Sheetlines

The journal of
THE CHARLES CLOSE SOCIETY
for the Study of Ordnance Survey Maps

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THE CHARLES CLOSE SOCIETY
for the Study of Ordnance Survey Maps
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The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, Sheetlines, is recognised internationally for its specialist articles on Ordnance Survey-related topics.
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From the chairman: Our new visits programme got off to a cracking start in February with a visit to Explorer House, the new and highest-of-high-tech OS headquarters in Southampton. You can read about it elsewhere in this issue; our warm thanks to Phil Watts and all at OS who made this such an enjoyable and informative visit.

By the time you read this, members will also have visited Cambridge University map library, home of the Charles Close Society archive, for the first of hopefully many ‘show and tell’ sessions. Our thanks to CUL map librarian Anne Taylor, who has also kindly agreed to chair our own archives subcommittee, taking over from Roger Hellyer (to whom grateful thanks for his many years of devoted effort in that role).

Elsewhere in this issue, look for a fascinating insight into the Geological Society’s historic collection which we visit in May, and an updated list of other visits planned. Our thanks too to Defence Geographic Centre for inviting us to Feltham in June, and watch out for further meetings and visits in the next issue. A reminder that I could do with some help on the organisation of the visits programme. Maybe someone could volunteer to help with the logistics and/or databases of visitors?

A warm welcome to all our new members, including six from the London Underground Railway Society who responded to our offer to join us this year and received a copy of our reproduced LPTB map as a bonus. You join Charles Close Society at a time of healthy growth and continued research and publication. Do join in the activity, and remember that members get special prices on all CCS publications, including our latest publication Mapping the windmill. Please see the website or publication lists for the full range of what’s available.

Don’t forget too, as a CCS member you qualify for an online discount off many OS paper products. Just quote the code CC2PMGAMCM and you’ll pay 30% less on all the products listed in Sheetlines 95. Why not celebrate spring with a new OS map?

The Society’s annual general meeting and map market on 11 May returns again to Tiffin School in Kingston, thanks to school trustee and our member John King. We are delighted to have as guest speaker the entertaining Mark Ovenden, noted lecturer and author of books on railway mapping in the UK and around the world. I look forward to seeing you there!

Gerry Zierler
Programme of future CCS visits and events

Please contact info@charlesclosesociety.org or Gerry Zierler by post at 14 Regency Lawn, London NW5 1HE for more details and to book (except for 22 June event). We do need someone to help with organising meetings and visits. If you are able to offer any assistance, please get in touch.

**Saturday 11 May**
Annual general meeting and map market, Tiffin School, Kingston, London
Guest speaker is Mark Ovenden, broadcaster and author
See separate notice for details.

**Friday 31 May, 14.00**
Joint visit to the Geological Society, Burlington House, Piccadilly, London with the History of Geology Group (HOGG). Cost £7
A chance to see early OS-based maps and other map treasures in the collection of the Geological Society library, courtesy of John Henry. See special feature on page 14 of this issue.

**Saturday 8 June, 14.00 to 16.00**
Visit to Defence Geographic Centre, Feltham, SW London
Not just OS but a wide range of material from the DGC map library. Come at 13.00 to join the lunch party at the General Roy pub – how appropriate is that?
Early booking essential.

**Saturday 22 June, 10.00 to 17.00**
Defence Surveyors Association seminar, Royal Military Survey, Hermitage, Newbury Cost £20, CCS members welcome
Speakers include Adrian Webb (UK Hydrographic Office), Chris Halsall (The Medmenham Club), Ted Rose (Dept of Earth Sciences, Royal Holloway), Richard Chesney (Defence Geographic Centre), Chris Howlett (UK Hydrographic Office), Alastair Macdonald (ex DOS/MCE/OS)
For details and bookings, contact Mike Nolan, Tall Trees, Broad Layings, Woolton Hill, Newbury, RG20 9TS, maptnolan@googlemail.com or 01635 253167.

**Friday 5 July, all day**
Walking tour of Liverpool, including the University's map library and sites of OS interest
See Colby’s grave, sites of Liverpool’s old datum levels, possibly the new City Library and Record Office, and maps, courtesy of Tinho da Cruz.

& **Saturday 6 July**
For those able to stay in Liverpool overnight, Tinho also proposes some places of interest to visit at the weekend, not to be missed by railway buffs!
Sheetlines archive now on the website

As well as these complete issues, the website carries hundreds of selected articles from Sheetlines, grouped by topic.

There are three ways of looking for information on the website. The Sheetlines index (reached by ‘quick link’) has full author, title and key word references, with hyperlinks to items which are available as ‘selected articles’. In cases where there is no hyperlink, you should download the required issue from the Sheetlines archive.

The Search box on the home page will retrieve all appearances of the required text on website pages or in the downloadable files (except that numbers 1 to 35 have been scanned as images from paper originals and these files are not searchable).

Thirdly, Articles from Sheetlines in the navigation sidebar menu displays lists of topics and of articles by subject and by issue number.

We wish to thank David Andrews, Paul and Christine Horbury and John Davies for their hard work in scanning the back numbers.

Our next website project is to scan and upload articles pertaining to the history of Ordnance Survey which appeared in Geographical Journal in the 1920s and 1930s. These are of great historical significance and will be a valuable resource for research. Again, volunteers are sought to share the task of scanning the paper originals. If you can help, please contact John Davies (details inside front cover).
I first encountered Bill Bignell in 1990, following a CCS meeting in London. A conversation in a café off Great Russell Street soon established that we both had an interest in maps and windmills, but that the balance of our interests greatly differed. Thirty years earlier, when very small, I had been ‘interested in windmills’, and in 1985 I had spent an interesting few days around the Norfolk Broads comparing surviving mills with various OS depictions. I didn’t take things further then, and now here was someone who had done so much more.

One thing led to another, and in due course Bill registered as a part-time PhD student at the University of Exeter, supervised by Professor Roger Kain and myself. His thesis, concerned with the treatment of windmills by the OS before 1914, was submitted in 2001.1 As with many theses, it started with an idea that might suffice for an article, and grew to the dimensions of a book. Unlike many theses, it did not then contract for publication into one or two articles: the ‘book of the thesis’ was on a similar scale – and at length it is published.2

It was not a ‘quick’ thesis, and it has not been a ‘quick’ book. Few theses are suitable for publication as they stand, and in any case there is often the urge to polish both language and content. There are also the constraints of earning a living and of assembling illustrations. *Mapping the windmill* is a very thorough book and what, twenty-five years ago, I should have thought would make a short article for *Sheetlines* turns out to be a story of unexpected intricacy. Anyone who thinks that surveyors and cartographers have only to record features on the ground and then fair-draw or engrave them is going to have to think again. Whilst the research and writing of *Mapping the windmill* has coincided with the rise of the ‘new history of cartography’ and with the popularisation of the idea that maps are not just renditions of ‘the real world’ into lines, symbols and splashes of ink, this case-study shows the sheer complexity that can engulf even the most straightforward-seeming mappable feature.

