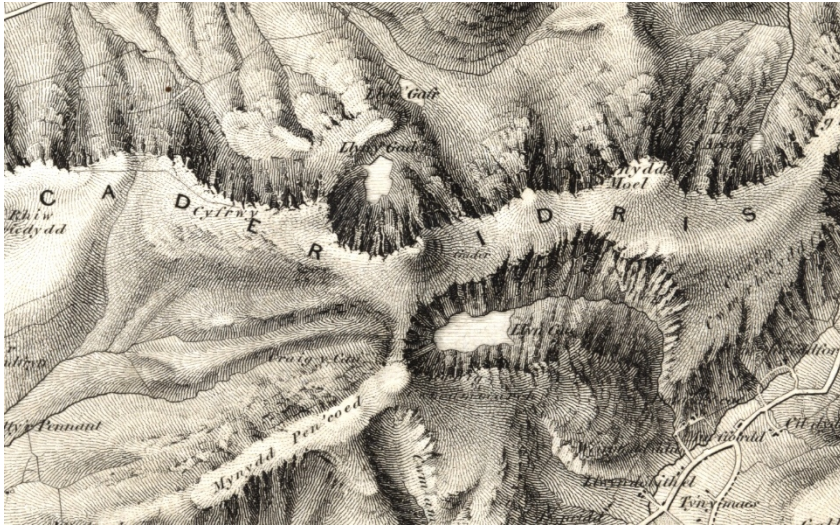
For the OS, the earliest trigonometrical recordings used a large precision instrument, the Ramsden 3-foot theodolite. Accurate observations could be made with this over a distance of up to 70 miles (110km). The disadvantage was that the instrument was delicate and cumbersome. Weighing 300lb (136kg), it had to be lugged around the country, and fixed to specially chosen stations in high places. In the south and east of Britain, these points were usually church towers. In the upland areas to the north and west, however, and also in Ireland as a whole, the sites chosen for stations were invariably elevated landforms such as hilltops and mountain peaks. For the trigonometrical survey, the Ramsden theodolite had to be placed on all of these and readings taken between the stations, often in harsh and difficult conditions.

Thus as one of the higher peaks of North Wales, Cadair Idris was selected as a “principal” trigonometrical station by the early OS, forming part of the triangulation network as a whole. Anyone who has climbed to the 2,900 feet (880m) high summit will know what a challenge this is, even in relatively benign weather. Imagine doing so carrying heavy and fragile survey equipment.

The earliest one-inch OS map notes the triangulation station on Cadair Idris with the now familiar and fairly universal sign of a triangle with a dot at its centre. It is a station that is also now marked on the ground by another familiar feature of the OS, the “trig pillar”, those sturdy concrete structures that dot the landscape, and so often form the focus of a summit photograph opportunity for hardy hill-walkers to record their achievement. These concrete pillars belong not to the original OS survey, however, but to the retriangulation of Britain carried out by the OS over 20 years between the 1930s and 1950s. No longer maintained by the OS as part of their trigonometrical network, the trig pillar is itself now an archaeological field monument, a landscape legacy of the OS’s surveying work. But on Cadair Idris an earlier, 19th-century predecessor lies beneath the later OS triangulation station.

When in 1811 the third volume of William Mudge and Thomas Colby’s *Account of the Trigonometrical Survey* was published, included among its appendices was “An Alphabetical List of the Latitudes and Longitudes of the principal Stations, together with several Church, Steeples, Lighthouses, and other remarkable Objects.” This long, tabulated list of stations records the position of Cadair Idris with typical military precision and geographical exactitude: 52° 42’ 2” N and 4° 28’ 3” W. These coordinates for Cadair Idris make clear too that the summit had now been

“occupied” by the survey team, its location providing further “control” for the nationwide survey.



Left top: Detail showing trigonometrical station at summit of Cadair Idris on Old Series one inch map of England & Wales, Sheet 39NE Machynlleth, surveyed 1816-34, revised 1834.

Centre: Summit cairn with trig pillar on Cadair Idris.

Bottom: Remains of structure with stone-built fireplace and iron hearth, Cadair Idris - former shelter for OS survey team?

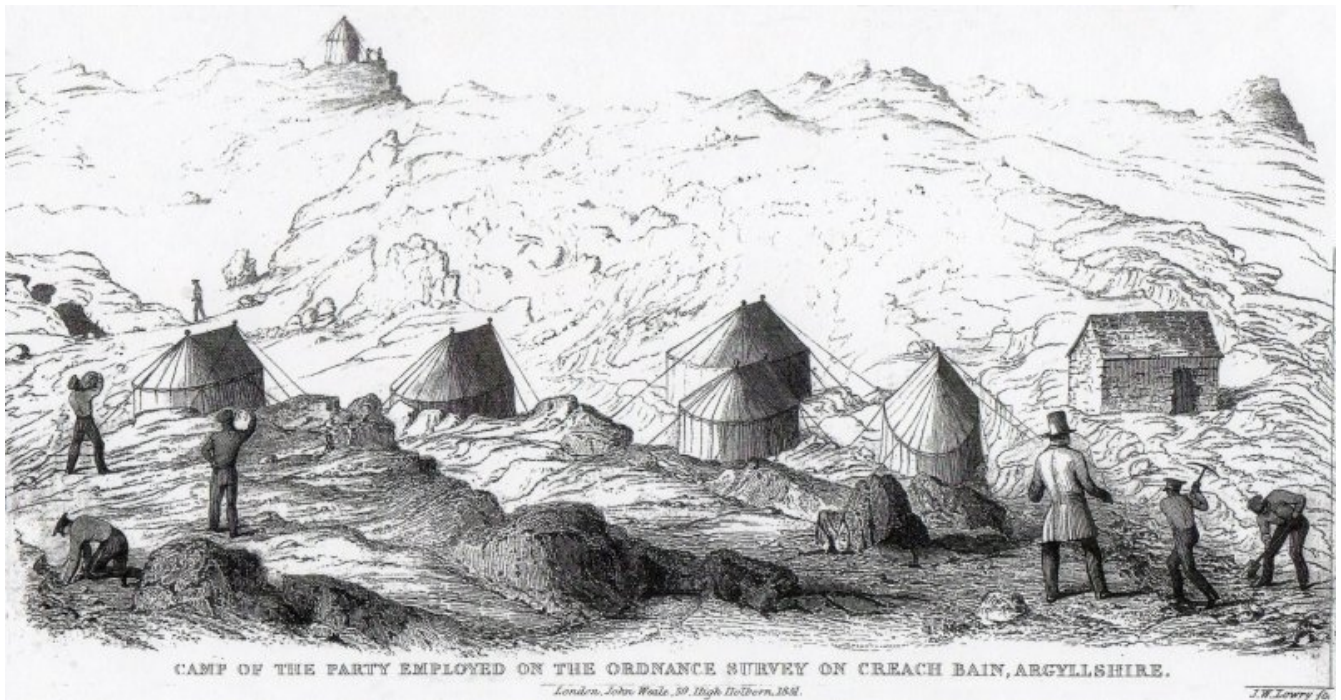


Opposite page

Top: “Camp of the party employed on the Ordnance Survey” at Creach Bheinn in Aide-Memoire to the Military Sciences by James Weale (1862).

Below: Sub-circular stone structures on lower slopes below summit cairn and trig station at Creach Bheinn survey camp.





Huts and camps

As part of this occupation of the summit of Cadair Idris – from which other distant but visible summits were observed, such as Snowdon and Plynlimon – the surveyors made their mark on the ground. As you approach the summit from the west, the later concrete trig pillar heaves into view. It sits atop what appears to be a tumbled pile of stones, a summit cairn at SH 711130. Survey teams involved in the 1930s and 50s retriangulation were instructed to put the new trig stations, as far as possible, on the sites of the old. To do this the original trigonometrical stations were excavated, and the survey markers buried by the first survey teams located and used to position the new concrete pillars. The pile of stones at the summit of Cadair Idris beneath the later concrete trig pillar represents the tangible remains of

the earlier trigonometrical station. It is not the only vestige of the surveyors' time spent occupying the summit there in the early 1800s.

As well as the summit cairn, other stone-built structures are visible in the immediate vicinity of the trigonometrical station. The low-roofed "bothy" or hut frequented by walkers today may well be the same "small hut built near the mountain top as a place of shelter to tourists", as the OS later recorded in 1858 in a description of all the stations used in the "principal triangulation" compiled under the then director general of the OS, Henry James. Nearby, however, is another, smaller stone structure, circular and with low walls.

Hardly distinguishable among the rocky ground of the summit of Cadair Idris, it is unrecorded and unknown on the heritage environment record for Wales. It has within it a small fireplace, with the remains of an iron hearth – in other words a site of occupation. Close to the summit cairn of the trigonometrical station, these stone remains have all the characteristics of a structure built by the early trigonometrical surveyors. It would have been a place of refuge while their observations were carried out, offering some protection for them and their instruments on what is an exposed and isolated site.

While these unrecorded remains on the summit of Cadair Idris are as yet not fully evaluated, their likely connections with the trigonometrical work of the early OS are further endorsed by parallels with sites elsewhere. Much better known in Scotland as "Colby's camps", survey sites associated with the early OS have been identified from archaeological fieldwork and aerial reconnaissance. Of these, the camp at Creach Bheinn in Argyllshire (NM 879576)² has gained statutory protection by being listed by Historic Scotland.³

Here, the summit site has a particularly impressive set of stone-built structures, including substantial windbreaks, the remains of the summit cairn itself, and a range of circular-formed stone walls built to protect the surveyors' tents. The interpretation of these physical remains at Creach Bheinn is assisted by a contemporary illustration of the camp published in 1862 in an 'Aide-Mémoire to the Military Sciences'. Equally, other written contemporary accounts by the surveyors about their time on summit-top survey stations in Scotland, and indeed elsewhere in both Britain and Ireland, reveal the substantial nature of these sites. The survey work was lengthy and arduous, requiring temporary camps as well as the more permanent trigonometrical stations.

The surviving structures of the camp at Creach Bheinn are paralleled elsewhere too in Scotland, for example at Beinn an Oir, Jura (NR 495749), and on Ben Alder (NN 496718), but their identification in other parts of Britain and in Ireland has been perhaps rather overlooked. Yet, as the example from Cadair Idris suggests, there is other survey archaeology still to be discovered in the field, for those willing to go and seek it out.

² see also Iain Thornber and Richard Oliver, 'Colby's camps', *Sheetlines* 90, 18.

³ Canmore RCAHMS NM85NE 2.

Lasting testimony

The challenge then is to begin to seek and record these landscape legacies of the OS, to identify sites associated with the early OS, and to survey their remains. This is not as difficult or arduous as may first appear. The 21st-century field archaeologist interested in “surveying the surveyors” has at their disposal the means by which to identify the trigonometrical stations and locate them in the field.

Over the past few years, historic OS maps have become more accessible to users through online resources and platforms. While not all are free-to-view, many are, including the National Library of Scotland (NLS) historic map viewer.⁴ Such online resources for locating the landscape legacies of the OS provide archaeologists with viewable digital copies of early OS mapping. They also, by using geographical information systems (GIS), enable the historic OS maps to be compared with modern aerial imagery. Features shown by the historic map can be juxtaposed against the landscape as it is today.

Moreover, the NLS *Explore georeferenced maps* viewer contains OS one-inch to one-mile maps which have been geo-rectified. These yield modern coordinate information for all the features they show, including the sites of early trigonometrical stations marked by the triangle with dot symbol even in the nineteenth century. The principal stations of the OS listed and described in 1858 are all therefore easily identified on the maps that were produced through the survey work. Equally as important, they are now identifiable on the ground and in the local landscape by reading their modern coordinates off from the NLS map viewer.

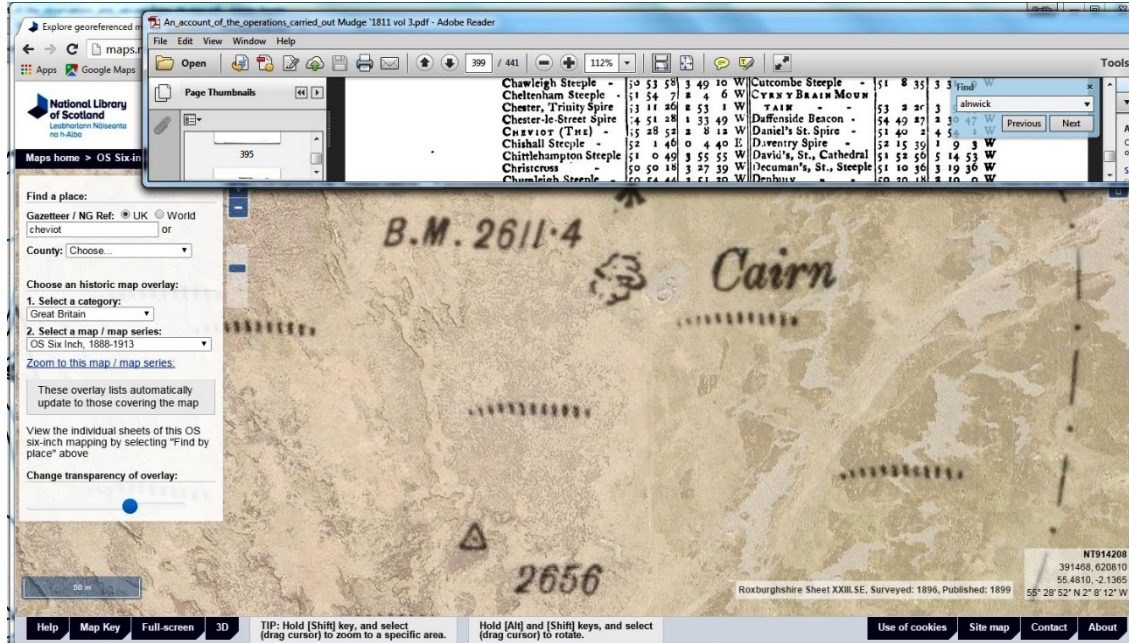
Even before setting a foot outdoors, the NLS *Explore georeferenced maps* viewer with its aerial imagery enables some useful site reconnaissance of likely survey camps: the imagery itself is often sufficiently high-resolution to pick out structures in the landscape. This is the case not just for Great Britain but for Ireland too. This is important, as the trigonometrical survey of Ireland undertaken by the OS in the 1820s and 1830s formed part of the overall work of the OS, at that time under the auspices of Colonel Colby.

For Ireland, similar survey archaeology remains to be explored in the field – and similar online resources to the NLS map viewer are available, such as the Ordnance Survey of Ireland (OSi) Geohive and the Public Record Office of Northern Ireland (PRONI) Historical maps viewer. Both of these platforms contain early OS maps (particularly the first edition six inch to one-mile mapping of the 1830s–40s) and high-resolution aerial imagery. Laying the historic map layer over the modern imagery reveals otherwise unrecorded archaeological structures on summit tops in Ireland used for the principal triangulation, just as in Great Britain.

The contemporary written account of principal stations in Britain and Ireland, compiled in 1858 under James, refers often to particularly impressive structures marking the trigonometrical stations, in some cases cairns clearly having been specially constructed for the purpose. Similarly, accounts of life in the field by

⁴ <http://maps.nls.uk/geo/explore/#>

surveyors such as Joseph Portlock, who worked in Ireland and Scotland under Thomas Colby, refer to these survey camps, as well as the infrastructure associated with them.



Left: NLS Explore georeferenced maps viewer for the Cheviot OS trig station of OS six-inch map (1888-1913) overlaid on modern aerial imagery; mapped circular structures west of the word "Cairn" show clearly.

Below: PRONI Historical maps viewer showing early OS summit station on Slieve Donard, Co Down. The principal triangulation station, later the site of a concrete trig pillar (green peg), was at the centre of a large cairn (large red circle); small circle highlights sub-circular stone structure perhaps associated with Colby's 1820s survey.



This monumentalising of the OS in the field through its early 19th-century survey work is a lasting testimony to those involved in mapping the nation some 200 years ago. Today, these sites and monuments of the early OS have become almost forgotten. They deserve greater archaeological recognition, repaying closer study in the field. In so doing, the archaeologist willing to "survey the surveyors" will uncover an undervalued aspect of British and Irish field archaeology, while at the same time enduring the same outdoor challenges and enjoying the same landscape vistas as the OS surveyors did themselves.

***Don't lose your way:
putting historical rights of way back on the map
Jack Cornish¹***

Paths criss-cross all OS maps (the GB1900 project identified over 360,000 “F.P.” and nearly 15,000 “B.R.” labels in their project).² Whilst the current rights of way network in England and Wales is extensive (140,000 miles at the last count) there are many historical paths, often shown on older OS maps, which are not recorded and need to be registered by 1 January 2026 or they will be lost.

Surveying authorities (county councils or unitary authorities, except for inner London boroughs) have a statutory duty to maintain a definitive map (and accompanying statement) of all the rights of way in their area. Members of the public can apply for rights of way to be added to the definitive map. In broad terms there are two classes of evidence which can be referred to by the public when making the case that a right of way should be on the definitive map (these are made through a ‘Definitive Map Modification Order’ (DMMO) application):

- If it can be demonstrated that the public have used the way, without interruption, for at least 20 years then there is a presumption that it has been dedicated as a public right of way. To support these claims, applicants will primarily be collecting user evidence forms.
- If evidence can be found to show that historically the way was a public right of way. Under the legal mantra “once a highway, always a highway”, unless a right of way has been extinguished through a legal process it remains a right of way, regardless of whether it is physically present on the ground or currently being used by the public.³

It is this second category of evidence which will no longer be able to be used after the cut-off date in 2026 (essentially meaning that rights of way that existed on 1 January 1949 but are not on the definitive map on the cut-off date will be extinguished). It is unknown exactly how many of these ways there are to be restored to the definitive map – in 2002 the Countryside Agency⁴ estimated that there were 20,000 ‘lost ways’ in England whilst the Countryside and Community Research Unit⁵ said that there are 10,000 miles of unrecorded rights of way (which would add 8.5% to the rights of way network).

The 2026 cut-off date was introduced in the Countryside and Rights of Way Act 2000 (probably most famous for opening up large areas of access land to the public) and in the intervening 18 years, members of the Ramblers (and other organisations)

¹ The author is Project manager, *Don't Lose Your Way*, The Ramblers.

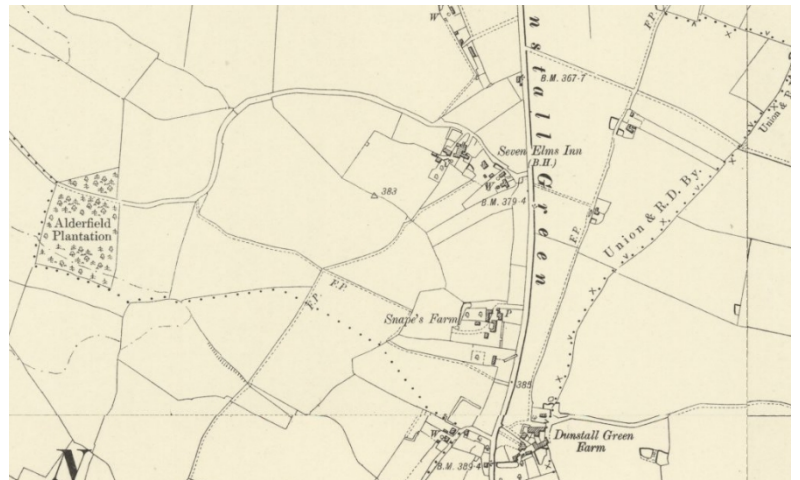
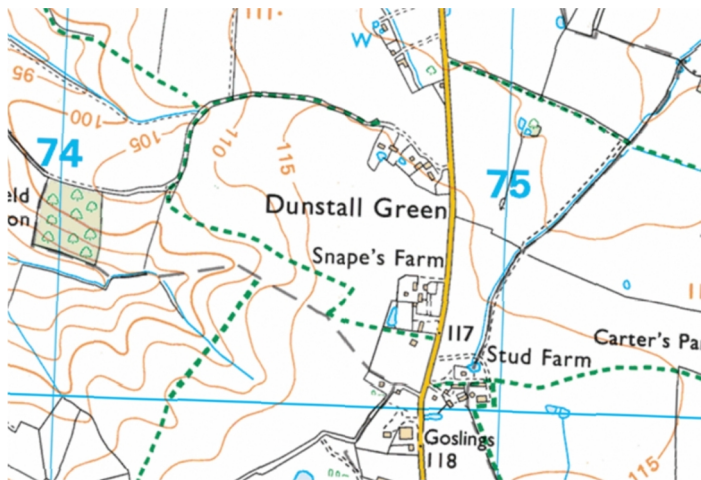
² Data downloaded from Vision of Britain website: <http://visionofbritain.org.uk/data/>

³ John Riddall and John Trevelyan, *Rights of Way: A Guide to Law and Practice*, fourth edition, Ramblers' Association and Open Spaces Society. 2007, p. 12.

⁴ *Stepping Forward - The Stakeholder Working Group on Unrecorded Public Rights of Way: Report to Natural England*: <http://publications.naturalengland.org.uk/publication/40012>.

⁵ Quoted in *Finding the Way Forward, Final Report, December 2007*: http://imba.org.uk/wp-content/uploads/DLW_Report.pdf

have been identifying, researching and submitting applications for rights of way to be added to the definitive map.