I am not going to attempt to summarise the book, other that to list the contents. In Part One, Chapter 1 is ‘Setting the scene’ (the OS, windmills,  

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symbols); Chapter 2 is ‘Styles of depiction’ (different scales, different mills); Chapter 3 is ‘The Old Series’ [you think it needs no introduction?]; Chapter 4 is ‘The New Series’ [ditto]; Chapter 5 is ‘Deferring to the larger scales’ (what the surveyor saw, a county case-study, an assessment of the one-inch) and Chapter 6 is ‘Epilogue’ (the story after 1914). Part Two is ‘Examples of representation’, and includes no less than eighteen one-inch New Series sheets at reduced-scale (about 1:97,000), annotated with various types of windmill depiction. There are sixteen pages of plates, some in colour, and many other illustrations, of both mills and maps. There are examples of maps at different scales and in different editions: never before, I think, have we had such a combination of comparison and of the three-dimensional ‘reality’ presented alongside the two-dimensional interpretation that is the map. The book is rounded off by a bibliography that is a useful introductory guide to the literature of the windmill in England, including the various county lists and histories.

Even as the parent thesis was in the throes of research it seemed to me that a published version would have implications far beyond specialised branches of industrial archaeology or the history of technology, or the history of cartography. There were plenty of writings on maps, mapmakers, surveying and cartography, to say nothing of many other facets of the landscape, but hardly anything that brought together the maps and the mapped. In fact, if we except a number of short contributions to Sheetlines that are decidedly ‘points of detail’ – the recent ones on ha-has are a case in point – the only one of any significance relevant to the Ordnance Survey that comes to mind is Brian Harley’s booklet on land-use mapping, which is on a much smaller scale than is Mapping the windmill. Now at last we have a full-scale study that shows what can be done by combining a knowledge of maps with a knowledge of something that is mapped. I hope that Mapping the windmill will be the first of a series of similar extended monographs: land-use, buildings, roads and paths, railways, ‘natural features’, all suggest themselves. Such undertakings will not be rapid, but they will be substantial, and here is the book that shows the possibilities, of showing how much on maps is ‘grey’ rather than black-and-white.

The production of the book maintains the standard that has come to be expected of the Charles Close Society in recent years. This is partly owing to our printers, Short Run Press of Exeter, and partly to the careful preparation of the electronic materials by Chris Higley. Mapping the windmill is a splendid artefact in its own right: it is a suitable vessel for a landmark in map-history publishing.

Richard Oliver

To order your copy at special members’ price (valid only until 1 June) of £16.50 including p&p, contact Peter Haigh, publications manager (details are inside front cover of Sheetlines).

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‘SU373155’ says the large bold signboard near the door. It may be SO16 0AS to the postman, but what more appropriate location identity than that recognised by generations of users of its products? And what more appropriate venue for the first expedition in the latest CCS series of visits? Explorer House, on the edge of Southampton is the prestigious new home to Ordnance Survey. On 12 February a group of members was welcomed by Head of Corporate Affairs Phil Watts and treated to a tour of the buildings and practical demonstrations of how a twenty-first century national mapping organisation thrives in a world of fast-moving technology, changing political imperatives and challenging financial constraints.

Some numbers to set the scene: OS is 221 years old, has 1150 staff and 28 field offices; turnover is about £141.8 million, only about 5% of which comes from the sale of paper maps (about two million of them a year). It is an Executive Agency with Trading Fund status, reporting to UK Parliament through the Department of Business, Innovation and Skills. It has to fund all costs and investment from revenue and has to achieve a specified return on capital employed (in other words, pay a dividend to Government). The prime activity is the collection of ever-changing real-world data to maintain the national geospatial database and to make this information available to the public, industry and the public sector through MasterMap and a (surprising) variety of other ways. The database holds some 460 million records, with over 5000 daily changes.

Building manager Greg Tumility described some of the innovative features of the building, such as the ground-source heat-pump system that maintains a comfortable temperature throughout the year, the acoustic buffer of decorative red bricks screening traffic noise, computerised lighting, the sophisticated (but unobtrusive) security systems and the onsite nursery.

The two primary methods of data collection were demonstrated: ground survey and remote sensing. Surveyor Angus Hemmings showed how the latest
model of rugged portable laptop (the Toughbook) is used in conjunction with highly-accurate GPS equipment to identify precise locations on the ground and describe what is there. Jean Martin described the capture and interpretation of aerial imagery. Two leased Cessna planes based at East Midlands airport fly ten months of the year at about 6000 feet, taking some 50,000 high definition images (one pixel representing 4cm on the ground). Skilled analysts interpret the images to identify changes.

The cartographic department is responsible for using all this data plus more from external sources (such as tourist information) in designing and preparing paper maps. The process was described and demonstrated by Mike Robertson, Liz Grantham, Marc Mitchard and Robert Dodd. They showed how new and changed information is incorporated into existing Landranger and Explorer map sheets, emphasising such matters as the care that has to be taken at sheet edges to ensure the completeness and integrity of each individual sheet.

Two further presentations showed something of the activities of OS of which CCS members would be less aware. Edward Mannering showed typical examples of the benefits of the analysis of geographic data in predicting flooding, verifying insurance claims and optimising bin-collection routes or school bus routes. Mark Tabor described the vital role OS had performed in the London 2012 Olympic Games by providing large-scale highly detailed plans and imagery for planning and operational purposes.

We extend our grateful thanks to all who made us welcome and who showed such pride and enthusiasm in the Survey, its activities and its new home.

John Davies
My initial reaction on seeing Karen McGrath’s officially approved article on this subject was one of delight. Yet when I actually read her text I felt rather disappointed. Somehow, despite the platitudinous quotes from various official documents, there still seemed something missing. I had to read it several times and to rummage around for some time on the internet before I could appreciate what this was. The results seem worth sharing more widely.

Her two introductory paragraphs are simple enough, while the third one, describing the operation of the OS as a ‘Government Trading Fund’, appears at first sight clear, despite including several opaque phrases like ‘funding investments in data quality and currency improvements’, and ‘financial obligations to government’ (already one feels an urge to abandon reading and move on to the next article). Nevertheless the idea that the OS is required to fund from sales and licensing not only all its expenditure, but also a subvention to the Treasury, is quite straightforward.

The next paragraph mentions the political and regulatory environment in which the OS operates and briefly describes the report on the Commercial Use of Public Information Study. This was published by the Office of Fair Trading in 2006. This very wide ranging report of 186 pages (plus eleven substantial annexes) cannot adequately be summarised in a paragraph, but has affected all public bodies supplying official information to the public. The report was sharply critical of the OS in particular, and insisted that it, as the largest supplier by value of public information, must make its ‘unrefined’ data available for reuse by private sector organisations at cost price. Ms McGrath mentions ‘assertions that the pricing and licensing arrangements … were having a detrimental impact on the potential for economic benefit for such re-use’. The aim of the Office of Fair Trading was, of course, to ensure that private sector organisations could compete with public sector ones in the production of ‘refined’ products, as required by the EC Directive on the Commercial Use of Public Sector Information (2003/98/EC), as implemented in the UK by the Re-use of Public Sector Information Regulations 2005. Its aim was most certainly not to protect the commercial interests of the OS.

Since the OS was (and is) a Government Trading Fund entirely dependent on income from sales and licensing, and very much reliant on adding value to its ‘unrefined’ data by producing ‘refined’ electronic and paper products, it is hardly surprising that a ‘complex dialogue’ soon followed in order to ‘quantify the issues’ and ‘respond to the challenges’.

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1 Karen McGrath, ‘Use of OS data by commercial publishers’, Sheetlines 95, 3-5.
2 http://www.oft.gov.uk/OFTwork/publications/publication-categories/reports/consumer-protection/oft861
The article goes on to describe the resultant new business strategy for the OS eventually published in Spring 2009. Although the OS website still provides press releases dated 23 April 2009 and 13 May 2009 announcing the publication of this strategy, the links from these to the document itself do not currently work. The quotations given simply reproduce the texts of the press-releases without additional information (or even correction of their distinctly odd syntax and punctuation). In particular she does not provide concrete definitions for the woolly but aspirational terms used. It should be noted that this business strategy was heavily criticised by the Advisory Panel on Public Sector Information at the end of May 2009 for (amongst a number of other things) its lack of definitions and lack of provisions to ensure regulatory compliance. The panel euphemistically described the document as ‘a work in progress’, which perhaps indicates why it is no longer readily accessible. It should also be noted that the APPSI does have some knowledge of the OS and its functions; the chairman of APPSI was then (and still is) Professor David Rhind, formerly Director-General of the OS.

The article next jumps to the announcement on 17 November 2009 by Gordon Brown, then Prime Minister, that he intended ‘to make Ordnance Survey maps free for use online by any organisation including commercial ones … from April next year’. Gordon Brown obviously felt this move was a way of boosting his chances in the rapidly approaching general election. The announcement was apparently made to Sir Tim Berners-Lee and Professor Nigel Shadbolt (who had been acting as ‘government information advisors’) at a meeting with them and was then revealed to the public by those two in an article in The Times the following day. The article set out a very simplistic, un-costed and strongly partisan set of views which had presumably been accepted by the Prime Minister. The episode was presented by the Guardian as a victory for the ‘Free our Data’ campaign, but to me it seemed quite as much to be a demonstration of Gordon Brown’s failing ability to present (or perhaps even grasp) complex issues.

That the views of Berners-Lee and Shadbolt were controversial, and that the OS had been fighting to avoid having to comply with the EC Directive, had already been made clear by the Guardian itself in a succession of articles. In particular, in September 2009 it published a critique of some alarmist costings prepared by the OS for a confidential ministerial briefing during early 2009. The costings, related to existing proposals to move to a free data model, had subsequently been posted on the Wikileaks website. The Guardian had also

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4 http://strategy.ordnancesurvey.co.uk/ Access attempted 3 January 2013.
6 Charles Arthur, ‘OS mapping data: a new landscape unfolds’, Guardian (19 November 2009). This, and all other Guardian material quoted here, was accessed on 4 January 2013 via the newspaper’s website: http://www.guardian.co.uk
7 Tim Berners-Lee & Nigel Shadbolt, ‘Put in your postcode, out comes the data’, The Times (18 November 2009), 30.
published a devastating analysis of an OS study comparing the funding models used by supposedly similar foreign government survey and mapping organisations.9

Nevertheless the OS (and perhaps also the Department for Communities and Local Government whose responsibility the OS then was) was stuck with the prime-ministerial decision. A very hurried public consultation was carried out from 23 December 2009 to 17 March 2010. The government’s response to this was then published on 31 March (perhaps implying that it must have been written before the consultation closed), and the ‘OS OpenData’ portfolio was duly launched on the internet on 1 April 2010.10 Ms McGrath notes that this was ‘under an agreement funded by government’, before jumping ahead to say that the Public Sector Mapping Agreement (PSMA) for England and Wales was signed later that year and came into force on 1 April 2011. The proposal for such an agreement, with its implementation date, formed part of the government ‘response’ to the consultation, but clearly did not directly concern commercial publishers. It principally addressed concerns of the Department of Communities and Local Government. However the ‘response’ also included a more nebulous statement that ‘Ordnance Survey will also be proposing changes to the derived data policy for the commercial sector … as part of its work on revised pricing and licensing’. More fundamentally, it also stated that the government had asked OS to provide ‘technical delivery’ of Britain’s obligations under the EU INSPIRE Directive (to introduce ‘wider access to public sector electronic spatial information across Europe’). Thus the poacher was appointed gamekeeper.

The article omits to mention that a month after this, on 6 May 2010, Labour lost the general election and the present coalition government came into office. However this did not seem to check the administrative momentum. In August 2010 the Department of Communities and Local Government published the ‘Public Sector Mapping Agreement for England and Wales Transition Plan’. This provided the ‘nuts and bolts’ of how the new system for providing OS geographic information to public-sector bodies would work and confirmed its implementation date as 1 April 2011. Importantly it stated that ‘CLG [the Department] has entered into a commercial agreement with Ordnance Survey to pay for the PSMA centrally on behalf of the rest of the public sector’. Equally importantly, there was no mention of the commercial sector.


10 The original consultation document is no longer available on-line but I still have a copy. See http://www.nationalarchives.gov.uk/documents/government-response-os-consultation.pdf for the response. The then chairman of CCS made a submission to the consultation on the Society’s behalf which was not listed in the government’s response document. This is a further indication that the copy-deadline for the government’s response was before the end of the public consultation.
Thus far in Ms McGrath’s article it has been possible to identify her sources precisely, and to critique her use of those sources. In contrast, her final three paragraphs are very different and, as a result, extremely interesting. They are full of information on the commercial re-use of OS data that has not (as far as I can tell) previously been made public elsewhere. I certainly cannot find any of this on the public areas of the OS website (where it ought to be), nor can I find any reference to it on any other official website. The information provided is therefore uncorroborated and uncheckable, but presumably true as far as it goes. It is possible, indeed likely, that some or all of it may be available on those non-public areas of the OS website only accessible to ‘licensed partners’, but I am simply a tax-paying member of the public and not a ‘licensed partner’. And in any case, while the details she reveals are fascinating, they still provide an incomplete picture.