These routes take a variety of forms, some of which seem to originate in the process of drawing up the original definitive maps. The definitive map process was undertaken parish by parish with the surveying authorities consulting with district and parish councils to determine the rights of way which existed. Documentary evidence was consulted and organisations such as the Ramblers and the Open Spaces Society (or the Commons, Open Spaces and Footpaths Preservation Society as it then was) provided both user and documentary evidence.

The parish by parish nature of the first surveys has led to some strange anomalies in the rights of way network. The modern OS map shows many instances of rights of way which stop, or change status, at the parish (or district) boundary. For instance, figures 1 & 2 show a network of footpaths north of the village of Ousden, Norfolk in 1898 which has been 'broken' with gaps on the modern OS. Or figures 3 & 4 in the fields outside Market Drayton, Shropshire where there is a surprising change from bridleway to footpath status at the parish boundary (although interestingly on the 1901 25-inch this whole route is shown as a footpath).⁶

As well as these anomalies there are whole routes which have simply disappeared from the ground. An application submitted for a route in Kent can be seen in figures 5 & 6.⁷ This route (being applied for as a restricted byway) is made up of an existing public footpath (with another dead-end at the parish boundary), a farm track which is not currently registered as a public right of way and open field with no existing physical evidence of a path.

There is no specific requirement for a particular number of documents to be cited when making a DMMO application and it is rare that a 'smoking gun' piece of evidence is unearthed (although it does happen). The application shown in figure 5 references over 40 documentary sources and a typical application

⁶ I don't know the history or circumstances of these particular paths – just found them by browsing the modern OS maps on *bing.com*.

⁷ Reproduced from an application made to Kent County Council by Hugh Craddock (on behalf of the British Horse Society). The full application, including evidence replied on, can be accessed here: <http://www.craddocks.co.uk/apps/blacklane/index.htm>

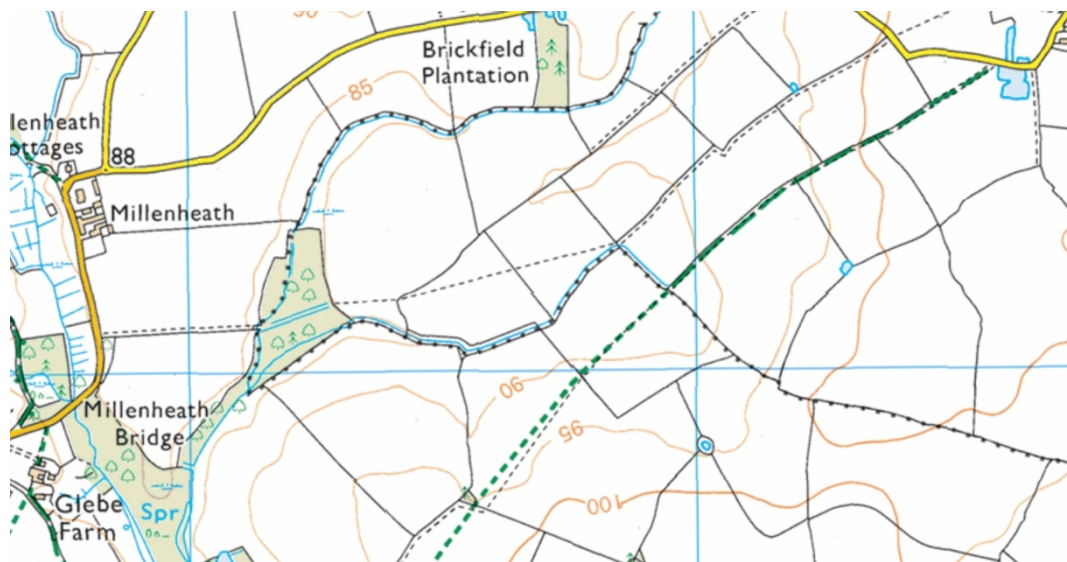


Figure 3

Opposite page:
Figures 1 (far left) and 2



Figure 4

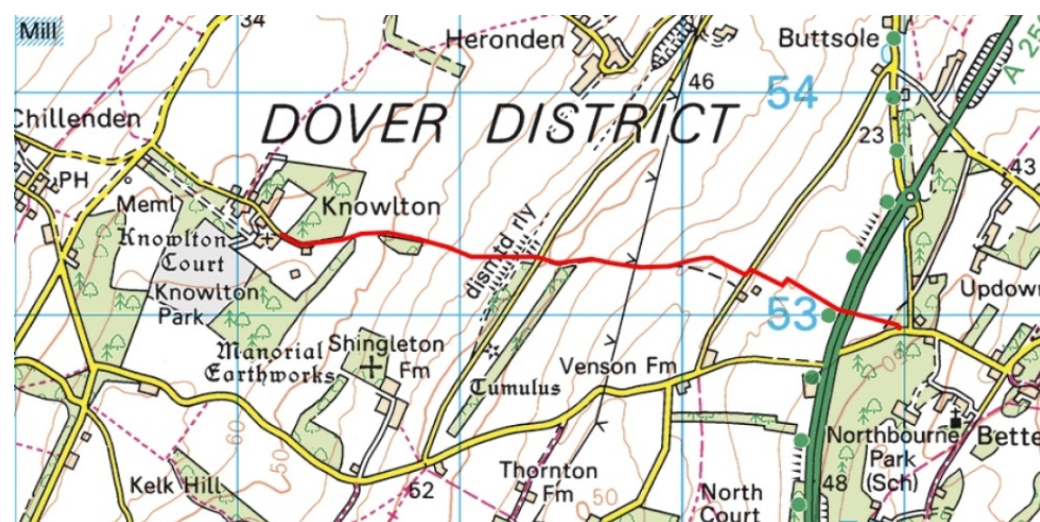


Figure 5

*Historic maps
reproduced by kind
permission of the
National Library of
Scotland*

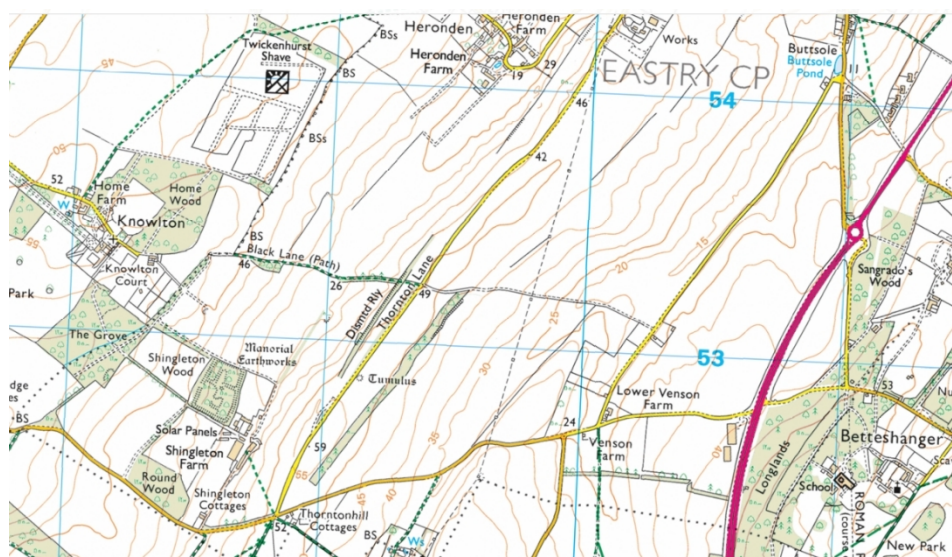


Figure 6

based on historical evidence (if there is such a thing!) will cite 10-20 sources to support the claim. *Rights of Way: Restoring the Record* by Sarah Bucks and Phil Wadey is an invaluable reference book which sets out the common sources of evidence and gives some values to the evidentiary weight of these sources (a “star-rating” system). Some of these common sources that most DMMO applications will refer to are as follows (I’ve particularly focused on the sources which might be of most interest to CCS members):

- **Tithe Awards and maps:** These records are associated with the commutation of tithes to money rents (the majority of parishes were surveyed in the early 1840s). The Tithe Survey was established to find out which areas were subject to tithes, who needed to pay and how much was payable.⁸ Detailed maps, with a colour coding set out by parliament, are accompanied by associated tithe awards.⁹ Whilst these maps were not produced to specifically show public rights of way they are a key source in supporting an application as an inference can be made that non-tithable land was public land, such as a public highway (although it could also be barren land or belong to the church or the crown estate). Helpfully, in some parishes all roads were given apportionment numbers and roads were listed as being in the ownership of the surveyor of highways and thereby giving very good evidence that they are public.¹⁰
- **Enclosure records:** The records associated with the process of Parliamentary enclosure (the consolidation of small landholdings into larger units as well as the occupation of commons by large landowners)¹¹ in the 18th and 19th centuries are particularly valuable for establishing public rights of way. Commissioners, empowered by the enclosure act, were empowered to often set out a whole new road network¹² and because they are part of a process authorised by parliament they are highly conclusive with regards to public rights of way (although it should be noted that enclosure only affected about one-seventh of the total area of England).¹³
- **Published OS maps:** Despite the familiar statement “The representation on this map of a road, track or footpath is no evidence of the existence of a right of way” (appearing since 1888),¹⁴ published OS maps are still useful in identifying

⁸ *Research Guide: Tithes*, National Archives: <http://www.nationalarchives.gov.uk/help-with-your-research/research-guides/tithes/>

⁹ Rights of Way Review Committee, Practice Guidance Note 5: investigating the existence and status of public rights of way, second edition, December 2007, p. 5: <https://www.ramblers.org.uk/~media/Files/Go%20walking/Rights%20of%20Way%20Review%20Committee%20Practice%20Guidance%20Notes.doc?la=en>

¹⁰ Sarah Bucks and Phil Wadey, *Rights of Way: Restoring the Record*, second edition, Bucks & Wadey publishing. 2017, p.77.

¹¹ *Research Guide: Enclosure Awards*, National Archives: <http://www.nationalarchives.gov.uk/help-with-your-research/research-guides/enclosure-awards/>

¹² Bucks and Wadey, p. 50.

¹³ Rights of Way Review Committee, p. 5.

¹⁴ Richard Oliver, *Ordnance Survey Maps: a concise guide for historians*, third edition, The Charles Close Society, 2013, p. 114.

potential routes and providing supporting evidence for a DMMO application. The first edition 25-inch maps are particularly useful as they were accompanied by books of reference ('Area Books') which give a greater insight into the historical public use of the route (for instance a route described as a "road" in the area book can be compared to other existing public roads in the locality).¹⁵

- **OS boundary records:** The records associated with the duty of OS to ascertain and record all public boundaries (in the Ordnance Survey Act 1841) are particularly useful. Consulting the Boundary Remark Book (or the Boundary Sketch book where the remark book isn't available) can uncover notes that a route is "to/from somewhere" which supports public use or there may be notes about the public maintenance of a route that crosses a boundary.¹⁶

- **OS Object name books:** Like the Area Books, these documents contain information about named roads and lanes (often with an identification as public or otherwise) which are useful when making an application.¹⁷ Weight is given to the records by the fact that local worthies (clergy, owners, overseers, solicitors etc.) were often consulted when establishing the correct name.¹⁸

- **Early published maps:** Maps sold to the travelling public can provide solid supporting evidence that a route was public as its inclusion suggests that the purchaser could use that route. I particularly enjoy looking at the Bartholomew Maps which have been digitised by the National Library of Scotland.¹⁹ An interesting line of future research is the role that members of the Cyclists' Touring Club had in helping the Bartholomew Map Company update their maps to reflect changes in condition, use and status of roads and paths.²⁰

- **Inland Revenue valuation records:** Dubbed "Lloyd George's Domesday", the Finance Act (1910) involved the valuation of every property in England and Wales so that a tax could be levied on any increase in value when the property was Inherited or sold. The tax was based on the value of a site itself, irrespective of any value attached to buildings or crops on it. The presence of a right of way would affect the value of the land and therefore owners were able to claim some tax relief where rights of way crossed their land, although not all landowners claimed this.²¹ These records consist of hand coloured second edition County Series maps, with annotated plot numbers and associated field books. The field books show if a deduction was made for a right of way (although it is not always possible to pin-point exactly where this right of way was). In addition, these maps show 'white roads' which are left uncoloured as they were not taxable and therefore it is a good inference that these roads are public rights of way ('Rating Agencies', including the highway authority are not taxed).

¹⁵ Bucks and Wadey, p. 102.

¹⁶ Bucks and Wadey, p. 134.

¹⁷ Rights of Way Review Committee, p. 7.

¹⁸ Bucks and Wadey, p. 154.

¹⁹ <https://maps.nls.uk/mapmakers/bartholomew.html>

²⁰ A small sample of these letters have been published by the National Library of Scotland: <http://digital.nls.uk/bartholomew/duncan-street-explorer/cyclists-touring-club.html#item3>

²¹ Rights of Way Review Committee, p. 6.

- **Deposited plans for public works and utilities:** Maps of proposed railways, major roads, canals and drainage schemes have to be deposited with the appropriate public authorities (for instance all railway schemes had their own act of parliament). Where public rights of way cross or are affected by these schemes this is often shown on the plans (and are useful even if, in the event, works did not take place). Like the enclosure records this evidence is given extra weight by the official/parliamentary process which enabled them.
- **Quarter Sessions records:** The quarter sessions were the courts which presided over a whole range of local issues until they were replaced by the County Courts in 1971.²² The records of the quarter sessions are one of the key sources of evidence which are not directly based on maps. Any issue related to a route which was brought before the quarter session (such as a blocked route or one in disrepair) is valuable as only public highways would have been a matter for the quarter session.²³

This is just a small sample of the sources useful to a historical rights of way researcher and other good records include highways records, sales documents, the Ministry of Agriculture and Fisheries Farm Survey (1941-43), turnpike records, parish maps and estate maps, glebe terriers, evidence on the ground (for instance ancient stiles), aerial photography and local histories.

Whilst a trip to the archives is usually needed to complete an application (not a chore for CCS members!) there are already many of documentary sources available to explore from the comfort of your own computer screen. The Ramblers has recently created a directory of online digitised documentary sources, which is split between links to national/general sources and links to local sources (sorted by Local Authority). I hope that even for those who do not intend to research historical rights of way will find this an interesting resource: <https://www.ramblers.org.uk/get-involved/campaign-with-us/dont-lose-your-way-2026/finding-historical-sources-online.aspx>

The Don't Lose Your Way (DLYW) project at the Ramblers is focused on supporting volunteers to make DMMO applications so that we can make the most of the opportunity to record historical rights of way and try and make the definitive maps well...definitive. We are currently looking at a range of options which will hopefully help in this endeavour including using technology to better identify potential routes; more training, guidance and support for those researching and submitting applications; facilitating better access to archival material (including looking at projects to get more documents digitised), and how we can work closely with other organisations interested in this area (for instance volunteers of the British Horse Society have been doing a significant amount of work on historical rights of way).

If you would like to know more about historical rights of way or DLYW, I would love to hear from you. If you have come across any other sources that you think would be useful, please do get in touch with me at Jack.Cornish@ramblers.org.uk

²² *Quarter session*: https://en.wikipedia.org/wiki/Quarter_session

²³ Bucks and Wadey, p. 127.

Underground features on later nineteenth century Ordnance Survey six-inch mapping

Richard Oliver

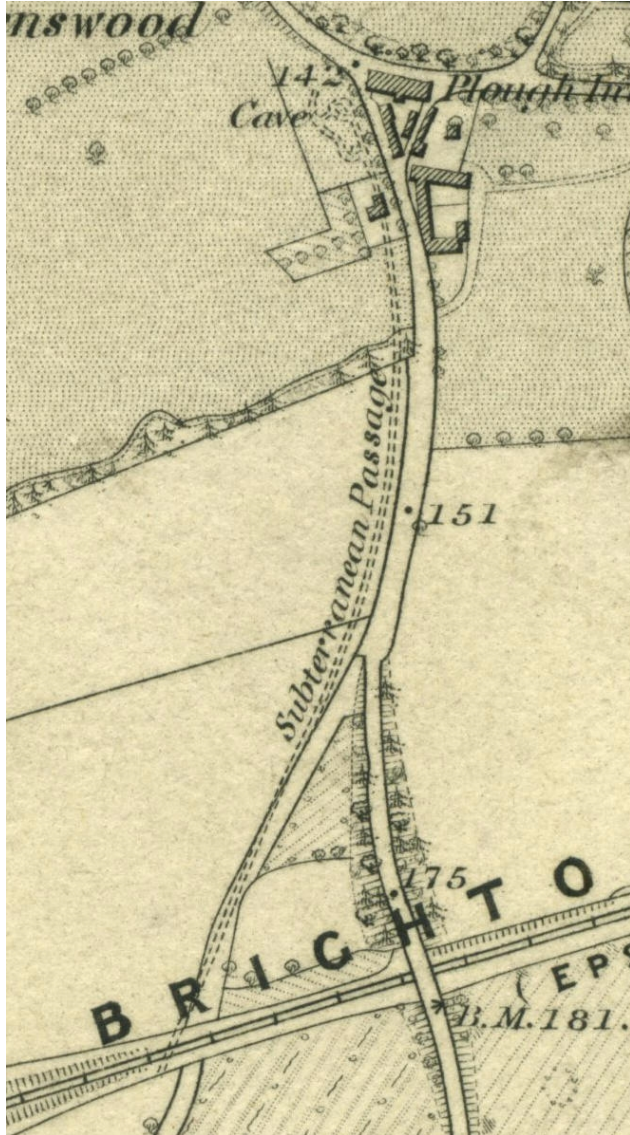


Figure 1. The caves and 'Subterranean Passage' at Beddington, as shown on Surrey six-inch sheet 14 (1872)

The Society has recently received an enquiry from Nick Catford, concerning a cave and a 'Subterranean Passage' at Beddington, shown on Surrey six-inch (1:10,560) first edition sheet 14, stated to be surveyed in 1867-8 and published in 1872 (*figures 1 and 2*).¹ He does not recall seeing such a cave system on any other OS map, and wonders if it is indeed unique.²

It is not possible to give a definitive answer, but it does seem that the depiction of cave and passage are highly unusual. This is the more so as the normal practice on similar mapping of Surrey at this time was not to indicate the course of railway tunnels. There is a striking example of this on sheet 26, where air shafts, spoil heaps and other surface evidence of Merstham tunnel are shown, but the actual course of the tunnel is not, even though it runs dead straight and would not be a big survey problem. Most of Surrey was mapped in the late 1860s by a division under the command of Captain William de la Poer Trench, who is the only 'survey employee' known to have gone on to be a Member of Parliament – albeit briefly.³ That there was not a consistent policy at this time is indicated by the treatment of tunnels in west Kent, which was

¹ References here are to the six-inch map; the field survey was at 1:2500. The caves and all but the southern end of the passage are on Surrey sheet 14.9 (Beddington parish), the southern end on sheet 14.13 (ditto), and comparison shows the six-inch to be an acceptable surrogate.

² The cave is at about TQ 30076482: it is not publicly accessible.

³ He was member for Galway 1872-4: at the election of February 1872 he was heavily defeated, but gained the seat in June following a petition. He was defeated at the general election in 1874. He was the third son of the Third Earl of Clancarty, and such a 'titled' connexion is certainly unusual for a 'survey officer'.

surveyed under the command of other officers: on sheet 16 the curving tunnel south of Chelsfield (a ‘survey problem’) is mapped by a single dotted line, presumably representing the centre-line, whereas on sheet 17 a tunnel north of Eynsford is shown by a double dotted line, presumably denoting the sides of the tunnel; on the Hither Green-Tonbridge line, Polhill tunnel is mapped on sheet 28, whereas the tunnel south of Sevenoaks is absent from sheet 40 though, as at Merstham, its course is hinted at by air shafts and other surface features.

A possible clue to the mapping of the Beddington ‘Subterranean Passage’ may be the treatment of some caves at Reigate Castle, on sheet 26, and of ‘Course of Hampton Court Water Works, constructed by Cardinal Wolsey’ on sheets 6, 7 and 12. Although the ‘caves’ on sheet 26 are named in Old English writing, whereas Wolsey’s conduit is named in ordinary italic, both are obviously ‘antiquities’. Other caves in the vicinity were evidently regarded as natural, and are not mapped.⁴ This suggests that the Beddington caves and passage were also believed at first to be an ‘antiquity’, perhaps of uncertain date, though there is no known reference to them before the 1830s, and it is noticeable that the passage seems to end at the railway: is this just coincidence?⁵ Perhaps the caves and passage were treated when surveyed in the field as ‘antiquities’ and this



Figure 2. Enlargement showing the Beddington caves in greater detail

⁴ Paul Catford drew my attention to this subtlety.

⁵ Paul W. Sowan et al, ‘Waddington and Beddington Caves’, *Subterranea Britannica*, 48 (August 2018), 49-56: I am indebted to Nick Catford for this, and for reading a draft of this note.

classification was revised when the manuscript drawings received their routine final field examination before forwarding for publication.⁶ As the passage has multiple curves it would certainly not have been straightforward to survey.

That such things were surveyed at all may indicate an element of personal preference: Colonel Sir Henry James, Director of the Survey 1854-75, had strong antiquarian interests and, being of “forceful character” and “unpleasant if opposed”, had sufficient authority to ensure that apparent oddities were mapped even though they might divert resources from mapping features of more general utility.⁷ Whether Captain de la Poer Trench was sympathetic to those interests is not known, though Maurice Beresford has pointed out that the detailed mapping of deserted mediaeval villages in the East Riding of Yorkshire, in contrast to their neglect in Warwickshire, was owing to the personal interest of Captain John Bayly.⁸

The Beddington caves and passage appear also on the revisions of the 1:2500 made in 1895 and 1911, though not on those of 1933 or 1941. This suggests that the passage was still accessible up to at least 1911. The earliest Ordnance Survey instructions bearing on such problems date from 1932, and the wording in 1952 is similar: ‘The entrance will be surveyed... the underground passages in caves will not be shown unless they are used as thoroughfares, in which case they are shown as tunnels.’⁹ If similar instructions were in force between the 1860s and 1911, then that suggests that the Beddington passage was readily accessible.