Accordingly these three paragraphs highlight that OS continues to conceal the terms of its licensing of data. This is exactly the sort of restrictive commercial practice that the various EU directives should have outlawed, that the Office of Fair Trading so heavily criticised in 2006, and that the APPSI has also repeatedly criticised.11 And indeed, while I am not a lawyer, to me it also seem contrary to Section 14 of The Re-use of Public Sector Information Regulations 2005.12 Perhaps I am old-fashioned, but I still feel it important that government bodies should not only act at all times in accordance with the law, but also be seen to do so.

Principles apart, does all this matter in a practical sense? We should remember that underlying all the manoeuvrings described above are a number of linked questions that remain highly controversial despite having being ducked in the 2009-10 consultation. The first group of these concern the basic purpose of the OS, and in particular the extent of its activities beyond the basic surveying of the country. Should it simply provide ‘unrefined’ survey data for others to use, or should it produce its own paper and electronic maps and other ‘refined’ products in competition with the commercial sector? EC law, the Office of Fair Trading and the APPSI have all insisted that these activities should be precisely defined and clearly separated with visibly different funding arrangements. In contrast the OS has consistently avoided making such a distinction and has worked to keep the definition of its function as broad and woolly as possible. For example, the OS’s present definition of its ‘Public Task for the purposes of the Re-Use of Public Sector Information Regulations 2005’ (a definition expected by APPSI to provide a legally workable distinction between the monopoly, public-service activities of the OS and its competitive, commercial ones) is very careful to obfuscate any distinction between what it does as a public service and what else it may do. Very

12 I understand that Ms McGrath’s article was written with the knowledge and support of her employers as part of her official role. OS are thus to be congratulated for a small, if still limited, step in a proper direction.
significantly, however, this definition itself mentions the possibility of a future revision if the EC eventually takes notice.\textsuperscript{13}

Intimately linked with the first set of questions is the perennial question of how the OS should be funded. The current funding structure conceives the OS as a unified commercial concern with segregated categories of customers. Under the Public Sector Mapping Agreement all public bodies have substantially unrestricted access to OS data in return for a single large sum of central government money initially agreed by the Department of Communities and Local Government, but since March 2012 the responsibility of the new Data Strategy Board of HM Treasury. The precise text of the PSMA seems not to have been publicised (despite much ballyhoo about it) and nor has that of the equivalent agreement for Scotland signed the following year. The exact financial terms of the PSMA are thus unclear, however the OS Annual Report for 2011-12 states that it has a ten-year term and generated income of £55m for that year. However even less is known about the terms of some of the OS licensing contracts with the commercial sector. There is a unclassified ‘Business portfolio price list’ for firms simply wishing to use OS electronic mapping internally, and a price list for publishing individual map-extracts in books or on CDs appears on the ‘Publishing licensing information’ leaflet.\textsuperscript{14} However a firm wishing to republish or to modify OS data for any purpose has to become an OS ‘partner’, which involves the signature of an 18-page detailed ‘framework’ contract full of legal jargon and limitations (the text of which is headed ‘unclassified’ and is available on the OS website), before one or more additional contracts relating to the specific activity proposed can be signed. Whether or not these additional contracts have standard terms, or are individually negotiated, is unspecified on the OS website, but the implication of Ms McGrath’s final three paragraphs is that there are at least some standard elements. Whether individual ‘partners’ have been able to use the Re-use of Public Sector Information Regulations 2005 to their advantage in negotiating the prices of such contracts is unknown, but I would guess that lawyers for Phillips, which is a subsidiary of the French company Lagardère and which in turn is part-owned by the French state, have been fully conscious of the relevant EC directives.\textsuperscript{15} It certainly seems unlikely that any firm would enter any of these contracts without good legal advice, but nevertheless an increasing number have felt it commercially worthwhile to republish OS mapping at various scales.

Superficially, the current OS business model appears to have been spectacularly successful. The accounts presented in the OS Annual Reports give quite limited information about income, and the way it has been sub-classified has also changed between years. However over the last three reported years (2009-10, 2010-11, 2011-12) there has been a more than 10% overall fall in private-sector revenue to £53m (from about £60m in 2009-10 and rather more in

\textsuperscript{13} http://www.ordnancesurvey.co.uk/oswebsite/about-us/public-task/index.html

\textsuperscript{14} Both available on the OS website.

\textsuperscript{15} For some comments on the publication by Phillips of OS 1:250,000 mapping see: JL Cruickshank, ‘The Ordnance Survey Motoring Atlas of Great Britain’, Sheetlines 91, 6-19.
previous years), which is said to reflect some growth in unspecified new markets despite a continuing drop in income due to ‘product substitution’ following the 2010 launch of OS OpenData. By contrast total public-sector revenue has shot up from somewhere about £55m in 2009-10 to somewhere about £85m in 2011-12. Overall revenue has thus risen from £114m to £141m over the last three years. This must be considered a remarkable achievement at a time of recession and public-sector spending cuts. But while private-sector revenue had consistently been greater than public-sector revenue until 2009-10, it is now dwarfed by public-sector revenue.

Such growth in public-sector revenue cannot possibly be sustainable in the present fiscal climate. During the 2011-12 reporting year departmental responsibility for the OS was shifted from the Department for Communities and Local Government to the Department for Business, Innovation and Skills. The establishment of the new Data Strategy Board of HM Treasury in March 2012 has been noted above. The financial effects of these changes on the OS will not be seen until the 2012-13 Report is published, but they are quite likely to be profound.

The conclusion must be that the funding of the OS cannot yet be considered either secure or stable. And consequently both the ‘public task’ and the commercial strategy of the OS are likely to need yet further review. Ms McGrath (and through her the Ordnance Survey) should be thanked for drawing our attention to this.

John Cruickshank, author of this article and of the book review on page 42 is well known to Sheetlines readers as a prolific contributor on topics as diverse as Ordnance Survey politics and products, pre-war German mapping, military maps of Warsaw Pact countries and Leeds local history. His latest publication is Headingley-cum-Burley c1540-c1784, the most detailed study yet published of any Leeds township. This comprises volume 22 of the Publications of the Thoresby Society, Second Series (ISBN 978 0 900741 72 2). It is now available at £15 plus p&p from The Thoresby Society, Claremont, 23 Clarendon Road, Leeds LS2 9NZ. For more information see www.thoresby.org.uk or call 0113 247 0704.

The figures quoted for each sector are derived from the very small histograms given in the Director of Finance and Corporate Services reports within the OS Annual Reports, and are therefore necessarily inexact.
Scratch a geologist and you’re likely to discover a map addict. The reason is simple: geological maps offer the key to understanding the geology, and hence the form, structure and origin of the surface of the Earth. As William Smith, the ‘Father of English Geology’ put it in a document included with the copy of Smith’s Geological Atlas held in the Hope Library at the Oxford University Museum of Natural History: ‘By their colouring they [geological maps] bring up the natural features of the Country and facilitate the acquirement of Geology.’ And the more accurate the topographic base map, the more accurate and informative the geological map. This helps to explain the close relationship between the Ordnance Survey, the first national topographic survey in the world, and the British Geological Survey (BGS) – the world’s oldest continuously functioning national geological survey.

Accurate topographic base maps were something that William Smith, creator of the first geological map of a nation, lacked. The base map used for Smith’s 1815 map “A Delineation of the Strata of England and Wales with part of Scotland” – the map drawn to popular attention by Simon Winchester’s book, The Map that Changed the World – was the index sheet to the second edition of John Cary’s New and Correct Atlas of England and Wales, published in 1794. Cary’s index map, at a scale of around 47 miles to the inch, showed the outline of England and Wales with hills depicted pictorially, but included no other topographic information. Other early geological mappers faced similar difficulties when it came to finding suitable base maps, and generally turned to topographical sheets published by Cary and other commercial firms including Arrowsmith and Crutchley.

It wasn’t until the first topographical maps prepared by the Ordnance Trigonometrical Survey, the forerunner of the modern Ordnance Survey, became available that detailed geological mapping, in the modern sense, became possible. Among the first geologists to make use of new topographical maps for geological mapping – and the first to geologically colour the whole extent of an Ordnance Survey one-inch sheet – was Henry De la Beche. Born in 1796 in London, but following the death of his father, brought up mainly in Devon and Somerset, De la Beche became seriously interested in geology after settling in Lyme Regis in Dorset in 1812. Although he joined the Geological Society of London in 1817 it wasn’t until he came of age in 1819 and began to receive an income from his family’s estate in Jamaica, that De la Beche was able to fully take up life as Gentleman Geologist, and travel extensively on the continent to meet and learn from other geologists. Following an extended visit to his Jamaican estate he published the first modern account of the geology of Jamaica, Remarks on the...
geology of Jamaica’, which was read at the Geological Society and published in the Society’s Transactions in 1827.

During this time he also continued his studies of local geology in Devon, and began colouring geologically the new topographic maps of Devon prepared by the Ordnance Trigonometrical Survey. When events in Jamaica meant that his income failed, de la Beche applied to the Ordnance authorities, then headed by Lt-Col. Thomas Colby, for £300 to allow him to complete his geological map of Devon. His request was granted and in 1832 De la Beche became a ‘Geologist to the Trigonometrical Survey of Great Britain’. Other holders of similar titles included John MacCulloch, whose geological work in Scotland led to his appointment as a ‘Geologist to the Trigonometrical Survey of Great Britain’ in 1814; and Joseph Ellison Portlock, who was appointed ‘Geologist to the Trigonometrical Survey of Ireland’ in 1832.

De la Beche’s geological mapping in Devon turned up some unexpected fossils that led to a bitter controversy about the age of the rocks and De la Beche’s skills as a field geologist. Feelings ran high among the ‘Gentleman Geologists’ of the Geological Society – with one prominent member, Roderick
Murchison, writing that ‘De la Beche is a dirty dog... I knew him to be a thorough jobber & a great intriguer & we have proved him to be thoroughly incompetent to carry on the survey.’ The dispute wasn’t resolved until the 1840s, after further studies were carried out by another geologist, William Lonsdale, and by Murchison himself, resulting in the establishment of a ‘new’ geological System – the Devonian.

But in spite of the opprobrium De la Beche completed his Devon map in May 1835. He was then asked to carry out a geological survey of Cornwall – and the Geological Survey of Great Britain was born. The first Geological Survey memoir, Report on the Geology of Cornwall, Devon and West Somerset, published in 1839, was the result of De la Beche’s work and contained a folded geological map, along with sections and plans. A revised version included eight sheets of geological mapping on one-inch OS base maps of Devon. The Geological Survey remained a branch of the Ordnance Survey until 1845, when it was transferred to the Department of Woods, Forests, Land Revenues, Works and Public Buildings. De la Beche served as its Director-General until his death in 1855.

Although claims are made that earlier government-funded geological surveys were established in France, the United States, Ireland and Scotland, the Geological Survey of Great Britain (now called the British Geological Survey or BGS) remains the oldest continuously functioning geological survey organisation in the in the world. Its successful start was thanks to a combination of De la Beche’s own geological skills, determination, diplomacy, and what some would call, deviousness; the teams of hard working and skilled field geologists; and the availability of the accurate topographic maps produced by the Ordnance Survey.

Further reading:
JA Secord, Dictionary of National Biography.

The author is a geologist and science writer. Contact ninamorgan@lineone.net

John Henry adds: The map above is the only one that I have come across with Ordnance Geological Survey in its title. I don’t think it was issued separately from his report and often it has been removed from reports that I have seen. The scale is not stated but it is one inch to ten miles. It is not included in OS small scale map indexes: 1801-1998, although it may be alluded to on page 189, item 2.

See page 2 for details of CCS visit to the map library of the Geological Society of London.
Geographers’ A-Z Map Co Ltd has been a long term commercial licensed partner of Ordnance Survey, originally creating our own street mapping based upon 1:10,560 and later 1:10,000 paper sheets, through to present day digital products. This mapping was then, and still is today, typically updated from a variety of sources including local authorities, the emergency services and site visits.

As has been previously documented in *Sheetlines*, Ordnance Survey devised a new business strategy, in part, to meet the need for improved access to geographic data for both commercial and non-commercial use. As a result OS OpenData was launched in 2011 for general royalty-free use and, following revised licensed partner contracts, two royalty-applicable raster datasets (1:25,000 and 1:50,000) were also released without restrictions on areas used.

One of the driving forces behind this agreement was to stimulate commercial activity and product diversity which A-Z has embraced with the new Adventure atlas series. Here was an opportunity to use OS Explorer 1:25,000 mapping so highly respected and widely used by the occasional leisure walker and serious fell walker alike in a fresh exciting way.