Readers who have encountered similar apparent anomalies elsewhere are invited to comment.

Members are reminded of the special offers currently available: 25% off Ordnance Survey maps at OS website with code CC2PMGAMCM and 20% off reprints of Soviet military maps of British cities at <http://redatlasbook.com> with code CCS-20.

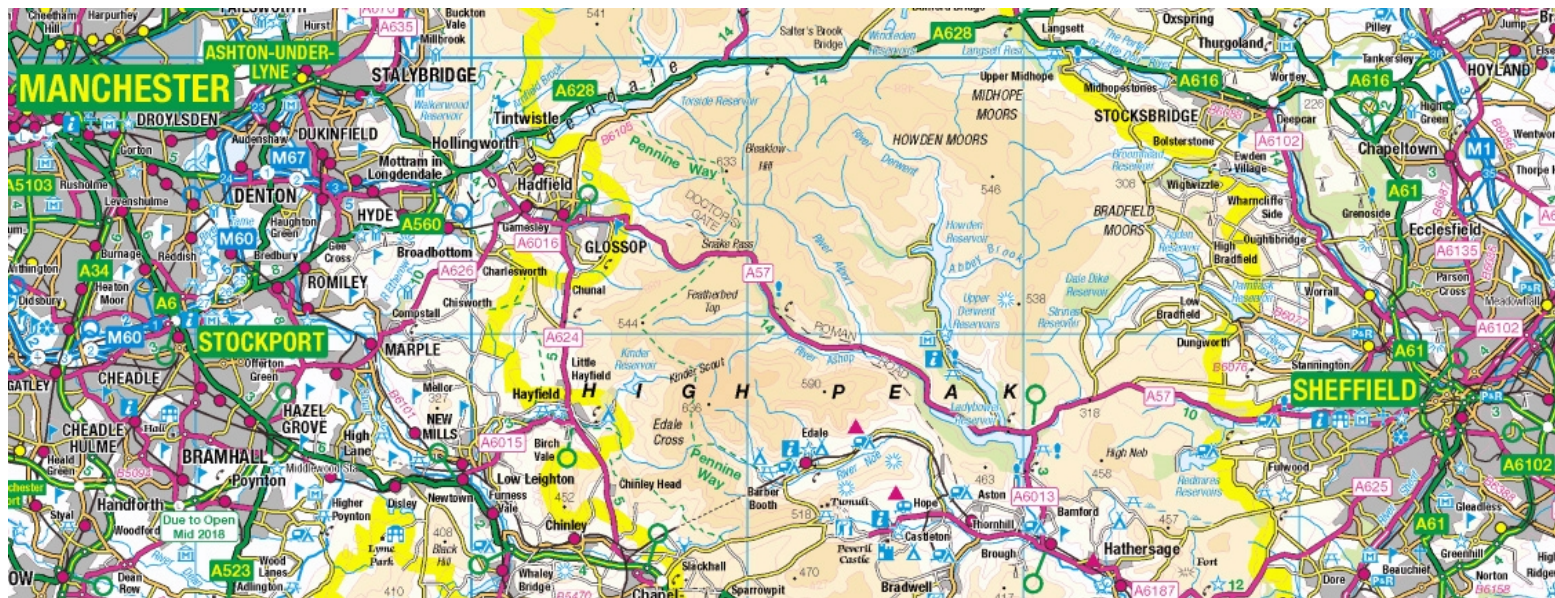
⁶ As the relevant field documents are not extant, it is impossible to prove or disprove this. Survey and initial publication were at 1:2500.

⁷ Richard Oliver, *The Ordnance Survey in the nineteenth century*, London: Charles Close Society, 2014, 240-3.

⁸ Maurice Beresford, ‘The spade might soon determine it’: the representation of deserted medieval villages on Ordnance Survey plans, 1849-1910, *Agricultural History Review*, 40 (1992), 64-70.

⁹ *Instructions for Detail Survey, Revision and Examination of Large Scale Plans (The Red Book)*, 1952, section C85: printed for internal use only: copies at British Library Maps 207.aaa.17 and The National Archives [Kew], OS 45/54.





I'm a Rambler from Manchester way **John Davies**

The lyrics of one of Ewan MacColl's best-known songs, *Manchester Rambler*, celebrate the joy of rambling on Kinder Scout – and commemorate the long struggle to achieve freedom of access.

Kinder Scout, the highest peak in the Peak District, midway between Manchester and Sheffield, is shaded yellow on OS *Explorer* maps (*opposite*). That yellow shading, indicating 'open access land' is a reminder of, and a testimony to, a remarkable act of civil disobedience which took place almost ninety years ago.

'Open access' means a walker may freely wander over the land, without sticking to footpaths or rights-of-way. This designation, the 'right-to-roam', introduced in the Countryside and Rights of Way act (CROW), 2000, applies to most areas of mountain, moor, heath and downland in England and Wales.

CROW was the culmination of a long campaign by the Ramblers' Association and its predecessors to open up access to upland and uncultivated land previously closed to walkers, other than by using existing rights-of-way. One of the most important events contributing to this long-running campaign for open access was the 1932 mass trespass on Kinder Scout.

Kinder Scout is wilderness country; it is relatively high (636m), a vast, featureless boggy moorland plateau of peat hags cut through with deep groughs,¹ making for difficult walking and tricky navigation. Its many gritstone edges provide various grades of rock-climbs, whilst Kinder Downfall, a 30m waterfall, offers an icy challenge to climbers when frozen. The hill's close proximity to the densely-populated conurbations of Lancashire and Yorkshire made it (and makes it) an irresistible attraction to thousands of city dwellers seeking fresh air, exercise, solitude and adventure.

Frustration had been building up for years; every weekend, walkers who had been heading on to Kinder Scout would be turned away by gamekeepers protecting the grouse for shooting parties. Similar confrontations were happening elsewhere, as working people increasingly resented being excluded from the private moorlands of wealthy landowners.

On 24 April 1932, several hundred protesters gathered and approached Kinder Scout from opposite directions. The Manchester contingent of about 400 ramblers

¹ A grough is a natural channel or fissure in a peat moor.

met near Hayfield, on the western side and proceeded via William Clough to the plateau. Here they joined forces with the Sheffield group, who had approached by way of Edale on the southern side, and became embroiled in violent struggles with the Duke of Devonshire's gamekeepers.

On the descent to Hayfield, five ramblers were arrested and charged with unlawful assembly and breach of the peace (trespass itself was not a criminal offence). They pleaded not guilty and were remanded to be tried at Derby Assizes in July 1932. They were found guilty and jailed for between two and six months. The arrest and subsequent imprisonment of the trespassers unleashed a huge wave of public sympathy, and united the ramblers' cause.

A few weeks later, 10,000 ramblers assembled for a rally in Winnats Pass, near Castleton, and the pressure for greater access continued to grow.

An unintended consequence of the mass trespass was greater interest being paid to ramblers' behaviour and potential ways to regulate it. This resulted in a 'Code of Courtesy for the Countryside' being produced, which was a forerunner of the modern Countryside Code.

The author's late father, Joe Davies, was a participant in the trespass, alongside his pal, Jimmie Miller, the publicity officer for the event. Jimmie later changed his name to Ewan MacColl and became famous for such songs as *Dirty old town*, *The first time ever I saw your face* and, of course, *Manchester Rambler*.

Above: Kinder Scout is at the 'G' of HIGH PEAK. The green dotted line is the Pennine Way.

Left: The author's family were among the hundreds celebrating the fiftieth anniversary of the trespass in 1982.

Lower left: Grindsbrook, on the approach to Kinder Scout from Edale.

Below: The top of Kinder Downfall, looking west.

[photos by the author]



The Six-inch survey of Lancashire and Yorkshire and railway revision

Rob Wheeler

My article in *Sheetlines* 112¹ posed the question of when the two symbols for railways took on their later meaning of double-track and single-track. I drew attention to the difficulty of using as evidence later states to which railways may have been added at some unknown dates. Consideration of the background to this updating process suggests that the difficulty may be less than I had supposed.

The starting point is Richard Oliver's account of railway revision at the one-inch scale:² Colby saw railways as 'national works', sought authority to add them to the national map, and proceeded on the assumption that repeated approval in specific cases conceded the principle. The six-inch was essentially a local map and it seems questionable whether approval would have been given to revising it in the same way. However, six inches to the mile had been the scale of survey in Lancashire and Yorkshire, and it must have been much easier for a surveyor to go out armed with a copy of the six-inch, where such a sheet existed, and to add a new railway by graphical revision than to do the same direct on the one-inch. Furthermore it seems likely that there was already an established procedure whereby railways opened after the main survey for a six-inch sheet but before it appeared were added prior to publication: a pre-publication state of Yorks 289 is complete in most respects but lacks the South Yorkshire Railway.³ These pre-publication railway updates included changes consequent upon the construction of the railway: alterations to field boundaries or to rivers, private sidings and the industrial establishments they served, and such like. It would seem plausible that the post-publication surveying-in of railways should have proceeded in the same manner, at least until 1867.⁴ There may indeed have been no immediate intention to engrave them on the 6" plates but as time progressed the refreshing of worn detail became necessary – garden ornament received particular attention – and it was doubtless thought acceptable to engrave the new railways at this stage, perhaps some time after they had been surveyed.

If this understanding of the process is correct – and it is only a hypothesis, but one which appears to accord with what one sees on the maps – then new railways were surveyed not long after they opened: with certain exceptions, they normally appear on the one-inch maps within a couple of years. Furthermore, they were added in manuscript to six-inch sheets in the manner in which they were to be engraved, following the rules and conventions current at the time they were surveyed. It is of course possible that, when they came to be engraved,

¹ Rob Wheeler, 'Representation of Railway Track Layouts on the County Series', *Sheetlines*, 112, 31.

² Roger Hellyer & Richard Oliver, *The First Ordnance Survey Map*, 2015, 68-72.

³ Copy formerly in the collection of Tim Bleasdale, now in CUL, whose copyright deposit copy does show the SYR.

⁴ I am grateful to Richard Oliver for the advice that the addition of railways to the six-inch appears to cease in 1867.

different conventions were in force and changes could have been made at this time; however, such alterations have to be in the direction of greater generalisation, whereas the main changes to convention that we are interested were proceeding in the opposite direction. Thus, for most purposes we can treat the detail of a new railway as though it had been engraved a year or so after opening, even though in reality the engraver may not have been let loose on the plate until some years later.

The process of adding new railways was intelligence-led. Richard Oliver suggests newspaper report or Bradshaw's guide may have been relied on; the Board of Trade inspection process (from 1840) seems another possibility. The first two sources only covered passenger lines; generally (and there is an exception that will be noted later) the revision process consisted of surveying in new routes of railway running from junction X with an existing line to junction Y with another existing line or to Terminus Z.

New railways often had sidings and connections to industrial establishments that were laid down at or close to the date when the public railway opened. These were duly surveyed. There might be new colliery connections too. At Ardsley, the Wakefield to Leeds line had a connection to a couple of coal pits north of Thorpe-on-the-Hill. This line (and the coal pits) were duly added to the map using the single-track symbol. It rather looks as though one of these pits had previously shipped its coal via a tramway that connected the Robin Hill Colliery to a staith on the River Calder. The connection to the tramway was added too, using the single-track symbol (*figure 1*). The surveyors stopped at the junction with the existing tramway, even though it is quite likely that the network at the end of the Robin Hood tramway had changed since the original survey.

The colliery branch and the continuation to the existing tramway were added to the one-inch too, using the standard railway symbol (*figure 2*). This provides confirmation that, in Yorkshire, the six-inch and one-inch railway additions were derived from the same survey.



Figure 1: Robin Hood, from Yorks 233. The coal pit by the LH margin is approached from Ardsley by a line from the SW which seems not to join the line from the pit to the tramway.

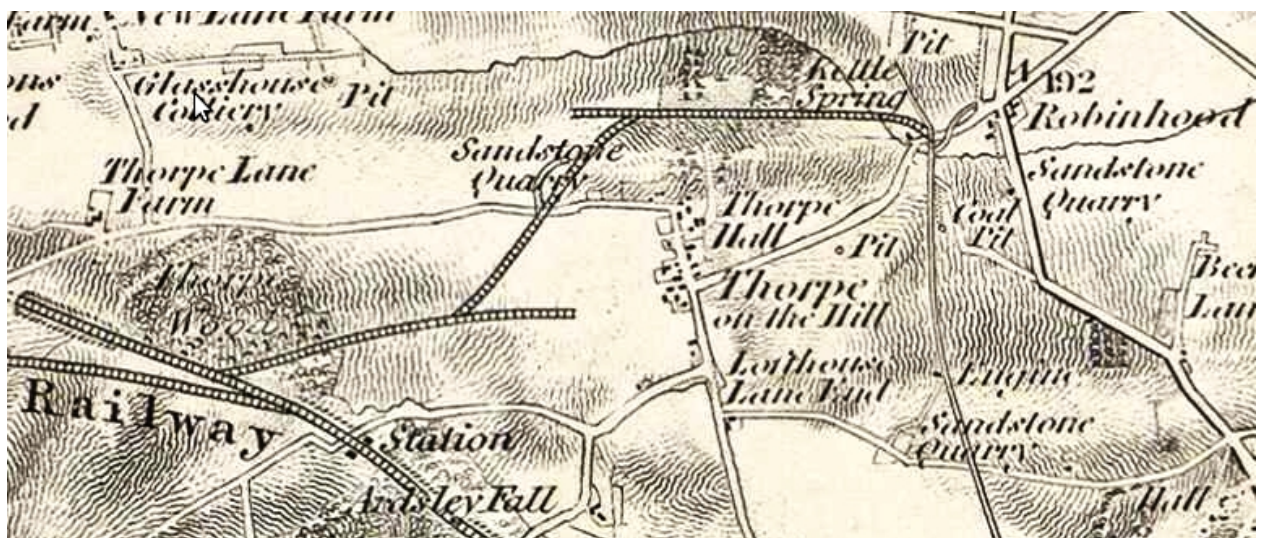


Figure 2 (top): Old Series 87NW state 5 showing line from Leeds & Wakefield Railway at Ardsley to the Robin Hood tramway.

Figure 3: Wakefield Kirkgate – early form, from Yorks 248.

Figure 4: Wakefield Kirkgate – late form.

Exceptionally there were updates which seem to address all the railways of a town rather than a particular new railway. Figures 3 and 4 show Wakefield in an early and a late state. The expansion of railway facilities is the most prominent change, and the Grain Warehouse south of the station may indeed be a railway warehouse; but the Stables north of the Hotel, and the Mills above Wakefield bridge have been updated because of their proximity. The road which formerly led from the 'S' of 'PRIMROSE' under the Wakefield & Goole line now appears to have been severed, as well as shifted south a little. The road which it formerly joined and which once led up to the Hotel has also been severed. Note the change in the mereing of the boundary.

This provides a useful working hypothesis for looking at railway depiction: outside major towns, railways may be assumed to have been drawn at the date of survey of the map or at about the date of opening, whichever is earlier. Armed with this we can tackle the question posed in the previous article: when or where did the change from the original use of the railway symbols to the modern use occur?

Almost immediately, we run into a problem: a very large number of the Yorkshire sheets have a survey date 1850-51, including all those sheets covering the Manchester to Sheffield line from which the Dunford Bridge example of that previous article was taken. Further down that line is the Thurgoland branch: figure 5 shows it diverging from the main line. It never carried passengers; at the north of the extract is the foot of a rope-worked incline at the top of which it became a single line. It had been shown on the one-inch as a tramway; yet here it is given the symbol for a pukka railway, presumably because it was (initially) double-track. Thus the six-inch surveyors here were working on the principle that the two symbols indicated double-track and single-track respectively; yet they were still endeavouring to depict sidings on a double-track railway using the double-track symbol; and the Dunford Bridge example suggests a degree of generalisation was permitted. This is an approach intermediate between the two I described in my previous article. It did not altogether prevent the use of single-track sidings, as figure 6 shows, though there seems to be a degree of embarrassment about the little siding west of the station building. There is nothing about Dunford Bridge which prevents this too being regarded as intermediate: indeed, the use of the narrower double-track symbol for sidings occurs both here and at the Thurgoland junction.

The boundary between this intermediate approach and the later one is too fuzzy to define rigidly: one sees a hankering for double-track sidings in Figure 4; and the exchange sidings at the Thurgoland junction retain the double-track symbol even at the 1891 resurvey. To make matters worse, the boundary between the early use of the symbols and the intermediate approach is also difficult to spot. The magnitude of the generalisation of trackwork seen at Patricroft is not found in Yorkshire so far as one can tell: without an independent source it is difficult to make a firm pronouncement. The one thing that unambiguously indicates the early interpretation is the use of the ladder symbol for a single-track railway. An example of this was drawn to my attention by a pencil note on a

copy of Lancs 31 to the effect that the railway at Caton was single-track. The railway in question was the 'little' North Western, opened in stages, this part

being completed on 17 November 1849.⁵ It was presumably added after the sheet's publication in 1847 but before the publication of Old Series 91NE in 1852. The 'double-track' symbol was used on the map, but it is known that this section remained single-track until 1889. Figure 7 shows Caton station, with the double-track symbol used for the running line and the single-track symbol used in what appears to be a detailed depiction of the goods yard: there is a fair degree of commonality with its depiction on the 1895 edition.⁶

All this would be consistent with the early system having been retained until about 1850, albeit with the prohibition on use of the single-track symbol for sidings on a double-track railway having been dropped; it would also be consistent with the early system having been limited to Lancashire. This suggested it would be instructive to examine the few Yorkshire sheets published before 1850. One of these, Yorks 190, is remarkable for showing a railway under construction, or rather a railway where construction had been abandoned. Figure 8 shows that it had been added to the sheet after engraving: one can see a damaged spot height (63) that needs repair and the line of a road passing under the railway that has been inadequately deleted.

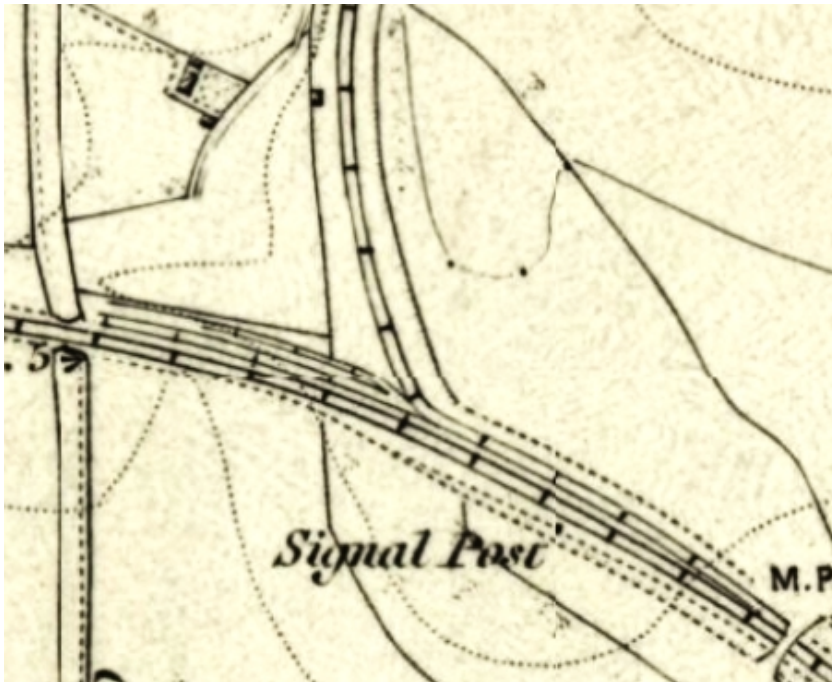


Figure 5 (top): Thurgoland branch junction, from Yorks 288.

Figure 6: Deep Carr station, also on Yorks 288.

⁵ Peter E Baughan, *Midland Railway north of Leeds*, 1987, 429.

⁶ Lancs 30 uses the ladder symbol for the connecting line between the two stations at Lancaster, a line which was never doubled.