Rather than simply reproducing these as sheet maps we decided that a book with additional information and gazetteer would offer the customer a useful alternative in a compact form. In addition, the page format allowed the overall area of coverage to be tailored more precisely, excluding extraneous areas that might otherwise appear within a standard rectangular sheet map area. Publication parameters were further defined by the decision to keep the 1:25,000 scale and that the unopened book should be the same size as an Explorer map when closed to fit in existing map pockets.

A-Z took delivery of the November 2011 release of 1:25,000 data, supplied in 100 km squares of seamless raster mapping at a resolution of 660 dpi. The fact that this was a raster dataset was not seen as a great disadvantage as it was felt essential to keep the familiarity of the mapping to engage with existing Explorer map users. However, the subsequent need to mask out detail would have been much simpler and quicker with a vector dataset.

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1 The author is Chief draughtsman, Geographers’ A-Z Map Co Ltd.
2 Karen McGrath, ‘Use of OS data by commercial publishers’, *Sheetlines* 95,3
3 The A-Z *Adventure atlas* range was launched in early 2012 with four titles covering Dartmoor, the Lake District (2) and Snowdonia. Their immediate success prompted a further eight publications. An additional six titles are about to be released, including the Brecon Beacons (2), North York Moors (2), Yorkshire Dales South and the South Downs Way. Another seven are in preparation.
Separation of each 100 km file into its component four-colours (CMYK) facilitates editing. For example, the cyan OS grid numbers, on the conventional sheet map (figure 1), are masked out as they are obviously not suitably positioned for our page layout (figure 2).

A-Z receives updates from various Government agencies, including the Department for Transport, so the road network is reviewed for essential change and updated accordingly. An example of this kind of intervention is illustrated below where an extract of OS raster clearly shows the new A487 by-pass to the south of Tremadog as under construction (figure 3). The by-pass was plotted and drawn as open by an A-Z draughtsman (figure 4 shows the revised map as published in the Snowdonia Adventure atlas). Other map changes are less obvious; including additional mooring symbols added to The Broads Adventure atlas and a new Youth Hostel along the South Downs Way near Southease Station for example.

Generally only changes within the specification of the Explorer map are carried out, although it is possible to introduce new features if felt necessary. This was the case with the popular Yorkshire Three Peaks Challenge. Plotted from a gpx file, the route is shown in a distinctive way that is complimentary to the map style; although knowledgeable OS map users would no doubt be quick in identifying this ‘alien’ feature (figure 5).

To a large extent the pagination process is automated with page grids and numbers, continuation arrows and index references all effectively created and positioned. National Grid references are reintroduced in the page margins and the appropriate 100 km letter reference added.

Page edge make-up is necessary where a feature, often only named once on a sheet map, may appear on several pages each needing to be

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4 It should be noted that the by-pass has since been opened in a later release of OS data and that any new or subsequent editions of Adventure atlases will always use the latest available supply.
named. This work is carried out by placing vector masks and additional text which may include town names, danger areas, National Parks, natural features and A road numbers.

While it could be argued that the mapping content has little more to offer than an existing Explorer map the ‘added value’ is more apparent from a product point of view. Additional pages include practical advice and other helpful information: from a list of mooring points in the Norfolk Broads to featured highlights within the Brecon Beacons National Park. QR codes introduce an interactive element to the books giving smart phone users quick access to relevant web sites: from OS map reading and National Grid guides to weather reports and safety information. Cover flaps can be opened to allow a map legend of selected features to be referred to while using the map pages inside (a full map legend is included within the book). In the first of a National Trail series, five publications covering The South West Coast Path saw the introduction of a schematic route planner indicating distances and depicting facilities in towns alongside the path with Ordnance Survey symbols as a reference where appropriate.

But one of the key benefits, synonymous with the A-Z brand, is the inclusion of a gazetteer, listing towns and villages, selected natural features, car parks and Youth Hostels. For example, the ability to easily locate car parks in the Lake District is particularly useful as a number of recognised walks start from them – eg Maggie’s Bridge Car Park 2C 38 NY134210. As can be seen the entry includes an alpha-numeric index square and page number reference along with a six figure National Grid reference. This dual referencing also allows the gazetteer to be used alongside an OS Explorer sheet map if required.

The customer will often also benefit in terms of cost where a carefully targeted area may require the purchase of a single Adventure atlas instead of two or more Explorer maps. Potential savings are most apparent with the South West Coast Path which would require the purchase of 17 Explorer maps costing £95.00,5 while five Adventure atlases covering the route would cost £25.00.6

In making Explorer mapping available to licensed partners OS has opened up an area of the retail market that was previously unavailable to A-Z and instigated a more diverse product range. A-Z Adventure atlases offer customers an alternative product using familiar Explorer mapping, updated and added to when appropriate, covering carefully focused areas of interest with additional pages of useful information to enhance visitor experience. Whether map users want to spread out a sheet map when planning, or prefer the convenience and practicality of a compact book while walking, a choice is now available – they may even decide to buy both!

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5 South West Coast Path OS bundle www.walking-books.com
6 A-Z South West Coast Path bundle www.az.co.uk
The introduction of Universal Transverse Mercator (UTM) grid on military maps: a sixty year retrospect

Mike Nolan

In presentations by survey officers on the Falkland Islands, Balkans or Iraq Wars, or wherever, it is still not uncommon to hear mention of the problems caused by the UTM grid zone junction occurring in that theatre. There is, of course, no problem with the UTM grid zone junction. It is simply a fact of life resulting from the decision to adopt the UTM grid and to supersede the multiplicity of British grids formerly in use. These had a plethora of grid zone junctions between areas often mapped on a variety of projections. The UTM grid zone junction occurs at intervals of six degrees east or west of the first zone commencing at 180 degrees west of the Greenwich meridian and commonly occur where British troops have served or may serve, Hong Kong, Brunei and Oman being examples of areas in which junctions occur.

In the case of the Falkland Islands war, the Directorate of Overseas Surveys, who had produced the original 1:50,000 series, had ignored the grid zone junction and had, for local convenience, extended one grid zone to cover the whole colony. This series had been adopted for military use and stocked in map depots without modification. The operational maps and aeronautical charts at 1:250,000 scale, Series 1501 and Series 1501 Air correctly showed the standard grid zones and their junctions and were thus out of kilter with the 1:50,000 scale maps. The urgent remedial action that had to be taken to re-grid the 1:50,000 series to conform with the grids on the 1:250,000 series has been well documented.

The booklet HQ 7714 Engineer Intelligence Group, US Army, Map Reading Kit of 20 January 1952 provides a nice summary of the history:

‘It was during the first World War that the French adopted a rectangular grid based on a conical projection, the Lambert Conformal Conic, known as the ‘Nord de Guerre’ grid. After the war the French extended the system with new Lambert Conformal grids named Lambert Zones I, II and III.

At the end of the first World War the United States adopted a grid system based on a Polyconic projection named the US Polyconic grid. During the inter-war period the Portuguese adopted the Transverse Mercator as the basis for their national grid. Subsequently, both the Germans and Russians adopted the Transverse Mercator, the former in belts three degrees wide and the latter in belts six degrees wide. The world-wide nature of World War Two led to the adoption by the allies of British grids, where they existed. For other areas a new grid was adopted named the World Polyconic Grid, an awkward extension of the non-conformal US Polyconic Grid. At the end of the war the American Army Map Service reviewed the grids covering the world with the aim of instituting a simple, uniform, conformal system capable of application world-wide.
The Transverse Mercator Projection with UTM grid was adopted as the official US Army map grid in 1947 for use in joint Army-Navy-Air operations involving close contact with the enemy.

The ultimate advantages of the UTM grid meant that it came to be adopted by the UK and other NATO nations but the introduction of UTM also had additional benefits principally the opportunity to introduce more up to date French and German mapping than had been available during the war and the introduction of bilingual or multi-lingual versions. Captured German trigonometrical data in German Gauss-Krueger co-ordinates could also be incorporated in the new mapping. By 1952 there was also available a newly computed Central European Adjustment Net of ground control based on geodetic data acquired by Germany during their early victories. Adoption of the UTM Grid was initially limited to maps on scales of 1:250,000 or greater, with certain exceptions, and was to be carried out in large area blocks.

_Conference of Commonwealth Survey Officers 1951, Paper 7_ explains why the Lambert grid was not adopted:

‘The UTM Grid was adopted by military surveyors primarily to make life easier for the gunner who required a system of plane rectangular co-ordinates on which to operate. It was introduced by the United States War Department in 1947 to replace the inadequate, non-conformal, Polyconic Projection which had been introduced for extensive areas where the conformal British Grid System was not available during World War Two. The other conformal projection considered was the Lambert conical conformal projection which would have required thirteen latitudinal zones of six degrees either side of the equator to preserve the scale accuracy required by the artillery up to a latitude of 78 degrees. Thus, in those days of manual computing 65 sets of projection tables would have been required for the five spheroids then commonly in use had the Lambert been adopted.’

The UTM grid was adopted by NATO in the early 1950s and with effect from 27 March 1952 superseded existing map grids in the Priority I area (figure 1). This area of approximately 400,000 square miles contained over 10,000 separate sheets of which 9,000 were at 1:25,000 and 1:50,000 scales. The reproduction task this represented was nearly 90,000,000 copies.

On 27 March 1952, all maps at scales of 1:250,000 or larger of that area bearing the old grids were made obsolete and all position referencing became UTM grid based. The UK, on the National Grid, was an exception to this policy. At the time it was stated that an indirect benefit of this change was that the reprinting of stocks of all the maps in the area concerned provided the opportunity to incorporate the latest revision information but how far this ancillary aim was met is not known.

The reprinting was a combined effort of all the NATO powers concerned but the Army Map Service carried out the greatest part of the task as shown in the following tables.
## Separate sheets converted by US, GB, France, Netherlands and Belgium

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<th>Area of responsibility</th>
<th>Number of separate sheets</th>
<th>Totals</th>
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<td>Belgium</td>
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<td>10</td>
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<td><strong>Total</strong></td>
<td>7815</td>
<td>1867</td>
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</tbody>
</table>

Figure 1 (left)  
Diagram showing UTM Priority I area

Figure 2 (right)  
Part of the diagram showing the equivalent Pre-UTM British grid systems

These diagrams are taken from The UTM grid – notes for map users issued by Survey Branch HQ BAOR in March 1952
The grid systems defined on the full diagram are Irish, English National, Northern European zone III, Russian Belts, French Lambert zone, Nord de Guerre zone, Danube zone, Iberian Peninsula zone, North Italy zone, South Italy zone.
### Series breakdown of sheets converted by the Army Map Service

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<th>AMS series name</th>
<th>No of sheets</th>
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<td><strong>Totals</strong></td>
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<td></td>
<td></td>
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</table>
**Plastic relief models**

Alongside the paper map production task, it is believed that about 1,000 copies of each of 54 plastic relief models at 1:250,000 scale were included in the Priority 1 area programme.

**Trig lists**

In parallel with the production of the re-gridded maps new trig lists were also required. The preparation and publication of trig lists for the Priority 1 area was complete by May 1952 except for a small part of France:

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<th>Country</th>
<th>Number of books</th>
<th>No. of stations</th>
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<td>690</td>
<td>184,900</td>
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<tr>
<td>France</td>
<td>167 of 291</td>
<td>incomplete *</td>
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<td>Italy</td>
<td>129</td>
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<td><strong>Totals</strong></td>
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<td><strong>Excluding France 336,679</strong></td>
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* Of the 291 books in France, 167 completed by 1 May 1952, remaining 124 in work

**Total reproduction carried out by USA, GB, France, Italy, Netherlands and Belgium** *(Scale breakdown as at 1 March 1952)*

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<td>Various city plans</td>
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### Army Map Service reproduction as of 1 March 1952

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**Totals**                    |        |          | 7,840  | 60,105,363 | 98,005,655


Reproduction carried out by GB, France, Italy, Holland and Belgium

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The above tables have been taken from the AMS Summation of UTM Grid Conversion Programme Report by Jacob Skop given at the International Topographic Mapping Conference in May 1952, see PRO WO 402/364

It was presumably from that date that “UTM GRID” appeared prominently in the northern margin of maps and doubtless there was a Directorate of Military Survey Technical Instruction on the subject.

Grid ticks of the obsolete grids such as the common French Nord-de-Guerre grid were retained around the edges of maps to enable references in terms of the obsolete grids to be identified still. On British maps these ticks and values were inconspicuous and in sloping type. On many of the 1:250,000 and 1:100,000 scale maps printed by the American Army Map Service these were shown as prominently as the new UTM grid numbers, though in a different colour. In some cases the grid lines of the obsolete grid were also retained. Near grid zone junctions the grid ticks of the adjacent grid zone were also shown to allow the adjacent grid to be extended into the sheet if necessary. Apparently, on some maps outside the British Zone of Germany an additional grid, commonly Nord-de-Guerre or German civil Gauss Kruger was also shown.
The UTM grid was not introduced overnight. Army Council Instruction (ACI) 41 of 16 January 1952 (left) introduced the UTM grid over northern France, West Germany, Switzerland, Austria and parts of Hungary, Italy, Yugoslavia and Czechoslovakia. As a result about 50 existing map series were made obsolescent.