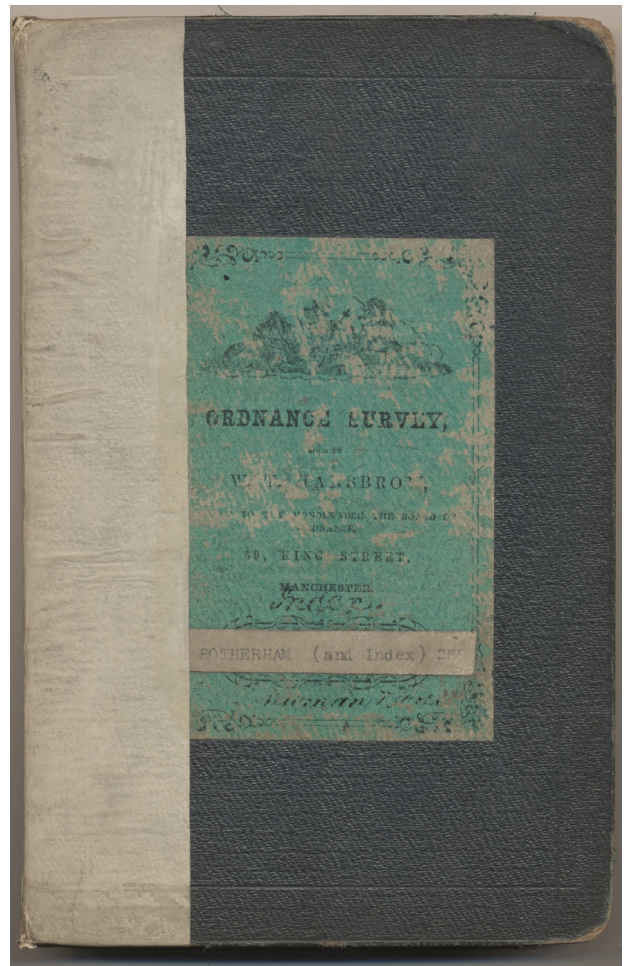
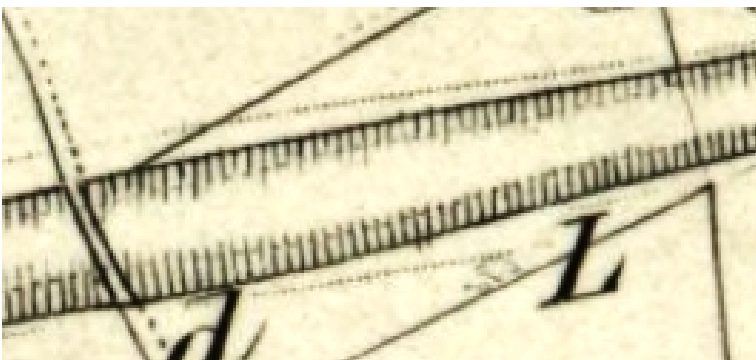
Figure 7 (above): Caton station, from *Lancs* 31.



Figure 8 (left): Tadcaster, from *Yorks* 190

Figure 9 (lower left): Abandoned line at Tadcaster.

Figure 10 (below): Cover of pre-publication *Yorks* 289.



This section has a ladder symbol for the track, but the ‘rungs’ are mere dots. The earthworks continue to a bridge over the River Wharfe and then a section of “Proposed Line” (*figure 9*) where one can see (dotted) what is perhaps the outer boundary of the area occupied by the navvies. A track going across the cutting has been given temporary fences. Again one can see former fences which have not been properly deleted. The rules against showing temporary works were no doubt already in place; but here work had been abandoned and the earthworks might remain for decades. They can still be seen on the 1894 edition. None of this tells us whether the early or the intermediate rules were being followed, but it is probably a fair assumption that the former never extended beyond Lancashire.

Railways on the Yorkshire six-inch are also of interest for what they show of signalling practice, notably electric telegraphs and signal posts, but one also encounters Signal Lamp (presumably Signal Post is understood to imply a board or arm) and Pointsman’s Box. What is odd about these features is their variability: some lines have numerous Signal Posts, some have occasional ones, many have none. On Yorks 289, for example, the Midland line has electric telegraph but no Signal Posts; the South Yorkshire has Signal Posts but no telegraph. That the SYR had no telegraph is almost certainly correct, but was the Midland really relying on hand signals after investing in the telegraph? Or were the surveyors doing the initial survey disinclined to show signal posts whereas the men surveying in the SYR a few years later were sticklers for them? To take another example, on Sheet 12 the South Durham and Lancashire Union Railway, which was opened in 1861 after the sheets were published, has numerous Signal Posts around Bowes and to its east, but nothing west of Bowes. This seems less likely to represent variation in surveying practice. Is it possible that the railway was surveyed before it was opened, with permanent way in place but the signal installation still in progress? Nor is it only Signal Posts that seem to be variable: before it opened, the (little) North Western was encountering problems with the type of telegraph installed⁷ but one looks in vain for any signs of a telegraph on the six-inch.

I alluded earlier to an incomplete state of Yorks 289. What is perhaps unusual about it is that it has been coloured and dissected by WT Hansbrow (*figure 10*). His address implies this was done no later than 1862. (The typed label must be later). Bound with it is an index showing the Yorkshire sheets that have been published to date. The date in the title is left blank but from the sheets marked as published it seems to have been printed in 1854 and marked up in ink with sheets published later that year (*figure 11*). Incidentally, both forms of cross indicate sheets published, the St George’s cross being used for those not filled (with land) to the neat line. It would not seem unreasonable to suppose that this was done in 1854 when the index was current.

On that index a block of 15 or 16 sheets – one may perhaps have been added later – is tinted red in a professional manner. Sheet 289 is the highest number in the block, which is perhaps why it has the index sheet included. Only one of those sheets is marked on the index as having been published. Does that mean

⁷ Baughan p.93.

that, of this block of maps, no fewer than 14 were in an incomplete state?

The name at the bottom of the label reads 'Newman Barnsley'. The Newmans had been Barnsley solicitors since 1790; as a partnership the firm continues today. Edward Newman was agent to Lord Fitzwilliam and was politically active in the Whig interest. He was a member of the Geological and Polytechnic Society of the West Riding, which is perhaps why the Tankerville Fault is has been drawn on the map. He was also involved with Turnpike trusts and railway projects. Was such a man able to obtain incomplete copies in advance of publication of not just one local sheet but a dozen or so? Do any of our members happen to have any of the other fifteen sheets in the block in a similar cover?

I set out in this paper to answer a question I posed in *Sheetlines* 112. I seem to have floated more questions than I have answered. Nevertheless, it seems to me that we are closer to understanding the Lancs and Yorks six-inch. There is an analogy with the one-inch Old Series. Back in the 1960s understanding of this was murky. Then came the David & Charles reprints with introductions by JB Harley. The purists lament the choice of late states for these reproductions; though one can argue in their favour that from a late state one can mentally subtract the railways and get a good approximation to an early state;⁸ one certainly could not do the opposite. Then came the Margary reprints showing early states. Finally we have Roger Hellyer's cartobibliography. Between them, these sources convey all the topographical information that could be extracted from a massive collection of all the states of all the sheets.

I suggest that, so far as the six-inch survey is concerned, the copies on the NLS website offer the equivalent of the David & Charles reproductions. Most of them are Record Map specimens, retained by OS when the First edition was superseded and therefore represent the final state of the plate. Many of them show railways which were only opened after the date of survey. Evidently they have been added. They (with associated detail) are the only type of addition I have noticed; analogy with Hampshire might suggest that revised administrative boundaries, along with detail relevant to mereing, might also be shown here and there; but I have not seen any instances in Lancashire & Yorkshire. Thus, by mentally subtracting the added railways, we can see what the original survey looked like – except in the immediate vicinity of these new railways. We already have 98% of the information that a complete collection of all the states of all the sheets would give us.

To obtain that last 2%, we would need images of each sheet in its earliest known state. Following the one-inch analogy, pressing ahead with this is more important than a cartobibliography. However, I suspect the analogy breaks down at this point, not least because quite a few sheets have no railways and are unlikely ever to have been updated. Leaving these on one side, and taking a sample of six sheets that did have railways and where I was able to compare the NLS image against an earlyish copy, on three of the six, the NLS sheet had no

⁸ Except for the couple of sheets that benefited from general revision, and the addition of changes in the vicinity of new railways made up to about 1862.

railways opened after the date of survey and showed no evidence of updating. On one sheet a railway (opened 1862) was on the NLS sheet but not the early one. On two sheets there were railways on the NLS copy and on the early copy which had opened shortly after publication. They might perhaps have been engraved before they opened, so the existence of a state lacking them is an open question. What I deduce from this is that only for a certain proportion of sheets is there any value in looking for an early state; and for quite a significant set of those, finding the earliest state may be a challenge. Without attempting any sort of serious investigation, I have found two Yorkshire states earlier than the CUL copies, presumed to be copyright deposit: one was the pre-publication state mentioned earlier, but another was mounted as part of a composite with no indication of date, and no sign that it was other than a normal sales copy. Richard Oliver has observed⁹ that there was no automatic process for copyright deposit at this date; the copyright libraries needed to request the items and there may have been a delay before they got round to making the request.

Thus my main conclusion is that we need a cartobibliography of the Lancashire & Yorkshire six-inch. If we eschewed any attempt to track every change in marginalia but concentrated on topographical change associated with railways, it could probably be done as a collaborative process by those of our members who use the six-inch.



Figure 11: Index showing state of publication of Yorks six-inch.

Figures 1 & 4-9 are reproduced by kind permission of National Library of Scotland, figure 2 by kind permission of Alexander Turnbull Library, National Library of NZ, MapColl 211cba/1805-1862/Acc.38633.

⁹ Personal communication.

Marbled paper

Rob Wheeler

During August, I found myself looking at quite a lot of OS maps in marbled covers. It struck me how inadequate the vocabulary in general use is for describing such covers. It is as though most of the dogs one saw were either Alsatians or poodles but one simply described them as ‘dogs’. For OS maps the position is particularly odd in that 90% of such maps come in covers that look like figure 2 or figure 4. What should we call these covers, and is there something special about the other 10%?

It may help to start with an account of how marbled papers were produced.¹ On a bath of gelatinous size, drops of water-colour are sprinkled, typically with a brush. To produce something like Figure 1 one starts with the blue. One then adds Venetian red with a generous addition of ox gall to raise the surface tension and drive the blue into veins. Perhaps a further addition of Venetian red has followed with a little more gall, to add the ‘blobs within blobs’ but not so much gall as would drive the existing red into the veins. Paper, coated with alum as a mordant, is then floated on the bath and gently lifted off. The slimy size must then be washed off but because of the alum the colour is held fast. To produce figure 2, a similar globular pattern is made; it is then mixed with a stylus to produce a complicated intermingling of globules; finally a coarse comb is run from one end of the bath to the other to produce the characteristic scales. For figure 3, a smaller comb was wielded with a swirling motion. Figure 4 was produced in much the same manner as Figure 1 but water with a generous addition of gall was added instead of the red, so all the colour was driven into the veins.

Figure 1 is described by some as *Turkish*; figure 2, as well as *combed*, is sometimes termed *Nonpareil*. Figure 4 is sometimes termed *Italian*, a term which embraces papers with multiple colours in the veins. The problem with these national descriptions is that Italy now produces more marbled papers than any other country; and Turkey produces papers as well, so one might have a Turkish Italian paper, or an Italian Turkish!

Turning to marbled paper on maps, part of the explanation for what one finds is that map-mounting was a minor use for these papers; and for the firms that mounted the maps, marbled papers were a commodity produced by specialist firms. Stanford’s appear to have maintained stocks of veined blue and combed maroon from at least the 1870s to the 1930s.² Combed maroon always seems to be used with hand-coloured maps, blue veined with uncoloured. It may be that there were two standard products, with a few of each perhaps held in stock in anticipation of orders.

¹ I have relied on Anne Chambers, *The Practical Guide to Marbling Papers*, 1986. There is useful material at <https://content.lib.washington.edu/dpweb/patterns.html>

² Once the OS offered its maps mounted in covers, customers wanting special mounting rapidly diminished. However, Andrew Cook reports India Office composites in marbled covers as late as the 1930s.

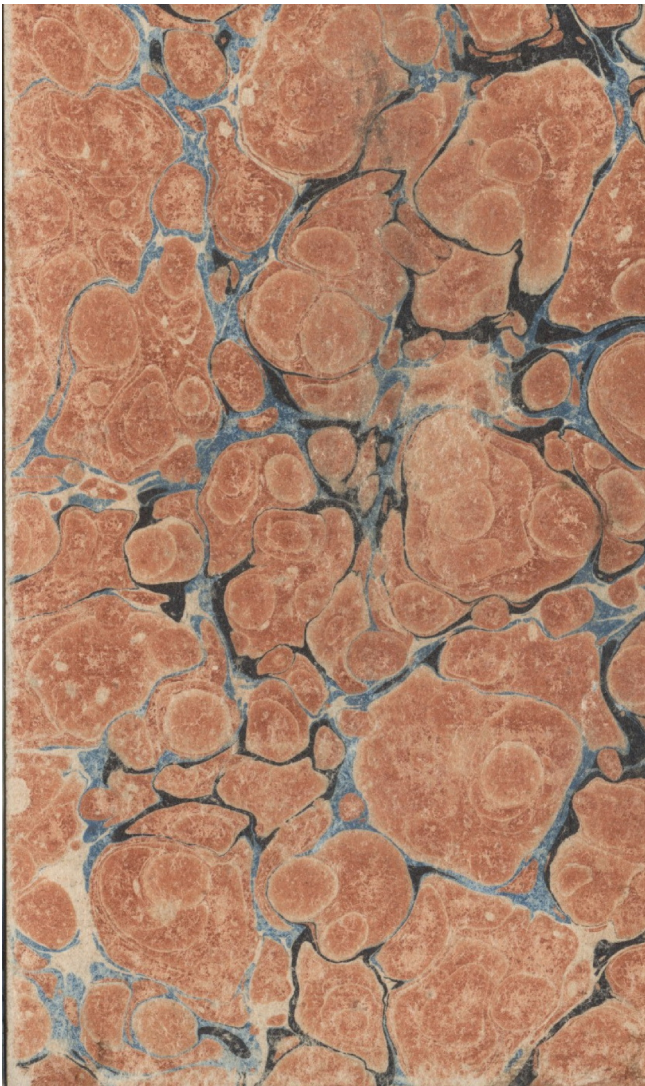


Figure 1 Globular peach

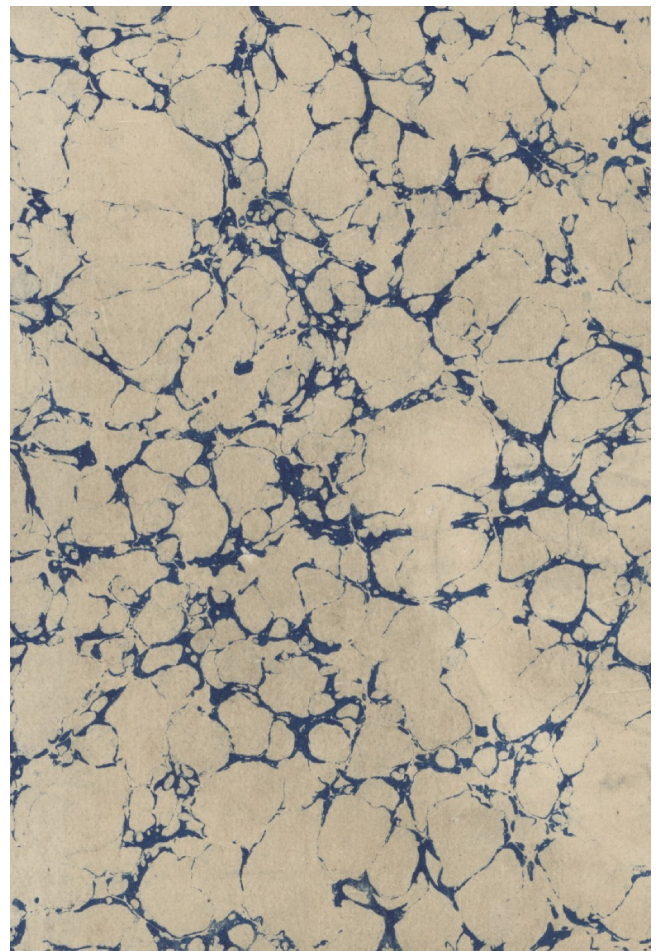


Figure 2 Combed maroon

Figure 3 Swirled red



Figure 4 Veined blue



No doubt if a customer wanted a map mounted with marbled covers, he could choose one or the other. And if he was sufficiently determined he could have another type of marbling but the paper would have to be bought in specially; he might be charged extra and there would be a delay - so most customers accepted the choice offered.

Most other sizeable map agents followed Stanford's example. It wasn't blind copying. Some customers no doubt liked uniformity, so wanted their new maps to look like ones that Stanford had mounted for them years before. And papers like figure 1 are all very well as end-papers in books, but one doesn't want to stare at them too long: they are too much like histology slides.

A certain number of customers obtained their maps from small firms who did more bookbinding than map-mounting. They had marbled papers in stock for endpapers, but they didn't stock anything specially for maps. Such customers, if they were offered a choice at all, were presented with options very different from those Stanford would offer.

The conclusion I draw from this is that the small proportion of maps in odd designs have been mounted by such small firms. It doesn't necessarily say anything about the date of the maps.

This is all very speculative: there is a dearth of hard evidence. It is at least possible that maps mounted before 1870 show a greater diversity of designs: I haven't seen enough specimens to make even a tentative assertion. A statistical examination of the catalogue of a large institution might provide more of an answer - but only if the catalogue uses a consistent vocabulary for the different sorts of marbling and attempts to estimate the date when each map was mounted. If *dog* may mean an Alsatian or a poodle then all we have is a dog's breakfast.

Afternote: Several examples of marbled covers are shown in the Map Agents page of the online map covers collection at www.charlesclosesociety.org/coversagents. Scanning the Stanford specimens, I was struck by the Glen Feshie map as having a very unusual paper in what is known as Spanish style: the bath is swished from side to side to produce the diagonal lines with varying intensity of blue.



Can anyone suggest the provenance of this survey pillar, located at SY138876 on the South West coast path, about 700m east of Sidmouth. The pillar is approx. 36cm high above ground; its top is about 18cm by 19cm; its face is carved with an arrowhead, in the style of a Board of Ordnance arrowhead, and the numerals 1826. This does not refer to altitude, but could be the date; the style of the numerals is consistent with that of early 19th century. There is no horizontal benchmark above the arrowhead. However, the right angle between the vertical face and the flat top of the pillar is chamfered, which suggests that the pillar resembles a 'rivet' from which a bronze cap containing the horizontal benchmark has been removed; however, these were introduced only after 1835. I infer, therefore, that the pillar is a former mark that was surveyed during the Interior Survey of

topography between triangulation lines from 1801 onwards and that was later upgraded. It does not appear on the 1841 tithe map; the Devon Record Office copy has obliterating damage at the critical point.

David Jenkinson

Rivers and their catchment basins

Michael Spencer

Richard Porter's 'Mapping river basins'¹ impinged on my hobby of making a list of all the mountains in Great Britain over 500m high. I call this a hobby because it has already occupied more than thirty years, and there seems no sign of any immediate completion (though I think the National Library of Scotland's putting all the modern 1:10,000 maps on line will help a great deal).

In order to arrange my hills into coherent groups, I consider them all as being situated on ridges that connect one summit with the next, with low points on the ridges as the topography dictates; and clearly the delineation of river basins forms an important input to this concept. I was therefore very pleased to obtain a copy of the OS *Rivers and their catchment basins* ten miles to the inch map of England and Wales through the good offices of our member David Purchase.

The actual date of the map is not shown on David's copy sent to me, which appears to be made in a dozen sheets on an A3 printer. David suggested 1868. The title data includes the statement that rainfall data as shown on the map is taken from Symons' *Rainfall*, 1867; so that 1867 for the map, as Richard suggests, appears to be pushing it a bit. Maybe a member with a complete title panel can clear this up.²

Use of the map in my concept

In my concept, each hill is joined along a definite ridge to the next higher hill. Other hills on the same ridge, lower than either, are not relevant. Following the ridge is mainly intuitive, particularly when using layer-coloured maps such as Bartholomew's, but a problem arises when looking for the next higher hill to Ben Nevis. Clearly this is somewhere on the Continent, and the line of the ridge must be traced through France and under the Channel, where the important line is that of least depth. Admiralty Chart 2451 does the job.

A lifetime of painstaking research (well, it sounds good) shows that the line of least depth from France to Britain comes ashore in the parish of Fairlight in Kent. There is a trig point, 220 feet, TQ875116, at the eastern end of a small ridge leading along the coastline eastward from Hastings, and this is the end of the watershed in Southern England, whose northerly end is the minor hill The Roaches in Staffordshire. The route of the intervening ridge can be very easily determined from the OS *River basins* map. It can be seen to lie between the following sets of basins:

West and South: Weaver; Severn; (Bristol) Avon; (Hampshire) Avon; Test; Itchen; (small streams—on larger-scale maps called the Meon); Arun; (Sussex) Ouse; Cuckmar (now more usually Cuckmere); Old Haven (see further below).

East and North: Trent; Welland; Nen (now more usually Nene); (Great) Ouse; Thames; Medway; Rother.

¹ *Sheetlines* 112, 42.

² See below.

These names are taken from the “Table of lengths and areas” (see below) that accompanies the map. For England and Wales, the Table lists, and the map shows, a total of 215 basins, of which 71 have no name but are merely called “small streams” (as for example that between the Itchen and the Arun). The rest are identified by the name of their major river, that is, the name of the eventual effluent from the basin into tidewater. Basins are all colour-coded so that their boundaries are easily seen.

Rivers are hard to follow within the very flat lands of the Pevensey Levels, and many are enticingly called a “sewer.” It seems clear that the Old Haven has attained a well-deserved obscurity. The major stream in this basin is now Waller’s Haven, which enters the sea at Pevensey Sluice. This same basin also contains a stream called Combe Haven, well separated from Waller’s Haven by a ridge over 200 feet high, and entering the sea by a separate mouth between Bulverhythe and St Leonards. This lumping of separate streams into a single basin leads to some difficulties, as discussed here and below.

Using the Admiralty chart in this way also identifies the true position of the entry of the main water parting of Britain into the English Channel. This is not dependent on any author’s feeling for what might be right, neat or desirable: it depends only on the topography. It is important to consider the topography of the British Isles in its relationship to that of the Continent, and to recognise the line of least depth that connects them. Thus the view of Stamp and Beaver, taking the line of the main water-parting of Britain into Lyme Bay, is shown to be indefensible.

Difficulties

I have identified one major error, resulting from draughting perhaps less careful than we are used to from the OS. This error shows the Dee near Chester crossing its basin boundary into the adjoining one, but in fact the line emphasised in black, the usual colour for rivers, is the course of the Ellesmere Canal. Other canals are shown in blue. I haven’t looked for other errors: that one struck me because it’s in the area where I grew up, and naturally that’s where I first looked.

Various difficulties arise in connection with some areas. For example, look at the extract showing Anglesea (the usual spelling in the eighteenth and nineteenth centuries). Five river basins are shown, keyed to the Table by their Roman-

numeral designations. (The reference to Basin 56, in the top left corner, unfortunately lies right on a fold.) Basins 56, 59 and 60 have river-names; Nos. 57 and 58 are each “several small streams.” No. 56, the basin of the Alaw, includes a number of lesser streams not tributaries to the Alaw at all, and reaching the sea independently. It is difficult to accept that they are in “its” basin. No 60 covers the whole length of the north shore of the Menai Strait: the Braint certainly picks up one end of this, but the northern end has nothing to do with



the Braint at all. Numbers 57 and 58 are just incomprehensible: the criteria for determining the boundaries of No 57 are clear enough, lying as it does between the Alaw and the Cefni, but two of the included streams are quite respectable and there seems no real reason why they were not separated out.

This argument is supported by the tabulated areas of the basins:

57, several small streams, 69 sq. mi.

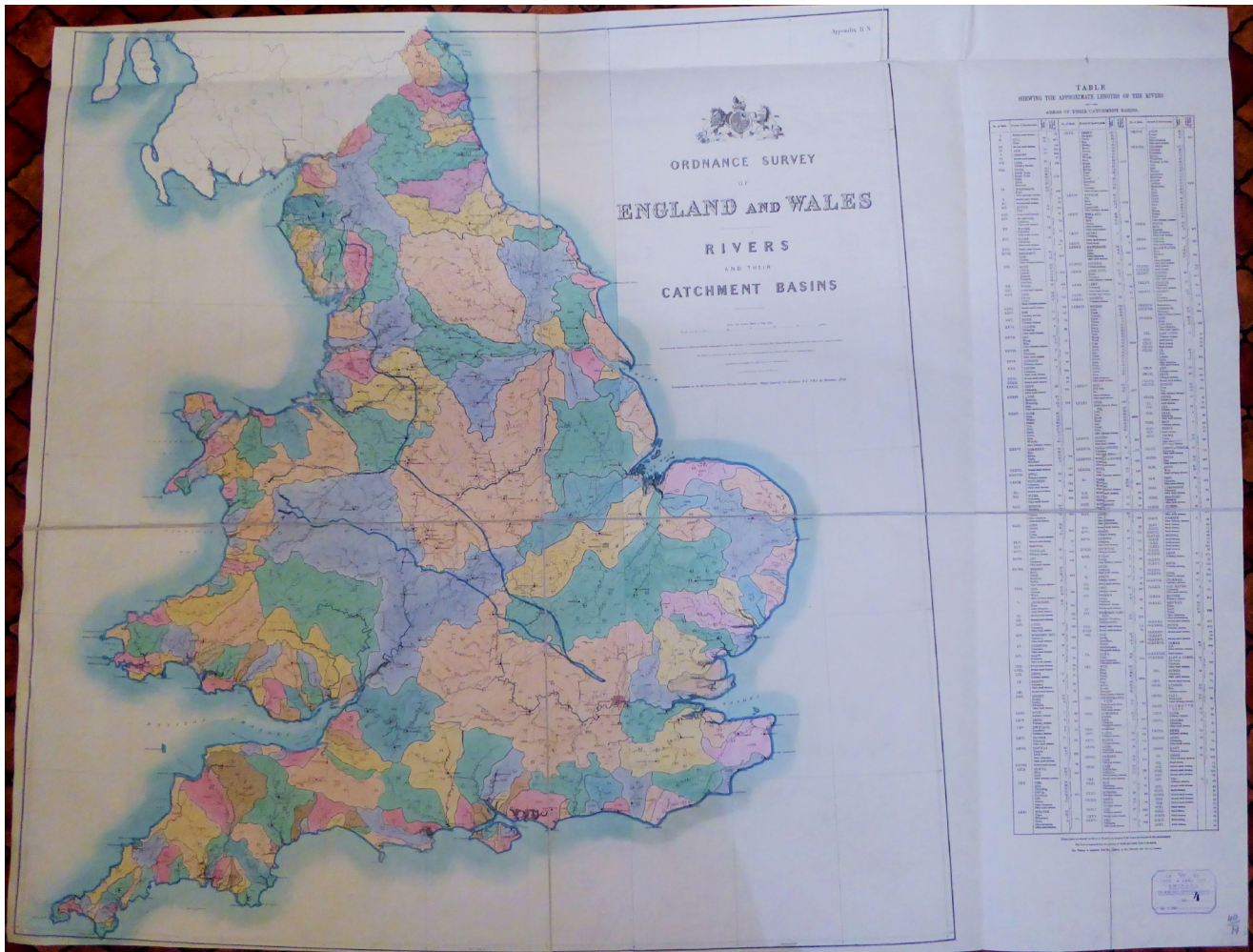
56, Alaw, 58 sq. mi.

60, Braint, also 58 sq.mi.

58, several small streams, 47 sq.mi.

59, Cefni, 41 sq.mi.

It seems to me that everything hinges on whether the major river in the basin has a name on the ten-mile map or not. This whole map is crying out to be replotted on a much larger scale, with the “small streams” given some importance and independence.



Bill Hemwood writes: I share Richard Porter's enthusiasm for the *Rivers and their catchment basins* map of England and Wales. Some years ago, I was fortunate to find a copy of it (*above*) and of the *Contoured map of the Thames Basin*, both previously owned by the Great Western Railway and languishing in a pile of old railway plans. Incidentally, the two blue lines superimposed are notional routes for pipelines to London from proposed reservoirs in North Wales

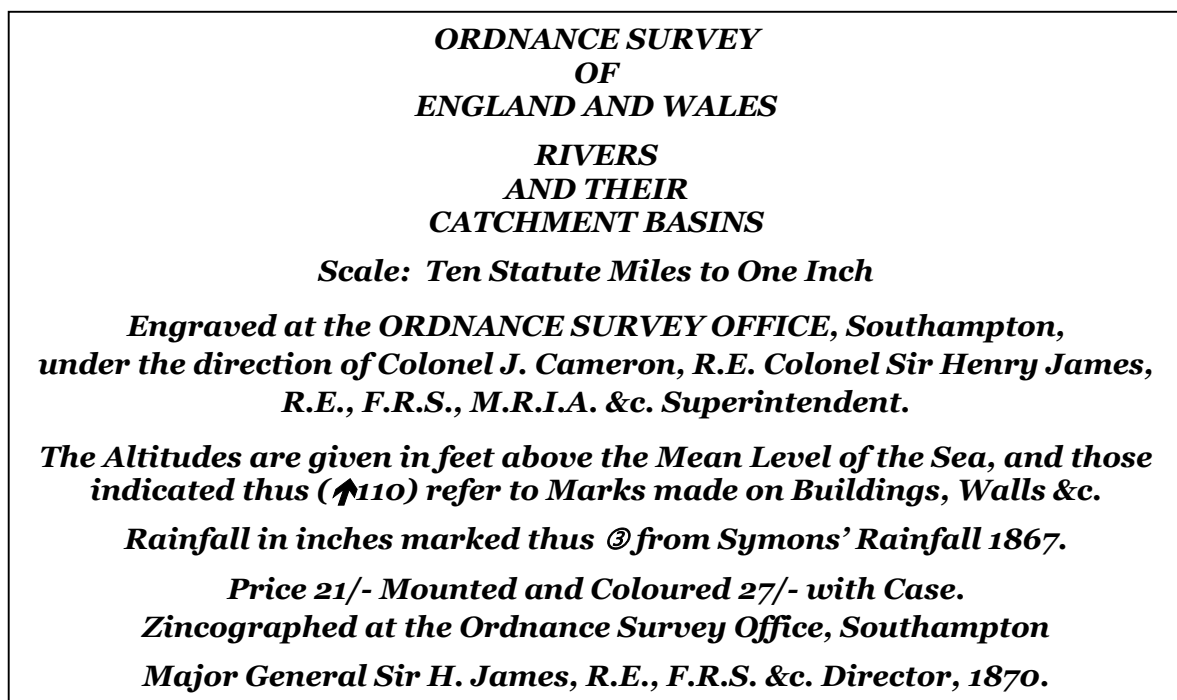
(suggested by John Frederick Bateman) and from the Lake District (put forward by GW Hemans and Richard Hassard). Of course, neither route got used but the idea was later taken up by northern cities.³

But I also share Richard's doubts about the feasibility of adding it to the *Maps from the past* series – not only due to size but also because some of the detail (notably rainfall figures for 1867) is very small and fine and would need a very high-resolution scan to be legible.

Second, a correction. Richard understandably assumed that the England and Wales sheet is divided north/south, but it's actually in east/west halves, the join being along the Greenwich Meridian – so far east because much of the eastern half is taken up with the extensive tables to which he refers.

Finally, I can add to Richard's list of later catchment area maps: *The Field map of the Rivers of Great Britain* (1959). The title is incorrect as the text in the legend begins: 'The areas outlined in red approximate to the principal catchment areas of the United Kingdom and Eire ...' i.e. it covers the whole of the British Isles. It is portrait, 20 x 24.5 inches within the neat line, scale about 1:1,650,000. The text refers to a book which I have not traced; I found the map alone in a rummage box. Red overprint depicts and names 100+ catchment areas in England and Wales, 50+ in Scotland and about 35 on the island of Ireland. Each has code letters for the types of fishing to be had – so a successor to the 1861 Royal Commission map? The base map is curious. In grey outline, it is 'Printed by George Philip ...' but also has the note 'Edward Stanford ... 1959'. It has been updated to name Northern Ireland and Eire but depicts railways as at 1849/50!

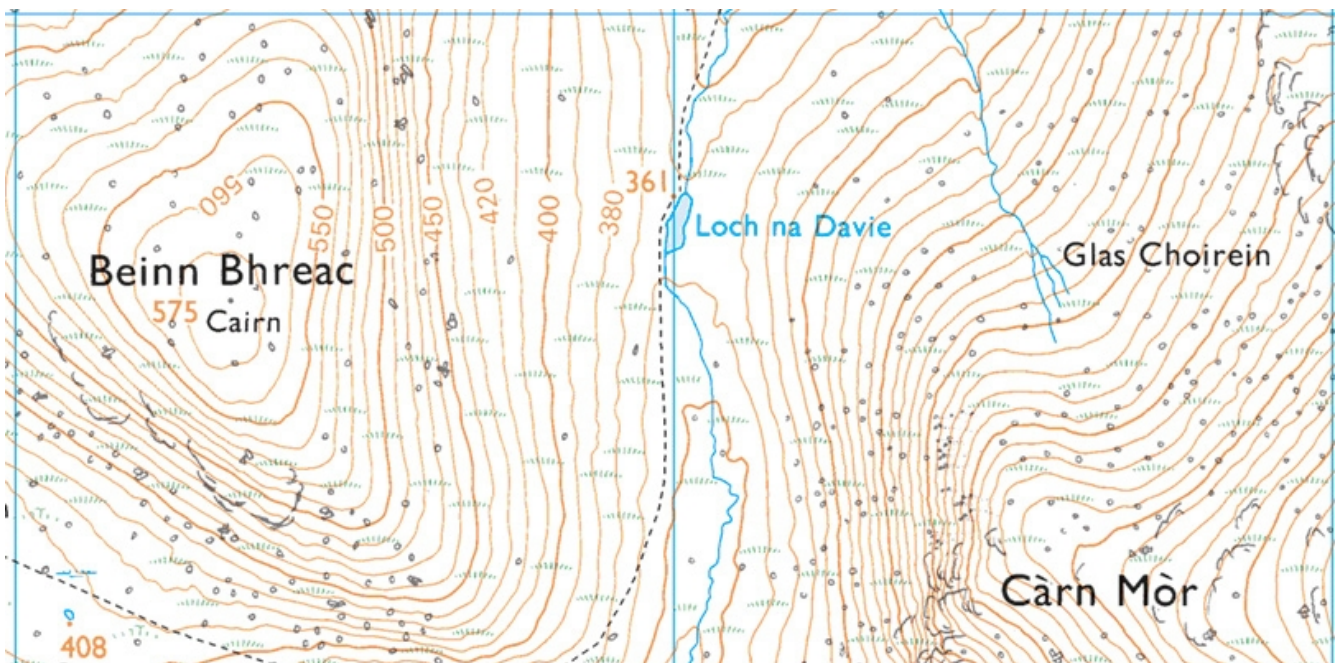
So whether by Philip or Stanford it was about 110 years old when used by *The Field*, though I doubt that their readers noticed or cared.



³ See Tim Nicholson, 'The OS and a 19th century environmental crisis', *Sheetlines* 31, 12-18.

TABLE
SHEWING THE APPROXIMATE LENGTHS OF THE RIVERS
 AND THE
AREAS OF THEIR CATCHMENT BASINS.

No. of Basin.	RIVERS & TRIBUTARIES.	Length in Miles.	Area of Basins in Sq. Miles.	No. of Basin.	RIVERS & TRIBUTARIES.	Length in Miles.	Area of Basins in Sq. Miles.	No. of Basin.	RIVERS & TRIBUTARIES.	Length in Miles.	Area of Basins in Sq. Miles.
I.	Several small streams.		37	LXXII.	TRENT.	147		CXXVII.	AVON.	62	
II.	TILL.	38			Derwent.	54			Frome.	19	
	Glen.	10	231		Tarne.	22			Chew.	10	891
III.	Several small streams.		129		Eau.	8			Other tributaries.		
IV.	ALN.	18	104		Meden.	42		CXXVIII.	THAMES.	111	
V.	COQUET.	40	240		Mann.	13			Cherwell.	40	
VI.	Several small streams.		21		Devon.	19			Evenlode.	27	
VII.	LINE.	20			Leen.	11			Dorme.	13	
	Tributary streams.		104		Wreak.	21			Windrush.	25	
VIII.	TYNE.	34			Soar.	34	4052		Thames or Isis.	43	
	North Tyne.	39			Mease.	15			Ock.	12	
	South Tyne.	38	1130		Anker.	21			Ray.	12	
	Rede.	22			Blythe.	13			Thame.	27	
	Allen.	13			Tame.	29			Lamborne.	14	
	Derwent.	30			Cole.	5			Emborne.	16	
IX.	WANSBECK.	22			Dove.	29			Kenet.	45	4618
	Font.	12	126	LXXIII.	Manyfold.	11			Loddon.	15	
	Other tributary streams.				Wye.	16			Blackwater.	10	
X.	Several small streams.		18		Churnet.	23			Wey.	38	
XI.	Several small streams.		37		Other tributary streams.				Mole.	35	
XII.	BLYTH.	16			WITHAM.	40			Chess.	7	
	Pont.	16	131		Till.	14	1079		Colne.	26	
XIII.	Several small streams.		31		Bain.	24			Brent.	10	
XIV.	WAMPOOL.	14			Brant.	13			New.	35	
	Tributaries.		78		Langworth.	9			Lea.	50	
	Other small streams.			LXXIV.	Other tributary streams.				Maran.	11	
XV.	WAVER.	12	70		WELLAND.	42			Beame.	11	
	Tributaries.				Wash.	19	760		Stort.	19	
	Other small streams.				Glen.	31		CXXIX.	Other tributary streams.	45	
					Chater.	15			STOUR.	20	407
					Other tributaries.				Brett.	6	
				LXXV.	Other small streams.				Boxford.		
					ARTRO.	7			Other tributaries.		
					Tributaries.				Other small streams.		



John Davies adds: Loch na Davie, (NR 950 456) in the hills above Lochranza on the Isle of Arran, has the unusual attribute of emptying into two different river basins. The loch is fed by underground streams and – fun fact – provides the water from which the Arran single malt whisky is distilled.

Sir Henry James' Domesday Book

Rob Wheeler

Introduction

In *Sheetlines* 84, Bill Henwood gave an excellent account of Sir Henry James' production of a facsimile of the Domesday Book which concludes: 'There have been many subsequent reproductions of the Domesday Book but the 1860s facsimile stands comparison with most. Whether it should have [been] published by the Ordnance Survey is another matter.' I believe that conclusion is in danger of being misunderstood; I also want to draw attention to a development which has led to the OS version being used more heavily than for many years.

The potential misunderstanding revolves around that word *reproductions*. To produce a satisfactory photographic reproduction requires the volumes to be disbound. This was done in the 1860s. The next rebinding was in 1952, followed by another in 1984-6. This last occasion provided the opportunity for the photography which formed the basis of the (very expensive) Alecto edition. Only the OS and Alecto have ever published reproductions based on photography.

The first ever reproduction had been made by Abraham Farley in 1783 using a specially-made set of type that reproduced the forms of the letters used by the original scribes, including eleven different abbreviation symbols. This was an amazing project, lasting sixteen years, and produced a result that bears an astonishingly close resemblance to the original. It was reproduced, along with a modern translation, in the Phillimore edition of 1975-86.

From the 1860s onwards, various extended Latin texts (ie with the contracted words in full) have been produced, along with English translations. For most local historians these are perfectly adequate. The problem is that many of the abbreviations were ambiguous. For example, *mol'* may stand for *molinum* or *molendinum*. Both words mean *mill*, and the received wisdom is that there is no difference in meaning, but the difference may tell us something about the particular source from which the Domesday scribe was working.¹

Recent scholarship on Domesday Book has drawn attention to entries squeezed into insufficient space, a practice which implies that material was not to hand when the scribe was working on the preceding and following entries, so space was left, which turned out to be inadequate.² To spot something like this, Farley will not serve, and one needs to consult a photographic reproduction.

The most recent development has been the development of digital editions which allow the user to start with a place and be given links to the entries concerning that place, or to start with a landowner and be given links to the descriptions of his holdings, or to see the Domesday places that lie in the vicinity of some specified place.³ Ideally the user might like the links to show the latest

¹ David Roffe & KSB Keats-Rohan (eds), *Domesday Now*, 2016 - see chapter by Frank Thorn.

² For an example, see Peter Sawyer, *Anglo-Saxon Lincolnshire*, 1998, Fig 1.1.

³ Roffe & Keats-Rohan (eds) - chapter by A Lowerre.

photographic images but these are only available behind a pay-wall. If one wants to check the render of 75,000 eels from Harmston, the payment required is reasonable enough; if one wants to look at line-spacing over an entire county it is unaffordable.

For that reason, the Open Domesday project, www.opendomesday.org, offers links to the OS photolithographed edition.⁴ This is by no means as clear as the latest photography but it serves perfectly well for most purposes. That is why Sir Henry James's work is seeing more use than it has for many years.

That surge in use stimulates questions about the OS volumes, questions which have been ignored by its users – who generally know little about lithography – and also by CCS members, who tended to regard the publication as a mere curiosity. The question of most relevance to the modern user is how much touching-up was done: is one really looking at the equivalent of a photograph? The second, and related question is what technical means were used to produce a facsimile which, like the original, is in red and black.

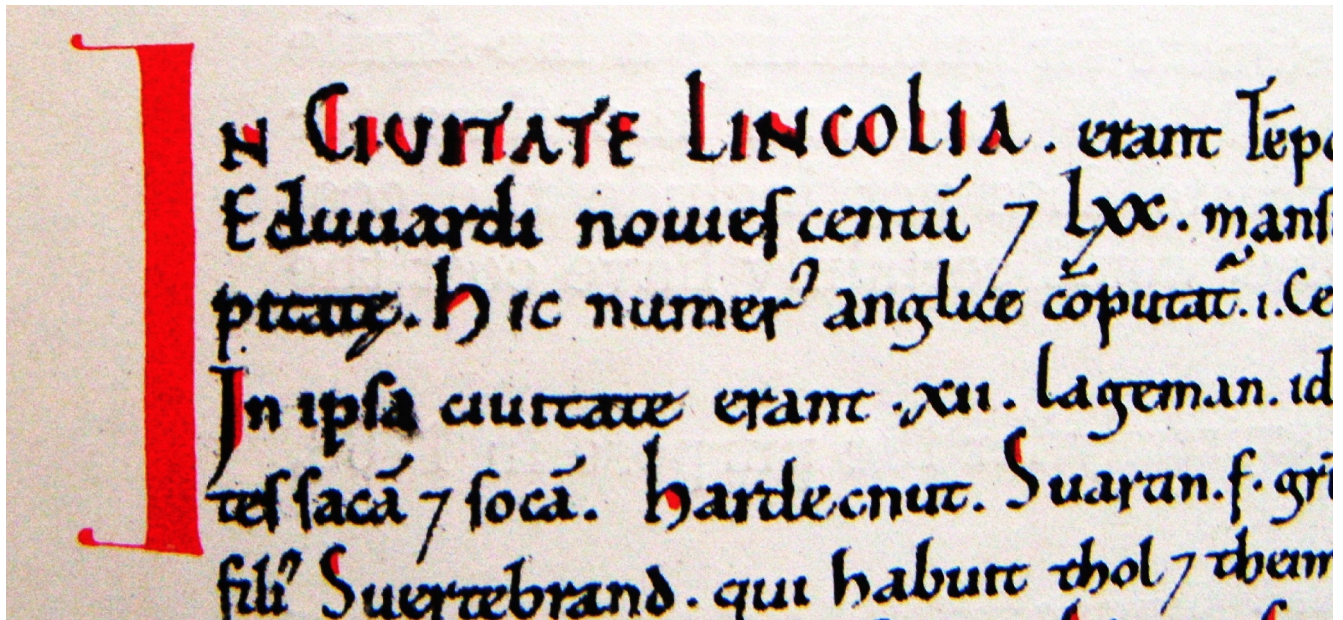


Figure 1: Extract from *Lincolnshire Specimen* page

Untouched by human hand?

The first question might appear to be answered in the introduction to the very first volume.

“In examining copies made by Photo-zincography, it must be remembered that ... not a single letter of the copy has been in any way altered for the sake of making them more distinct ... I have thought it better to print the copy exactly as it is produced by the photograph.”

That appears clear enough. But when we go on to the second question, we shall find that James was being economical with the truth.

⁴ One also encounters references to www.domesdaymap.co.uk. This appears to be a derelict version of the same system, with much of the functionality being non-functional.

Printing technique

Much of this account will relate to Lincolnshire. The county was published late in the sequence, so represents the Survey's mature practice on this project. It also has one rather unfortunate distinction, in that a couple of pages are disfigured by dark patches that seriously obscure the text. They seriously obscure the black on the OS facsimile, suggesting that this is indeed a photographic image without any cleaning-up. However, the red has not suffered in the slightest. This suggests that the red is worthy of particular attention.

Figure 1 shows part of the Specimens page from the Lincolnshire introduction. It has the unusual feature (for the Domesday Book) of a large initial letter, wholly in red. There is no ornament as such, just an elegant flourish at the start of the two serifs: a balanced and tasteful composition. The same section of text is reproduced in its proper place in the main body of the book. Again, there is a large red 'T' with long serifs to the left, but this time there are no flourishes at their extremities. Clearly both of these cannot be photographic reproductions.

To find the truth, one needs to consult the Alecto reproduction. This shows a large red 'T' with serifs elongated to the left but also extending to the right. At the end of the top one is a tiny disc: it may possibly be a pin hole in the parchment that was used in ruling-out and has become filled with red ink. There is a similar disc on the lower serif a couple of millimetres short of its end. Quite clearly the red on the Specimens page has been hand drawn. Perhaps the draughtsman was told to produce something a little more showy than the original. More creditably, the draughtsman was perhaps working from an image on which the red had reproduced poorly: he could see the discs but couldn't make out what they were and assumed they represented a flourish which had barely come out on his reproduction. Perhaps the continuation of the serifs to the right had reproduced so poorly that he missed them altogether. If so, the 'T' in the main text would appear to be hand-drawn also, but in this case the draughtsman missed the tiny discs, or decided they might be unintentional blotches.

One can find other signs that the red plate was hand-drawn with a pen. The second letter of the second word in figure 1 is another 'T', this time in what the modern typographer would term 'small caps'. The red 'shadow' ends in an acute angle – about 40° from the vertical. On the original, the shadow ends at an angle of about 60° from the vertical. The draughtsman was holding his pen at a different angle from the scribe.

Whereas the Specimens page only has red 'shadows' (apart from that initial capital), the main text includes headings in red. It seemed unlikely that these had been written in a convincing 11th-century hand by a 19th-century draughtsman. Yet once again there turn out to be key differences. One of these concerns the letter 'x' in Roman numerals. Tenants-in-chief are numbered, and these numbers appear in red in a list at the start and then again by the side of each tenant-in-chief. The fourth line of figure 1 has an 'x' in the numeral '.xii.'. Observe how the bottom-left arm of the 'x' ends in a serif - or a flourish; what one calls it is

irrelevant, what matters is that it is angled up quite sharply. In contrast, our draughtsman likes to start his stroke with the pen moving almost horizontally and then to curve up to the 45° needed for the up-stroke of the 'x'. His 'x' is more elegant; it is also easily distinguished. His other letters are more exact copies of the original but the scribe often forms them imperfectly - for example, the up-stroke of his 'A' often meets the down-stroke some way below the apex; the draughtsman tends to draw them the way the scribe ought to have done.

In order to ensure correct registration, this drawing must have been done on an image of the manuscript reproduced in such a manner that the red reproduced adequately but in a different manner from the black. A grey tone would serve. It would be possible for the image to be formed directly on the plate, but if printed on paper the draughtsman could form his letters the right way round using lithographic ink and this could then be transferred to the red plate.

One other piece of Lincolnshire evidence ought to be mentioned, though I am unsure of its significance. The lower third of page XV can exhibit a speckle of red on letters that ought to be wholly black. When I first saw it, I supposed it a failing in an automatic process of colour-separation; but it could be accounted for if the non-printing (or non-reproducing) drawing base for the red material had actually printed, albeit very weakly. The phenomenon does not appear on all copies: it is clear in the CUL copy but is definitely absent in Lincoln Central Library's copy.

To summarise the conclusions on Lincolnshire: the book was printed from separate black and red plates: the black plate was produced by photozincography, done in such a way that the red did not reproduce; the red plate was drawn by a (very capable) draughtsman using some form of drawing-base produced in such a way that the red did reproduce.

Hampshire – and Cornwall

Hampshire was the fifth county to be issued. Inspection of the Hampshire volume yielded similar evidence to that described above. It can therefore be assumed that it was produced in the same manner as Lincolnshire. Likewise, all the sixteen volumes produced after Hampshire and before Lincolnshire were presumable produced in this manner.

The reason for examining Hampshire is that Richard Oliver very kindly sent me details of an estimate for the production of the Hampshire volume he had discovered.⁵ This is the only known estimate for this project but its existence, along with the change in the wording of the preface which Bill Henwood mentioned, from "I have been directed to publish this volume" to "I have been directed to publish the whole work", indicates that approval for the project was initially given one volume at a time.

⁵ File 14418/61 in TNA T1/6332A.

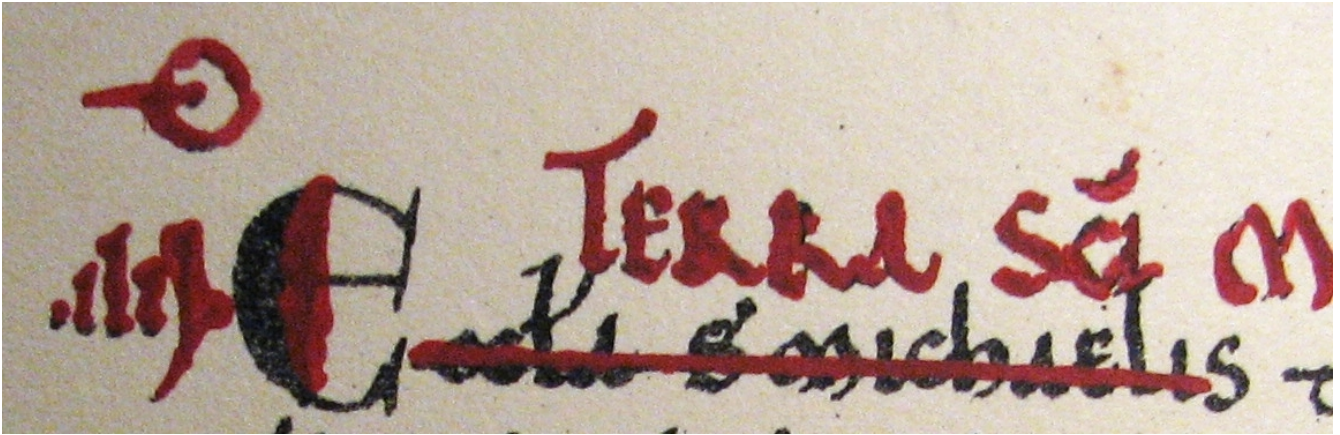


Figure 2: Extract from Cornwall.

This Hampshire estimate implies a process in which the title page and the specimens page are printed from separate black and red plates, but the main text is printed in black with the red being applied by hand, using a stencil. Figure 2 shows an extract from the Cornwall volume (the first county to be reproduced) showing the heading for the fourth of the tenants-in-chief. Note first the tenant's number, ".iiij." where the final stop has merged into the 'j'. On the original the individual letters and the stops are clearly separated; this shows the tendency for the red ink to spread, which seems to be a problem with stencilling. Secondly, note the rubrication of the large 'E' of 'Ecclesia', with its wavy outline towards the bottom. This is not a phenomenon one would see from a pen-stroke. Thirdly, the contraction sign in "sčī", made with a single pen-stroke, displays similar blooming; and the islands of white on the two 'R's (but not the 'A') of TERRA have filled with red. This shows that, despite its technical difficulty, the lettering itself was done by stencil, and somehow the island in the 'A' was preserved. Fourthly, one can see that the "čī" has been printed in black (perhaps not very clearly) and inked over in red.

Overall there can be no doubt that all the red of the main text was indeed applied by stencil. How these stencils were made is a puzzle. The Hampshire estimate quotes a cost of 2s for each stencil, the same sum as that quoted for making the black plate for each page. Is it possible that a zinc plate was used for the stencil, the red lettering being transferred from the black plate using transfer paper, the red 'shadows' being hand-drawn, and that gum was then applied to the rest so that the red parts could be etched through to produce a stencil?

The other puzzle is the rationale for printing the specimens page (and title) by a different process from the main text. Even more puzzling, the production cost per page (for 250 copies) by stencilling exceeded that for colour-printing. It may be significant that the specimens page has no lettering, so the red plate could be easily prepared by a litho-writer. But if the lettering could be transferred in order to make a stencil, the same process could have been used to make a red printing plate.

Stencils were only used for the Cornwall volume. Middlesex, Sussex and

Surrey, which came after Cornwall but before Hampshire, appear to have been printed. So why did the Hampshire estimate assume stencilling? Was the financial approvals process so slow that the estimate went in while there were three counties in the production pipeline?

Conclusions

Those interested in Domesday Book as a document need to appreciate that, while the black of the OS facsimile is a photographic copy, the red is not. What the OS shows is broadly correct, but anyone interested in exact letter forms needs to use the modern Alecto edition.

The initial impression that the publication represents a technical breakthrough by the OS proves false. The printing of the black image by photo-zincography may indeed be the most extensive use of the technique up to that date, but the methods used to produce the red were not novel: printing by two plates in different colours and stencilling were both well-established in the print trade.

The only technical innovation that may have occurred was - just possibly - in the manner of producing stencils for Cornwall. This proved a dead-end.

A speculative postscript

The Lincolnshire preface credits a 'Mr Appel' with transferring each photograph to the plate. That seems to imply a purely mechanical operation. However, Rudolph Appel was a patentee of the anastatic process who formerly had premises at 43 Gerrard Street, Soho, to which he appears to have moved from Ipswich in 1848 or 1849. At the Great Exhibition, he received a commendation for a process enabling images to be transferred to zinc.⁶ In 1855, he was approached by Edmund and Louis Schehl who wished him to make lithographic copies of Prussian bank notes.⁷ His evidence does not indicate whether the note was printed in more than one colour, but Appel was able to produce a separate plate for the water mark. During the Crimean War he had copied Austrian maps of Russia and Turkey for the War Office.⁸ By 1857, Appel was bankrupt, and for the next 35 years he worked for the Ordnance Survey.⁹ So was Appel responsible for improving the colour-separation process to the extent that the black plate on the later volumes excluded the red matter?

Events diary:

Tuesday 15 January, Cross Street, Manchester, 1pm. Manchester Geographical Society talk *The Secret Soviet Maps of Manchester, the North and the World*. www.mangeogsoc.org.uk

Thursday 24 January, Westminster, London, 6pm. UKGeoForum Annual Lecture by John Davies and Alexander J Kent. www.ukgeoforum.org

⁶ David McKitterick, *Old Books, New Technologies*, 2013, 105

⁷ www.oldbaileyonline.org - search for Schehl.

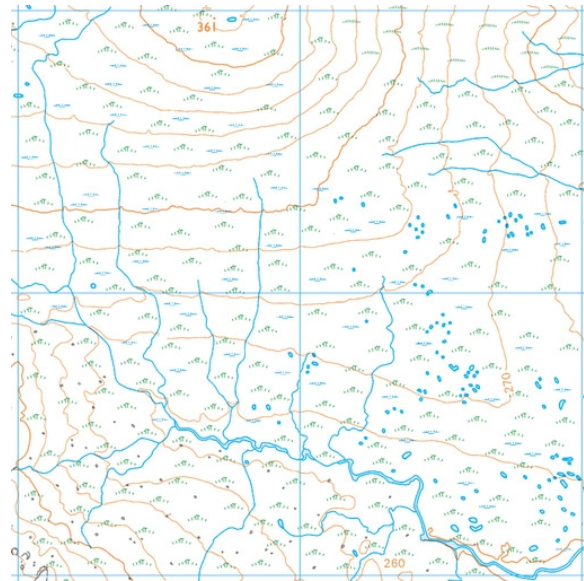
⁸ Journal of the Society of Arts, 18 Dec 1857, p73.

⁹ Pickering & Chatto (antiquarian booksellers), *Bulletin* 41, Jan 2014, item 28 in the catalogue (available on-line).

Explorers: Least, most and right all along

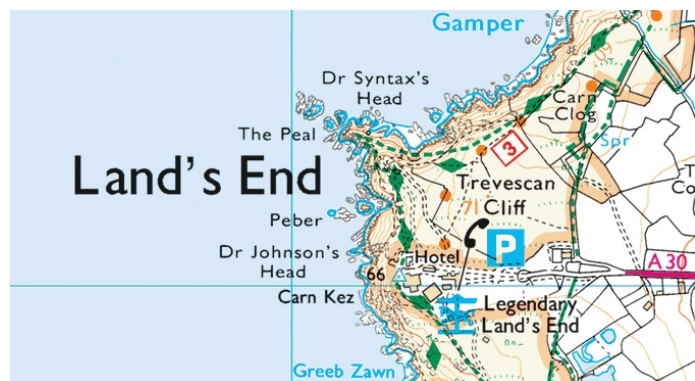
According to Ordnance Survey blog of 10 September, the ten least popular OS maps are all *Explorers* and all Scottish.

- 440 Glen Cassley & Glen Oykel
- 427 Peterhead & Fraserburgh
- 333 Kilmarnock & Irvine
- 417 Monadhliath Mountains North & Strathdearn
- 327 Cumnock & Dalmellington
- 449 Strath Halladale & Strathy Point
- 443 Ben Klibreck & Ben Armine
- 343 Motherwell & Coatbridge
- 334 East Kilbride, Galston & Darvel
- 335 Lanark & Tinto Hills



Four typical grid squares on Explorer 440

Unsurprisingly, the three best-selling *Explorers* are all in hugely popular National Parks close to major conurbations: OL17 Snowdonia, OL7 Lake District (SE) and OL24 Peak District.



As reported on BBC News website,¹ Cornwall Council has voted to add an official apostrophe to “Land’s End”. Clarification on the punctuation was needed because of proposed changes to electoral boundaries that left some council ward areas needing new names. A debate on ward names lasted ninety minutes, and included grammatical input from a Cornish history expert. Councillors heard Land’s End has been spelled with the apostrophe in two different places or not at all, which has led to the uncertainty.

This won’t change the maps, as Ordnance Survey has always used the chosen style, as seen in six-inch sheet Cornwall LXXVIII.NW, 1888, (courtesy of National Library of Scotland), above left, and modern *Explorer* 102.

Perhaps they consulted Dr Syntax, whose head can be found immediately to the north.

¹ <https://www.bbc.co.uk/news/uk-england-cornwall-45499594>

Kerry musing

David Archer

Kerry musings' occasional questions number 57: Where can you see the original Arthur Palmer artwork for the cover of the *Bristol District* map? Question number 58: And the original artwork for the unused *New Forest* cover, shown as *Map cover art* 35? Answers: in the Charles Close Society Archives,¹ along with Tim Langner's donation illustrated on page 39 of the last issue of *Sheetlines*.² A veritable treasure trove of Ordnance Survey material, still in its infancy but growing rapidly in volume, scope and depth. Such single subject archives are of tremendous importance to the circle of users they serve, in this case, anyone interested in the affairs of the Ordnance Survey, especially our members. I can remember frequent references in late-1960's interviews in *Melody Maker* to individuals and groups visiting Cecil Sharp House in London to plunder the archives for long forgotten folk songs and tunes. The archives: "The most important concentration of material on traditional song, dance and music in the country". Our archives are fast becoming, indeed, possibly have become, the most important concentration of material on the Ordnance Survey anywhere in the world. But they will always benefit from more material and more use. Hence this nudge.

The word 'archives' sounds very Dickensian; dusty old ledgers, cobwebs and musty boxes stored within dark and gloomy rooms. Not so. The new Cambridge map room is as bright and modern as can be. True, some documents are old and well used, but all are stored in nice fresh archival standard boxes within a regulated environment. All of which means you will not get filthy looking at anything and the surroundings are more than pleasant.

Our archives contain all sorts of material, and reflect the interests of those who made donations. For example: *Abridged list Ordnance Survey small-scale maps*. OS Leaflet no.6/35/2 / *The Ordnance Survey 3-inch map of London*. OS Leaflet no.16/33/2 / *Ordnance Survey map of XVII century England*. OS Leaflet no.14/31 // *Double interpolation tables for the conversion of Cassini co-ordinates (old county originals) to National Grid co-ordinates / Current British military operational grids (as at 1st April 1973) / A modified rectangular polyconic projection / Computations book one. Hydrographic Department work, mostly concerning British coastal waters* // Popular and Fifth Edition maps with cover titles re-labelled / New Series, Revised New Series and Third Editions in agent's covers / OS half-inch Training Maps printed by commercial printers / Collection of OS archaeological maps, various states, in covers. Plenty of Irish material, map-sellers' catalogues and very large contributions from the Ordnance Survey, OSNI and the MOD. Thus, we have published and unpublished material, internal OS working documents, map proofs, catalogues of second-hand maps, of new OS

¹ Held within Cambridge University Library, Map Department. See Anne Taylor, 'CCS Archives catalogue on Janus', *Sheetlines* 94, (2012), 4-9.

² The only copy I can find on the internet, should you need to consult it.

maps, scarce maps, OS ephemera, leaflets and photographs; in fact anything to do with the Ordnance Survey.³ Supporting the archive, or vice versa, is the map collection of Cambridge University Library, which has the advantage of having received maps from the Ordnance Survey as a legal deposit library. A premier collection of OS maps and an archive relating to the affairs of the OS, all under one roof. The foremost collection of material on the Ordnance Survey, and growing. But you really should look for yourself by going to the society website www.charlesclosesociety.org, click on *CCS Archives* in the left hand box, and then on the *Janus* link at the top of the page.⁴ Scroll down and start clicking on the blue links, but not after ten at night or it will be morning before you realise it, if you have not already rushed to Cambridge.⁵

One might ask “Why do we need an archive?”, to which I would reply that our archives hold the stories behind the maps we are interested in. Stories needing a lot of research material. The archives hold the job files for the *Seventh Series*, which list all work undertaken on each sheet. But examples are also held of *Seventh Series* maps known as ‘travellers’, standard maps annotated with small corrections and details of inspections needed before the next corrected issue of a sheet.⁶ And before the first *Seventh Series* were on sale, much work had gone into the planning of this new series and in producing the final specification to which the maps were drawn. Much of this work is in the archives for those who are interested. Again, “Why do we need an archive?” Put it another way: in the absence of the CCS archives where would you start looking for such material? And never find it. As opposed to libraries, which might be said to hold material for current usage, archives hold material that might only be of interest in the future, once it has become history, but which needs preserving now because all too often, it is the only extant copy.

Already quite large, the CCS archives are still quite young and need building up. Why? Because a lot of what might be called basic documents are not present. This might seem strange, but it merely reflects the way in which our archives have been assembled, which has been mostly from donations, which reflect their owners’ interest in matters OS, which in turn, have often been non-mainstream. Hence, the archives have a great depth of information in some areas, yet are lacking in the more mundane, but essential material found duplicated in many members’ collections. And here, I would add that so much of what is of interest is slight in volume, ephemera, leaflets, booklets and such, and should be in the archives, despite being held in other public collections. It is so much easier for a researcher to call up something there and then, when it needs to be seen, rather than having to make a note and consult it elsewhere. Much of the archive’s content was bequeathed by CCS members. This is an outstanding strength, as

³ Additionally, some excellent answers on *ordnancemaps* really should be preserved.

⁴ <http://janus.lib.cam.ac.uk/db/node.xsp?id=EAD%2FGBR%2F3296%2FCCSA> for masochistic typists. Why cannot the website designer use <http://janus.lib.cam.ac.uk/CCS-archives/>?

⁵ My apologies to those without access to a computer.

⁶ A six-inch County Series traveller in the archives is illustrated on page 4 of *Sheetlines* 98 (2013).

what has been added is exceedingly focused, reflecting their varied interests and collection strengths. When alive, these members were active within the society, contributing in person at meetings, in their writings and through personal contacts. Such members knew the significance of what they had assembled, and by donating parts of their collections to our archives, often including unique copies, they ensured that everyone reading this will have access to that material, and more importantly, it will be available for others in the future.

For the average CCS member wishing to contribute to the archives perhaps the most difficult step is identifying material worthy of preservation in a public collection. So often, I have I been invited to look through a collection and whilst doing so have been told "It is all pretty standard, nothing unusual". And nearly every time, I have pulled out a little gem, unknown to most people. My advice is: if in doubt, offer it. If you want to help, spend thirty minutes looking at what the archives already hold and consider whether you have anything that would enhance the holdings. Roger Hellyer has led the cataloguing, with most items catalogued individually, and not hidden within 'a box of leaflets', as is so often found elsewhere. This means the search facility is pretty impressive; the first item mentioned above will return a hit if searched for by either 'Abridged list' or 'no.6/35/2'.

All right, assume someone reading this knows they have a few things which the archives might want. What next? The most obvious thing would be to offer them now, but failing this, make sure that they will be offered eventually. You could for example, mark each item and write a note to accompany your will, or even put it in your will that these are destined for the CCS archives, explaining what they are and where they can be found. Show a family member the items and explain where you want them to go, when the time comes. I am sure that a lot of members have come across what looks like a very nice map collection on a market stall or book shop, and on enquiry, it has been confirmed that they came from someone who had to 'clear a relative's house'. And always, one wonders what has already been sold, or even worse, destroyed as it was just 'papers and notes' thought to have had no value or interest. I know several older members who have started selling parts of their collections, and might not have considered whether anything might be of interest to the archives. If a scarce item is to be sold, I believe *it is essential* a copy be made and donated. Something is better than nothing. Surely many members over a certain age can afford to be generous to a society that has given them so much pleasure, even if they donate paperwork that has little monetary value? Indeed, such things are often hard to find in public collections.

In the above, 'donate' should probably read 'offer to the archives', as there will be situations in which refusal will be necessary, though this might not mean that an item is unwanted. I have offered things to our archives which were not really within its remit, but the Map Department of Cambridge University Library was pleased to take some of them. "Ah-ha", say some observant readers, "I thought that you were against the ever present and increasing southern bias in all things?" Yes, I most certainly am. But in the absence of an institution *actively*

building a major OS map collection in the north of England, it is better that such things are placed somewhere, and alongside our archives seems preferable.

Some members might wish to encourage the building of our archives, but have nothing to offer. Well, maybe they could consider a legacy specifically for the archives. If our annual accounts included an Archives Fund, it would both ease the pressure on Cambridge University Library to provide archive boxes and other materials, and would also enable the purchase of items which would otherwise not be acquired.

Cautionary note: Not so long ago, the owner of an exceedingly fine Ordnance Survey collection died. A most meticulous man, yet no will was found. A distant relative in Scandinavia inherited, and instructed a solicitor to see to everything. The solicitor engaged a local auctioneer to provide a valuation for probate and to dispose of the contents of the person's council flat. The most obvious nineteenth century material was valued and removed, and some more modern items were also removed for auction. The rooms full of maps and books that remained, would have been a honey pot at an AGM map market for many years, and contained many items *essential* for our archives. Eventually, having done little, the auction house lost interest and called in the council refuse department to clear the flat of this still very large OS and book collection. Act now, to make your wishes known.

Don't put Shetland in a box

New rules barring public bodies from putting Shetland in a box on official documents have come into force.⁷

Islands MSP Tavish Scott had sought to change the law to ban the "geographical mistake" which "irks" locals, by amending the Islands (Scotland) Bill.

The bill's "mapping requirement" has now come into force, although it does give bodies a get-out clause if they provide reasons why a box must be used.

MSP Peter Chapman calling it "impractical" and warning it would reduce the amount of detail in maps due to changing scales.

This was backed by the Ordnance Survey, which said inset boxes avoid "publishing maps which are mostly sea".

A spokesman for OS said: "The Shetland Islands are approximately 245km (152 miles) from the Scottish mainland, from the most northerly part of the Shetland Islands to John O' Groats, and 690km (428 miles) from the most southerly point of the Scottish and English border.

"It would be virtually impossible to print a paper map, with any usable detail, of this vast geography."

⁷ As reported on BBC News website on 4 October 2018.



Ann Sutherland
9 November 1934 - 25 June 2018:
An unforgettable map curator

Ann Sutherland, was best known in the cartographic community for her long-term leadership of the Map Curators' Group (MCG) of the British Cartographic Society (BCS) but also as a long-standing and loyal member of this Society, fellow members of which she referred to as 'The Close Boys'. Her influence extended to her active membership of BCS Council and its Programme Committee, regular attendance at annual symposia and joint organisation of Edinburgh 'Three-Day Events'. Participation in Council, the British

and Irish Committee on Map Information and Cataloguing Systems (BRICMICS) in London and this Society formed important channels for communication between the worlds of cartography, the Ordnance Surveys and map curating channels she promoted at every opportunity.

Ann Mary Barker was born in London on 9 November 1934, the only daughter of Mary and Victor. She was taken with them to the English West Country, but when her father returned from France in 1940 they moved to Annan where he oversaw munitions supplies. After a boarding school education completed at Holy Trinity Convent in Kidderminster she matriculated at the University of Edinburgh where she read History, completing an MA in 1960. Teaching for a term in Dunfermline proved unappealing and Ann joined the staff at the University of Edinburgh's Medical Library in 1960. She met Ian Sutherland, a lecturer in bacteriology, when he started to use the Library after returning from research in Germany in 1964 and they were married in July 1966. Their daughter Karen was born on her mother's birthday in 1967. Returning from a year-long post at Freiburg im Breisgau, the family settled in Liberton, Edinburgh in 1974. Ann commenced work in the University Library's Centre for African Studies in 1968, moving to the Library's Special Collections in the 1980s. Her love of maps, used regularly on family walking holidays in Switzerland, made her an ideal map curator. Ann's talent for helping students and her natural enthusiasm became widely known, attracting the notice of Margaret Wilkes, Head of the Map Library of the National Library of Scotland. Ann helped with the move of the NLS map collection to Causewayside in 1988. Margaret and Ann combined to continue the Edinburgh 'three-day event' involving the MCG, BCS and CCS. Organizing lectures, seminars, people and visits to map collections was Ann's forte.

Ann's power of persuasion was legendary but was accompanied by the attention to detail required to ensure speakers had appropriate support. She was particularly skilled at organizing people and continued a programme of curators' training days at places where a local organizer could be cajoled to follow suggestions for willing speakers with rapporteurs assigned to cover proceedings. She presided over the introduction of the online Map Curator's Toolbox. For this,

her then twenty-year Convenorship of the MCG and the support for those who presided over the BCS, she was awarded its Honorary Fellowship in 2013, having been elected a Fellow in 1998 after less than a decade of membership.

This service was freely given with determined enthusiasm, a sure sense of what was right in accordance with the Constitutions of both Societies. For many years she sat on the General Council of the University of Edinburgh as the representative of the graduates, demonstrating their confidence in her ability to speak up honestly. Ann was also a conscientious Secretary of the Liberton Association, her local amenity group, liaising with planners, councillors and MP for the benefit of her local community. It is a mark of the respect she was accorded within her community that her Westminster MP tabled a House of Commons Early Day motion marking her passing and attended her service of celebration.

None of this would have been possible without the support of her husband Ian and daughter Karen. In recent years smart phones and e-mails introduced friends to their Siamese cats through pictures at their Liberton home. Her last text to me concerned the effects on her plums and broad beans of a summer storm. Travel to the near continent on walking holidays or cultural excursions featured wine and food, wild flowers and Old Masters or modern painters and artists. Conversations were never dull nor ill-informed. Moving around Paris by bus was argued to be better than the Metro, which denied them the pleasure of seeing the city from an elevated gaze of a bus window.

I have lost a dear friend and shall personally miss being able to talk to Ann frankly about almost anything. I will miss her wise council and kindnesses in troubled times or times of indecision when she was the 'family' to which I turned. That said, especially during telephone calls, one was sometimes left in no doubt about an unwise decision, or a personal clash of interests affecting work or living. One could express a view discretely, as one might when asked for advice but it was a privilege to, on occasion, be a sounding-board for some of Ann's thoughts and schemes. Being introduced by Ann and Karen to the exotic map world that is Paris was an education which is an enriching part of Ann's legacy to my family. Those past excursions in the London area in the company of someone impeccably turned out and peppered with incisive and informed comment, will be recalled at those same venues, whether Dulwich, Greenwich, Gravesend, Chingford, Margate or over a repast at our favourite Bloomsbury fish restaurant.

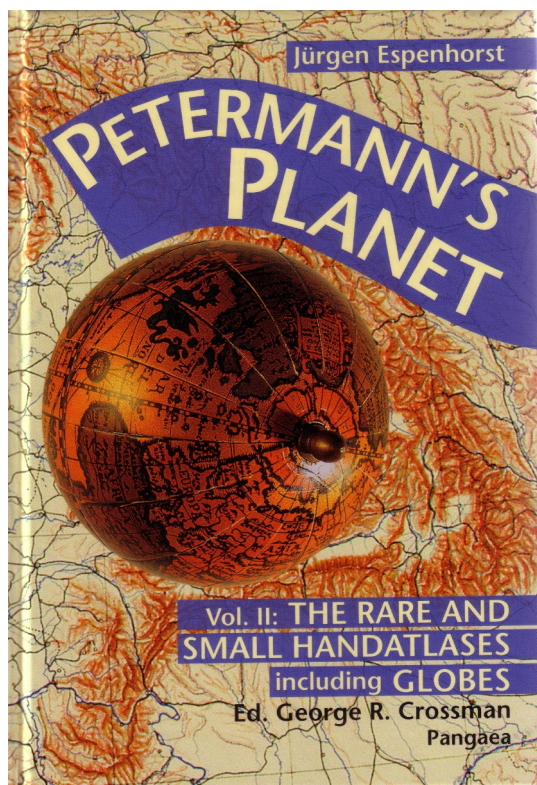
As a colleague confided, 'We are all left with an Ann-shaped hole in our lives' but our sincere sympathy is due to Ian and Karen who will miss her much more.

David Watt

I should like to acknowledge the invaluable contributions of Chris Board, Karen Sutherland and Paula Williams.

Book reviews

Jürgen Espenhorst, *Petermann's Planet II: The Rare and Small Handatlases, Pangaea Verlag, 2008, 684pp, 978-3-930401-35, €99.50*



In the last issue of *Sheetlines* I reviewed the first volume of *Petermann's Planet* which was devoted to those great German atlases that are still among the most wondrous books in the libraries of many who love maps: large volumes with names such as Stieler or Andree on their spines. However, as this second volume makes clear, there were a great many other atlas publishers working in Germany at the time – and it is these these smaller, and often more specialist, atlases (along with globes) that are described and catalogued here. Espenhorst is indefatigable: he has studied an enormous range of material and tracked down the impact of these atlases not only in Germany but across the globe and especially in English-language atlases.

It was these smaller publishing houses and lesser known designers of atlases that often pioneered the specialist features of atlas mapping that we now take for granted. For example, Espenhorst shows how the portrayal of mountains in school atlases (pp.1092-95 [the pagination of both volumes is consecutive]) led to the development of layer tinting and specialist shading more generally. Likewise, Espenhorst studied the development of historical atlases whether these are for general history (eg pp.1198-1201) or more specialist topics such as biblical mapping (eg pp.1287ff) or where there is an anthropological or racial element (pp.1289-94). Since the research of Armin Wolf ('What can the history of historical atlases teach? Some lessons from a century of Putzger's *Historischer Schul-Atlas*', *Cartographica* 28, (1991), 21-37) and Jeremy Black (*Maps and History*, London, 1997) historians have been aware of the importance of these school atlases – but how does one track them down when they often went through many editions remaining in print for decades? Now Espenhorst has given us a guidebook to the extent of the genre – and even those who have studied atlases will be surprised at some of the very niche works that he has found. A curious example is the set of atlases sponsored by electrical-engineering giant AEG to celebrate its fiftieth anniversary in 1933 (p.1318).

This book although in print for a decade (and first volume since 2003) is still virtually unknown, yet it is a mine of valuable information and, despite its price, will be a book that, once seen, many members of the CCS will want for their shelves. For more information, go to www.pangaea-verlag.de.

Thomas O'Loughlin

Francis McGee, *The archives of the Valuation of Ireland 1830-1865*, Dublin: Four Courts Press, 2018, 978-1-84682-136-3, 253pp, €19.95, £17.95 (paper)



An extract from Kings County sheet 24, surveyed in 1838, and annotated some time after circa 1880 with a tenement revaluation: the annotation in red and the highlighting of the townland name follow the style of the maps of the original valuation of 1833-65. (Private collection).

Most people who know anything about the development of the Ordnance Survey in the nineteenth century know that the six-inch (1:10,560) survey of Ireland was started in 1824 for some sort of tax reform but – in Britain anyway – are probably otherwise pretty vague about it. In fact, the six-inch ‘townland survey’ was to be the spatial framework for a valuation of the whole country for the county cess, which paid for local expenditure on such things as roads, bridges, asylums, infirmaries and gaols. The cess was paid by occupiers, on the basis of what by 1824 were very unequal assessments, and the valuation was to ensure equality of treatment.

The valuation started on the basis of townlands – the smallest administrative division, and of very unequal size, from a few acres to several thousand – but it soon became apparent that more detail was needed: it was not sufficient that the Ordnance Survey mapped the townland boundaries, for there were also certain details within townlands, such as types of land cover, for which more detail was needed than for the one-inch (1:63,360) map that was the originally intended published outcome of the survey. That justified the mapping of field boundaries, and before valuation by townlands was complete it had given way to valuation by tenements. For this reason, over a considerable part of the country there are two valuations: a townland valuation, completed by the mid-1840s, and a tenement valuation, carried out in the later 1850s and early 1860s, a process only completed in 1865. The surviving archive of this valuation, which was the basis of agricultural rates in the Republic of Ireland until they were abolished in 1984, and later than that for some buildings, is now in the National Archives of Ireland and the Public Record Office of Northern Ireland: some of it is available on-line.

Hitherto, students of the development of the Ordnance Survey in the nineteenth century have had to make do with comparatively exiguous references to the valuation, and in particular to the records that it generated. This has now been remedied by Frances McGee, who was an archivist at the National Archives of Ireland for forty years, and *The archives of the Valuation of Ireland* is going to be essential reading for those who want to understand ‘what the Ordnance Survey was about’ in more than a limited sense of map production technique. One of the crucial steps, in retrospect, in the development of the Ordnance Surveys into the publishers of ‘the best maps in the world’ was the decision to engrave and publish the six-inch townland mapping. The cost of engraving was reckoned to be less than that of producing the necessary number of manuscript copies required by the Valuation Office. The Valuation Office certainly took the maps in quantity, but it was also economical in their use: maps first used in the townland valuation were often reused in the subsequent tenement valuation.

As for the maps, it is best to quote Frances McGee directly:

“The National Archives holds approximately 12,000 maps and plans created by the initial valuation between 1833 and 1865. ... The valuation books and maps were created together in an interlinked system that recorded the information and allowed it to be managed and used. The maps represented graphically what was described in the books, fixed the location, made possible the determination of the square area, set out the different qualities of land and allowed the relationships between buildings and land and between holdings to be defined. The books noted who occupied and owned property, the nature of the land and who the neighbours were. The books are the essential key to the data in the maps, as the maps are necessary to understand the size, shape, location and surroundings of the land described in the books. Each without the other can provide only part of the picture.”

Whilst the maps are a substantial part of the Valuation archive, it is to be suspected that, were a crude measure of weight or cubic volume of paper to be

adopted, they would be outweighed by the various books. These comprise two series each (townland and tenement valuations) of House books, Field books, Quarto books (towns), Valuation maps, Valuation town plans, and Primary valuation appeals, and one series of the Primary valuation, plus volumes of instructions and administrative matters, letter books, Mill books, Townland valuation appeal books and printed books, other valuations (including an unused revaluation of County Dublin of 1865 that is related to the 1:2500 remapping of that county), Query sheets (Dublin and Belfast only), Registry books, List books and Rent books. Some readers may feel that some of these seem to take us rather a long way from maps: but they are the ultimate rationale for the maps, and indirect contributors to the cartographic history of Britain as well as to the development of territorial taxation in Ireland.

The valuation process was a comparatively drawn-out one – more so even than the six-inch mapping – and the printed Primary Valuation was subject to appeals. Indeed, for some readers Chapter 6, treating of these, may be the most interesting, even entertaining, part of the book. Your reviewer has the impression that an anthology of these, with a suitable editorial approach, might help make local taxation a source of amusement as well as of instruction.

In short, *The archives of the Valuation of Ireland 1830-1865* is strongly recommended to anyone with an interest in the wider context of Ordnance Survey operations, and not just in Ireland. There are sixteen pages of plates: only two are of maps, but then there are so many text records to illustrate. The illustrations are more than adequate to the occasion, though it is worth having a small magnifier to hand to read the text easily. Production is well up to the usual standard of Four Courts Press. One regret is that the natural companions to this book, all published or republished by Four Courts, are, according to the catalogue that accompanied the review copy of *The archives of the Valuation*, no longer in print: these are JH Andrews, *A paper landscape: the Ordnance Survey in nineteenth century Ireland* (1975: reissued 2002), Jacinta Prunty, *Maps and map-making in local history* (2004), and Gillian Doherty, *The Irish Ordnance Survey: history, culture and memory* (2004). One hopes that *The archives of the Valuation* will have a reception that will encourage reissue of these three.

Finally, though the survivals of the Valuation are extensive, and escaped savaging in the upheavals of 1916-23, they are not complete, either for the original valuation completed in 1865, or for the subsequent piecemeal revisions. Ex-Valuation Office maps, presumably discarded as surplus, were to be found second-hand in Dublin in the mid-1980s, looking for all the world like those of the Primary Valuation: an example at present in a private collection is appended to this review.

Richard Oliver

Letters

I was interested to see the cover of the Roman Britain OS map, which appears as number 84 in the map cover collection on the Society website.¹ My copy is second edition, 1928. The website notes that it is a Roman mosaic, but no further details are given. It is clearly an artist's creation incorporating common designs found in mosaics except the central panel – which to my knowledge is not found on any UK mosaic. But that design is found on the tombstones of two Roman cavalymen. Rufus Sita buried at Gloucester during the mid-first century and Sextus Valerius Genialis late-first/early second-century at Cirencester. Both show a mounted Roman riding down a naked 'barbarian'.

Also is it known who EM was whose initials are on the lower right hand corner of the design? I presume that he/she was the artist/illustrator.²

Incidentally, it is my wife Barbara who is a member of the Society; I just read *Sheetlines* when it is delivered.

Dr Alan Taylor

I was greatly honoured and not a little surprised to receive the Rowley Award for 2018, as a result of my contributions to *Sheetlines* 110. At the time of writing, indeed of publication, I had no idea that the Award existed, and to receive it was wholly unexpected. I have to hope now that any future contributions I make will be received with equal kindness. Thank you all, in particular of course David Archer and his fellow-judges.

Members may like to know that at least part of the award has been spent on a copy of Christopher de Hamel's *Meetings with Remarkable Manuscripts*, a book remarkable in itself. It consists of a description of twelve mediaeval manuscripts, illustrated by about 250 images almost all in colour. The text is a tour de force of scholarship and lucidity, persuading this reader at least that he now knows something about a subject that has hitherto been completely outside his understanding. Members, interested as we are in the history of a great publishing concern, may react similarly to the history of some of the literary productions of a time before publishing was invented.

Michael Spencer

Stanfords was awarded the Royal warrant in 1893 and soon after that "Geographer to Her Majesty" appeared on Stanford maps covers. When the Queen died in January 1901 it was replaced by "Geographer to His Majesty". The Warrant information was later changed from Geographer to Cartographer and then the plural Cartographers: "Cartographer to His Majesty"; "Cartographers to His Majesty". Post-World War I it was changed to the simpler "Cartographer to the King".

I am intrigued as to why there was change from Geographer to Cartographer. Can anybody shed some light on this?

Peter Stubbs

¹ <https://www.charlesclosesociety.org/coversintro>

² EM is Ellis Martin [Ed].

I read the item about OS MasterMap becoming openly available with great interest.¹ Another example of Ordnance Survey “giving away” its data, and another victory for the “Free Our information” lobby group. It does make one wonder just how OS is going to survive if more and more of its datasets are released into the wild to roam at will. But then I read with some alarm the quote from the Open Data Institute:

“It means that property boundaries, derived from the OS MasterMap, will be published as open data, for anyone to access, use and share”.

Let’s hope the map-buying public, (actually *not* buying!), don’t take this statement at face value and try to use the OS MasterMap to start disputes, quarrels, arguments and litigation with neighbours because the fencing erected by the neighbour is not where the OS MasterMap depicts it.

The message has to be as follows. Take note of the statement published by OS, and used by me in all my boundary dispute reports as an expert witness:

Statement published by Ordnance Survey on the use of Ordnance Survey maps in defining property boundaries

The purpose of an Ordnance Survey map is to depict, within the limitations imposed by the particular scale and in accordance with the rules and conventions adopted by Ordnance Survey and which were in being at the time, the topographical features in existence at the time of survey or revision. Whilst parliamentary and local authority boundaries are shown where appropriate, as made clear in the Ordnance Survey Act 1841, Ordnance Survey is not concerned with private property boundaries as such: for example, a fence, if shown, will be located on the map in the position it occupied at the date of survey without prejudice as to whether or not it was erected along a proper boundary of legal ownership.

Footnote: The unrepealed portions of this Act were made permanent by the Expiring Laws Act 1922.

Even the title plans issued by Land Registry show only “General” boundaries. A statement on every Official Copy of a title plan explains:

This title plan shows the general position, not the exact line, of the boundaries. It may be subject to distortions in scale. Measurements scaled from this plan may not match measurements between the same points on the ground.

The evidence for the precise position and alignment of a property boundary is contained in the pre-registration Deeds, Conveyances, Transfers and Leases for the property. It is unfortunate that most people do not realise this, including many lawyers and mortgagers who destroyed those documents upon registration of a property to save on storage space. If this article serves no other useful purpose, let its message be, *never destroy or lose the original deeds to your house*. If you do so you may find that not even the very expensive services of one, or more, surveyors will be able to sort out your dispute with your neighbour.

David Andrews

¹ *Sheetlines* 112, 20.

Rob Wheeler's article on railway tracks ² brings back memories.

In September 1946 a 17-year-old lad was recruited into the LMS Chief Civil Engineers Office at The Grove, Watford. His only experience of OS maps was as a cyclist and walker and confined to the more or less current One-inch map.

Shortly the youth was instructed to see if he could "tidy up" a fan of sidings. He visited the Plan Room (what treasures!), acquired the relevant 1:2500 sheet and put it on the board. Almost immediately my chief snorted loudly You "*never* use OS maps for permanent way design work". He then showed me several examples similar to Rob's but also a number of railways crossing sheet lines at angles which would have caused serious consequences had a train attempted to pass

Thus was the youthful belief that the Ordnance Survey was infallible destroyed, not to be revived by several years membership of the CCS.

Pat McCarthy

In response to the query about ORPAs ³ the following information may be useful. The methodology used by Ordnance Survey to collect data about ORPAs is explained in a Freedom of Information response dated 18 August 2014.⁴ An explanation of the legal status of ORPAs can be found in the "Blue Book".⁵

Andrew Harter



Whilst enjoying an exploration of Hack Fall Woods near Grewelthorpe in North Yorkshire, I noticed the curious reversal of the words 'Hill Top' at 228772 on *Landranger* sheet 99, *Northallerton, Ripon & surrounding area*. Has anybody any suggestion as to how such a strange aberration could occur? The map is the Second Series, published 1983. I note that the error has been corrected on subsequent edition, published 1989.

Philippa Corrie

² *Sheetlines* 112, 31.

³ *Sheetlines* 112, 67.

⁴ https://www.whatdotheyknow.com/request/orpa_dots#comment-52201

⁵ John Riddall and John Trevelyan, *Rights of Way: A Guide to Law and Practice*, fourth edition, London: Ramblers' Association and Open Spaces Society, 2007, 158 and 397. (See also <https://www.ramblers.org.uk/advice/rights-of-way-law-in-england-and-wales/the-blue-book.aspx>)

Ferry good effort

In *Sheetlines* 112 we invited you to compile a list of ferry services operating in and around the waters of the British Isles. We proposed four categories:

1. car ferries crossing river estuaries or serving nearby off-shore islands
2. those serving more distant islands and other countries
3. any British car ferries, not included above
4. passenger-only ferries

Michael Spencer won the prize with the impressive table below, listing 249 services, geographically clockwise round the coasts of UK and Ireland, each categorised as above. He comments: ‘There is some problem in deciding between groups 1 and 2, but I have taken journeys over two hours and all Continental traffic as group 2. I consider *le Shuttle*, which uses the railway through the Channel Tunnel, as a ferry, because it takes cars between ports at either side of a stretch of water. I don’t suppose the cars mind whether they’re on a boat or a train, so long as they don’t get their tyres wet. No other railway link acts in this ferry-like way.’

Michael correctly identifies the group 3 ferry we had in mind, the only car ferry not included in groups 1 and 2, as the Windermere chain ferry (Bowness-Far Sawry), although that is, at the time of writing, out of action for repairs

No.	Gp.	Route	Operator
<i>Shetland</i>			
1	1	Belmont (Unst) - Hamarsness (Fetlar)	Shetland Islands Council
2	1	Belmont - Gutcher (Yell)	
3	1	Hamarsness - Gutcher	
4	1	Ulsta (Yell) - Toft (Mainland)	
5	1	Vidlin (Mainland) - Bruray (Out Skerries)	
6	1	Vidlin - Symbister (Whalsay)	
7	1	Laxo (Mainland) - Symbister	
8	2	Lerwick (Mainland) – Bruray	Northlink
9	1	Lerwick – Maryfield (Bressay)	Shetland Islands Council
10	4	Bressay - Noss	Scottish Natural Heritage
11	2	Lerwick - Aberdeen (direct)	Northlink
12	2	Lerwick - Hatston (Orkney) <i>continues as No. 33</i>	
13	4	Lerwick – Fair Isle	Shetland Islands Council
14	4	Grutness (Mainland) – Fair Isle	
15	4	Walls (Mainland) – Foula	BK Marine
16	1	West Burrafirth (Mainland) – Papa Stour	Shetland Islands Council
<i>Orkney</i>			
<i>These are difficult because so many of them connect more than two ports in one trip. Only Kirkwall, Tingwall, Stromness and Houton are on the main island. Other ports are on adjacent islands or (Scrabster, Gills Bay, John o’ Groats) on Great Britain</i>			
17	4	Pierowall - Papa Westray (pass)	
18	1	Tingwall – Rousay	
19	1	Rousay – Egilsay	
20	1	Egilsay – Wyre	
21	1	Wyre - Tingwall	
22	1	Rousay – Egilsay	
23	1	Rousay – Wyre	

24	1	Kirkwall - Westray	
25	4	Pierowall (Westray) – Papa Westray	
26	1	Kirkwall – Papa Westray	
27	1	Papa Westray –North Ronaldsay	
28	1	Kirkwall – Eday	
29	1	Kirkwall – North Ronaldsay	
30	1	Kirkwall –Sanday	
31	1	Kirkwall - Shapinsay	
32	1	Kirkwall – Stronsay	
33	2	Hatston – Aberdeen (<i>see also No.12</i>)	Northlink
34	4	Burwick (S Ronaldsay) – John o’ Groats	J o’G Ferries Ltd
35	1	St Margaret’s Hope – Gills Bay	Pentland Ferries
36	1	Houton – Flotta	
37	1	Houton – Lyness	
38	1	Longhope - Lyness	
39	1	Longhope - Flotta	
40	1	Lyness – Flotta	
41	4	Stromness – Moaness – Graemsay	
42	4	Stromness – Graemsay – Moaness	
43	1	Stromness – Scrabster	Northlink
<i>Mainland of Great Britain</i>			
<i>(Aberdeen routes previously listed above, so smaller reference numbers are used)</i>			
33	2	Aberdeen to Hatston (Orkney) <i>continues as No 12</i>	Northlink
11	2	Aberdeen to Lerwick (Shetland)	
44	4	Anstruther – Kirkhaven (May)	Isle of May Ferry
45	4	South Queensferry – Inchcolm	Colin Aston
46	4	North Shields – South Shields	Nexus
47	2	Newcastle – Ijmuiden	DFDS
48	2	Hull - Rotterdam	
49	2	Hull - Zeebrugge	P&O
50	4	Harwich - Shotley	
51	4	Harwich - Felixstowe	Harwich Harbour Ferry
52	2	Harwich – Hook of Holland	Stena
53	4	Gravesend - Tilbury	Lr Thames & Medway Co.
54	1	North Woolwich - Woolwich	Briggs Marine
55	4	Canary Wharf - Rotherhithe	Thames Clippers
56	4	Twickenham to Ham	Stan Rust
57	4	Hampton – Molesley	Hampton Ferry
58	4	Shepperton - Weybridge	Surrey County Council
59	2	Dover – Dunkirk	DFDS
60	2	Dover – Calais	P&O
61	2	Dover – Calais	DFDS
62	2	Folkestone – Calais	Eurotunnel
63	2	Newhaven – Dieppe	DFDS
64	2	Portsmouth – Le Havre	
65	2	Portsmouth – Caen	
66	2	Portsmouth – Cherbourg	
67	2	Portsmouth – St Malo	
68	2	Portsmouth – Guernsey	
69	2	Portsmouth – Jersey	Condor Ferries
70	2	Portsmouth - Santander	
71	2	Portsmouth - Bilbao	
72	2	Poole – Cherbourg	
73	2	Poole – St Helier (Jersey)	
74	2	Poole - Guernsey	Condor Ferries
75	1	Sandbanks – Swanage	Bournemouth-Swanage Motor Road & Ferry Co
76	4	Portsmouth – Ryde Pier	
77	1	Portsmouth - Fishbourne	Wightlink

78	1	Cowes – East Cowes	IOW Council
79	1	Southampton – East Cowes	Red Funnel
80	4	Southampton – West Cowes	
81	4	Southampton - Hythe	Blue Funnel
82	1	Lymington - Yarmouth	Wightlink
83	4	Exmouth - Starcross	Exe to Sea Cruises
84	4	Topsham – Topsham Lock	Exeter City Council
85	4	Exeter Quay – Haven Banks (Butt’s ferry)	
86	4	Itchenor - Bosham	Itchenor Ferry Co
Channel Islands (internal and to France)			
87	4	Guernsey - Alderney	Little Ferry Co
88	4	Guernsey - Alderney	Manche Iles Express
89	4	Guernsey - Dièlette	
90	4	Guernsey - Herm	Travel Trident
91	4	Guernsey - Sark	Isle of Sark Shipping
92	1	Guernsey – Jersey	Condor Ferries
93	2	Guernsey – St Malo	
94	4	Guernsey – St Helier (Jersey)	Manche Iles Express
95	4	Alderney - Dièlette	
96	4	Alderney - Cherbourg	(Lady Maris II)
97	4	Alderney- Sark	Manche Iles Express
98	4	Gorey (Jersey) – Dièlette	
99	4	Gorey – Barneville-Carteret	
100	4	St Helier – Barneville-Carteret	
101	4	St Helier – Granville	
102	4	St Helier - Sark	
103	4	Jersey – St Malo	Condor Ferries
104	2	Jersey – St Malo	
Back to England			
105	1	Kingswear – Dartmouth (lower ferry)	South Hams Dist Council
106	1	Kingswear – Dartmouth (higher ferry)	DKFBC Ltd
107	4	Kingswear – Dartmouth (Steam ferry)	Dartmouth Rly & Boat Co
108	4	Salcombe – East Portlemouth	Salcombe Ferry
109	2	Plymouth – Roscoff	Brittany Ferries
110	2	Plymouth - Santander	
111	4	Plymouth - Cawsand	Plymouth Boat Trips
112	4	Plymouth – Mount Edgcumbe (Cremyll Ferry)	
113	4	Plymouth Barbican - Mount Batten	Mount Batten Ferry
114	1	Devonport - Torpoint	Torpoint Ferry
115	4	Polruan - Fowey	C Toms & Sons
116	1	Bodinnick - Fowey	
117	4	Fowey - Mevagissey	Mevagissey Ferries
118	4	St Mawes - Place	Place Ferry
119	4	St Mawes – Falmouth	St Mawes Ferry
120	4	Falmouth – Flushing	Flushing Ferry
121	1	Feock – Philleigh	King Harry Ferry
122	4	Helford Passage - Helford	Helford River Boats
123	4	Penzance – St Marys	Isles of Scilly St’mship Co
124	4	Padstow - Rock	Padstow Harbour
125	4	Evesham - Hampton	Hampton Loade Comm Trust
126	4	Worcester cathedral – Chapter Meadows	(volunteers)
Wales			
127	2	Pembroke - Rosslare	Irish Ferries
128	2	Fishguard - Rosslare	Stena
129	2	Holyhead - Dublin	
130	2	Holyhead - Dublin	Irish Ferries
England again			
131	2	Birkenhead – Belfast	Stena
132	2	Birkenhead - Douglas	Isle of Man Steam Packet

133	4	Liverpool - Seacombe	Mersey Ferries
134	2	Liverpool - Dublin	P&O
135	2	Liverpool – Douglas	Isle of Man Steam Packet
136	4	Fleetwood – Knott End	Wyre Council
137	2	Heysham – Douglas	Isle of Man Steam Packet
138	4	Roa Island – Piel Island	John Cleasby
----	4	Bowness – Far Sawrey <i>** temporary only, replacing No. 139**</i>	Cumbria County Council
139	3	Ferry Nab – Far Sawrey (Windermere) <i>** out of action following fire, expected to return in Oct 18**</i>	
Scotland			
140	2	Cairnryan – Belfast	Stena
141	2	Cairnryan - Larne	P&O
142	2	Ardrossan – Campbeltown	Calmac
143	1	Ardrossan – Brodick (Arran)	
144	2	Brodick – Campbeltown	
145	1	Largs – Great Cumbrae	
146	1	Wemyss Bay – Rothesay (Bute)	
147	1	McInroy’s Point - Hunter’s Quay	Western Ferries
148	1	Gourock - Dunoon	Argyll Ferries
149	4	Gourock - Kilcreggan	Clyde Marine Services
150	4	Kilcreggan - Helensburgh	
151	4	Balloch - Luss	Loch Lomond National Park
152	4	Luss – Balmaha	
153	4	Luss – Inchcailloch	
154	4	Luss - Rowardennan	
155	4	Tarbet – Inversnaid	
156	4	Inveruglas - Inversnaid	
157	4	Balmaha - Inchcailloch	
158	4	Ardlui – Ardluish	
159	4	Stronachlachar – Trossachs Pier (Loch Katrine)	Clydelink
160	4	Renfrew - Yoker	
161	1	Colintraive – Rhubodach (Bute)	Calmac
162	1	Portavadie – Tarbert	
163	1	Lochranza (Arran) - Tarbert	
164	1	Lochranza – Claonaig	
165	1	Tayinloan – Ardminish (Gigha)	
166	1	Kennacraig – Port Ellen (Islay)	
167	2	Kennacraig – Port Askaig (Islay)	
168	1	Port Askaig – Scalasaig (Colonsay)	
169	1	Port Askaig – Feolin (Jura)	ASP Ship Management
170	4	Tayvallich – Craighouse (Jura)	Calmac
171	1	Cuan (Seil) - Luing	Argyll & Bute Council
172	4	Ellenabeich (Seil) – Easdale Island	
173	4	Gallanach - Kerrera	Calmac
174	2	Oban – Scalasaig (Colonsay)	
175	1	Oban – Craignure (Mull)	
176	1	Lochaline – Fishnish (Mull)	
177	4	Mull - Ulva	?
178	4	Fionnphort (Mull) - Iona	Calmac
179	2	Oban – Arinagour (Coll)	
180	1	Arinagour – (Tiree)	
181	2	Arinagour – Castlebay (Barra)	
182	1	Northbay (Barra) – (Eriskay)	
183	1	Kilchoan – Tobermory (Mull)	
184	1	Oban – Achnacroich (Lismore)	
185	4	Port Appin – (Lismore)	Argyll & Bute Council
186	1	Ardgour – Nether Lochaber (Corran Ferry)	Highland Council
187	4	Fort William - Camusnagaul	Highland Ferries
Cars going to the Small Isles need a special permit (188 -195)			

188	4	Arisaig – Galmisdale (Eigg)	Arisaig Marine
189	1	Mallaig – Galmisdale	Calmac
190	1	Galmisdale – Port Mor (Muck)	
191	1	Galmisdale – Kinloch (Rum)	
192	1	Mallaig – Kinloch	
193	1	Kinloch – A’Chill (Canna)	
194	1	Port Mor – Achill	
195	1	Mallaig – Port Mor	
196	2	Mallaig – Lochboisdale (South Uist)	
197	1	Mallaig - Armadale	
198	4	Mallaig – Inverie	Western Isles Cruise Ltd
199	4	Inverie - Tarbet	
200	1	Glenelg – Kylerhea (Skye)	?
201	1	Sconser (Skye) – Inverarish (Raasay)	Calmac
202	1	Uig (Skye) – Lochmaddy (North Uist)	
203	1	Berneray (North Uist) – Leverburgh (Harris)	
204	1	Uig – Tarbert (Harris)	Scoraig Ferry
205	4	Badluarach - Scoraig	
206	2	Ullapool – Stornoway (Lewis)	Calmac
207	4	Tarbet – Handa	Handa Island Ferry
208	4	Keoldale - Achiemore	Cape Wrath Ferry
<i>Ireland (routes already listed from GB shown with smaller reference numbers)</i>			
209	4	Ballycastle – Port Ellen	Kintyre Express
210	4	Ballycastle - Campbeltown	
211	4	Ballycastle – Rathlin Island	Rathlin Island Ferry Ltd
141	2	Larne – Cairnryan	P&O
140	2	Belfast - Cairnryan	Stena
212	2	Belfast – Douglas	Isle of Man Steam Packet
132	2	Belfast – Birkenhead	Stena
213	1	Portaferry - Strangford	Transport NI
214	1	Greencastle – Greenore	Carlingford Ferry
215	4	Warrenpoint – Omeath	Warrenpoint Ferry
216	2	Dublin – Douglas	Isle of Man Steam Packet
134	2	Dublin - Liverpool	P&O
129	2	Dublin – Holyhead	Stena
130	2	Dublin - Holyhead	Irish Ferries
217	2	Dublin – Cherbourg	
128	2	Rosslare - Fishguard	Stena
127	2	Rosslare - Pembroke	Irish Ferries
218	2	Rosslare – Roscoff	Irish Ferries
219	2	Rosslare – Cherbourg	Irish Ferries
220	2	Rosslare - Cherbourg	Stena
221	1	Passage East – Ballyhack	Passage East Ferry Co
222	1	Glenbrook – Carrigaloe (Passage West)	Doyle
223	2	Cork – Roscoff	Brittany Ferries
224	2	Cork – Santander	
225	4	Baltimore – Cape Clear Island	Cailin Oir
226	4	Schull – Cape Clear Island	
227	4	Baltimore - Sherkin	Sherkin Island Ferry
228	4	Bantry – Whiddy Island	Whiddy Island Ferry
229	1	Castletownbere – Rerrin (Bere Island)	Murphy’s
230	1	Castleownbere – Oilan na gCaorach (Bere I.)	Bere Island Ferries
231	1	Reenard Point – Knightstown (Valentia I.)	Valentia Island Car Ferry
232	4	Dingle – Great Blasket Island	Blasket Island ferries
233	4	Ventry – Great Blasket Island	Marine Tours
234	1	Killimer - Tarbert	Shannon Ferries
235	4	Doolin – Inish Oirr	O’Brien
236	4	Inish Oirr – Inish Meann	
237	4	Inish Meann – Inish Mor	

238	4	Doolin – Inish Mor	
239	4	Rossaveal – Inish Mor	Aran Island Ferries
240	4	Cleggan – Inishbofin	Inishbofin Ferry
241	4	Roonagh – Clare Island	Clare Island Ferry
242	4	Dooniver - Inishbiggle	Joe O'Malley
243	4	Bullsmouth – Inishbiggle slip	Micheal Leneghan
244	1	Ballina – Keith Hall (Burns Point Fy)	Ballina Council
245	1	Burtonport – Arranmore	Arranmore Blue Ferry
246	4	Bunbeg – Gola Island (Cricket Ferry)	Patricia Curran
247	4	Magheraoarty – Tory Island	Tory Island Ferry
248	1	Buncrana – Rathmullan (Lough Swilly)	Donegal County Council
249	1	Greencastle - Magilligan	Scenic Lough Foyle Fy

Stuart Hicks offered a list, which included many of those named above, but also Bideford, Ilfracombe and Barnstaple to Lundy Island. He also answered the additional question: which ferry carries a regular bus service? the answer being the Sandbanks-Swanage chain ferry.

Chris Harvey's list also included the Lundy services, as well as other additions to Michael's list, such as: Nigg-Cromarty, Anstruther-North Berwick, Warkworth Castle-Hermitage, Kings Lynn-West Lynn, Hecklingham-Reedham (chain ferry), Lowestoft Pier-Oulton Broad, Burgh St Peter-Carlton Marshes, Walberswick-Southwold, Butley-Orford, Felixstowe Ferry-Bawdsey Ferry, Brightlingsea-Point Clear, Brightlingsea-East Mersea, Burnham-on-Crouch-Wallasea Island, Woolwich-Putney etc (Thames Clippers), Marble Hill House-Ham House (Hammertons Ferry), Hampton-Hurst Park, Mudeford Quay-Mudeford Sandbank, Bigbury on Sea-Burgh Island (tractor), Appledore-Instow, Bristol City Centre-Hotwells-Temple Meads, Symonds Yat-Saracens Head Inn and Symonds Yat-Olde Ferrie Inn (both hand-pulled cable ferries), Tenby-Caldey Island, St Martin's Haven-Skomer, Barmouth-Barmouth Ferry, Pwllheli-Bardsey Island.

Tony Walduck listed almost 200 services, including many of those already mentioned, plus Burnham Overy-Scolt Head Island, Hayling Island-Eastney, Keyhaven-Hurst Castle, Sandbanks and Poole-Brownsea Island, East Portlemouth-Salmouth, Hampton Loade Ferry, Renfrew-Yoker.

The four lists are on the website at www.charlesclosesociety.org/ferries and members are invited to let the editor know of others not included.

The editor can only add the Lamlash (Arran) to Holy Isle ferry, (the island is named 'Holy Island' on OS maps, but is known as Holy Isle), and the seasonal Hulmes ferry (not marked on OS) crossing the Manchester Ship Canal near Irlam.

December prize quiz: let's play bridge

On the next page are twenty bridges, as depicted on *Landranger* mapping, arranged from north to south. All you have to do is identify them.

Answers by email or post to the editor by 31 January. The prize for the first correct answer pulled from the hat on that date is any pre-2010 CCS publication.