On 11 October 1952, ACI 639 introduced UTM grid over the former Nord de Guerre grid areas, Germany and Poland between 12 and 18 degrees east and north of 51 degrees, resulting in the obsolescence of another six map series.

On 28 January 1953, ACI 49 introduced UTM grid for the remaining part of France covered by the Lambert Grid, Zones I, II and III. As a result a further nine series were made obsolescent.

It is believed that ACIs were discontinued in 1963 and superseded by DCIs, Defence Council Instructions. On completion of the NATO Priority Areas a programme of conversion was continued for other areas of the world.

A quick review of ACIs archived at the National Archives (TNA) reveals at least the following introductions between 1954 and 1963. However, not all annual sets of ACIs consulted included indexes so it is possible that some were missed.
| ACI 246/1954 | Norway and parts of Sweden and Finland |
| ACI 293/1954 | Russian Zone Grid 4 and 5 |
| ACI 336/1954 | Indo-China |
| ACI 413/1954 | Remainder of Sweden and Finland |
| ACI 222/1955 | Malta and Gozo |
| ACI 117/1956 | Area B1 - Yugoslavia, Albania and Islands |
| ACI 134/1956 | Nigeria |
| ACI 356/1956 | Bermuda |
| ACI 403/1956 | SE Arabia |
| ACI 49/1957 | Turkey |
| ACI 332/1957 | Faeroe Islands |
| ACI 404/1957 | Mauritius and Rodriguez |
| ACI 3/1958 | South Arabia |
| ACI 404/1958 | Hong Kong and The New Territories |
| ACI 189/1958 | Uganda |
| ACI 29/1959 | Northern Syria and Parts of Southern Turkey |
| ACI 89/1959 | Corsica |
| ACI 288/1959 | Gibraltar |
| ACI 65/1960 | Tanganyika, Rhodesia and Nyasaland |
| ACI 306/1960 | Egypt, Israel, Jordan, Lebanon and parts of Syria, Arabia, Libya and Sudan |
| ACI 62/1962 | Syria and Iraq |
| ACI 392/1962 | Parts of Thailand and Burma |
| ACI 156/1963 | Malaya and Singapore (RSO Grid, not UTM) |
| ACI 219/1963 | Libya Part I |
| ACI 242/1963 | Iraq-Iran Phase II |
| ACI 335/1963 | Libya Part II |
| ACI 336/1963 | Kenya |

The programme must have continued and if there is anyone who has further information on this programme the writer would be pleased to hear of it. Defence Council Instructions about introduction of UTM grid were still being issued in the 1970s.

The little booklet *The UTM (Universal Transverse Mercator) grid – notes for map users* provides much of the above information including figures 1 and 2. It was issued by Survey Branch HQ BAOR in March 1952 and, in its sample appendices showing the grid layouts and reference boxes for various scales of maps, it might be considered a forerunner of the excellent, much later, and much more comprehensive, *Manual of Graticules and Grids on Military maps and air charts* published by Directorate of Military Survey in 1973.
The Struve geodetic arc  
John Davies

Readers of Sheetlines will be aware of the great feats of military surveying at the end of the eighteenth and the early years of the nineteenth century. The principal triangulation of Britain, instigated by the spiritual father of the Ordnance Survey General William Roy; George Everest’s Great trigonometrical survey of India and the triangulation of France were completed at that time. These were all carried out by the military for the purpose of map-making.

A quite different motivation however, inspired the work of German astronomer Friedrich George Wilhelm Struve (1793-1864). He was interested in the question of the exact shape and size of the earth. Isaac Newton had suggested that the earth is flattened at the poles; if this was so, then the distance between lines of latitude along a meridian would not be constant. Struve set out to prove it.

From 1816 to 1855 he achieved the astonishing feat of carrying out a triangulation of almost 1800 miles in length, approximately along the line of longitude 26 degrees east, from Fuglenes near Hammerfest in northern Norway to Stara Nekrasivka, near Odessa on the Black Sea coast.

Struve’s Arc passes through ten modern countries (only two at the time): Norway, Sweden, Finland, Russia, Estonia, Latvia, Lithuania, Belarus, Moldova and Ukraine. In recent years the Arc has been declared a UNESCO World heritage site\(^1\) and these countries have co-operated in the recovery, verification and commemoration of the survey sites.

\(^1\) [http://whc.unesco.org/en/list/1187](http://whc.unesco.org/en/list/1187)

*Photos by the author*
More about ha-has on Ordnance Survey maps

David Andrews, retired OS Chief Surveyor writes:

I beg forgiveness from the learned authors of the ha-has article for picking up on one pedantic point, but the traits acquired as an OS large-scale mapping surveyor for over forty years tend to stick with me in retirement!

The caption to figure 4 of the article describes the ha-ha on the map extract as being depicted by a ‘continuous line marking the wall along the vertical side of the ha-ha and pecked lines marking the slope’.

I think on close inspection that the ‘slope’ is, in fact, depicted by slope hachures, not pecked lines. As far as I am aware there has never been an accepted OS mapping symbol for a ha-ha, (though I am happy to be corrected on this point).

Ha-has are, and always have been, depicted on large scale mapping following the specifications for the depiction of walls/hedges/fences and slopes. The wall/fence element of a ha-ha is easily identifiable on the ground and is depicted by a continuous solid line, as are normal walls, hedges and fences which are higher than the land on both sides. However, the ‘slope’ element of a ha-ha is liable to more subjective interpretation on the ground.

The OS surveyor has never had clear guidance on how steep a slope has to be on the ground for it to be depicted by a slope symbol on the map.

The working ‘rule of thumb’ followed by most OS surveyors is that if a slope is too steep to walk down easily, (ie without slipping or falling), then it should be depicted as a slope on the map. To the above has to be added the written specification for the depiction of a slope that it must be over two metres wide between top and bottom measured horizontally for depiction at 1:2500 scale, or over five metres wide horizontally at 1:10,560 or 1:10,000 scale. (On County Series mapping these dimensions were six feet and 15 feet respectively). Note that the vertical depth of the drop from normal ground level to the base of the slope has no relevance in the specifications for the depiction of slopes on the maps.

As is noted in the text of the article, the map at figure 4 is a first edition six-inch map produced by photo reduction of the 1:2500 scale map.

The depiction of the ha-ha is therefore commensurate with the specification for 1:2500 scale mapping and presumably the slope was over two metres (six feet), wide.

The second edition six-inch maps were produced by redrawing the 1:2500 surveys to the specification for the depiction of slopes on six-inch maps; to be shown on the six-inch map they had to be over five metres, (15 feet), wide measured horizontally from the top of the slope to the bottom of the slope. Hence a slope wider than two metres, (six feet), but narrower than five metres, (15 feet), would be shown on the first editions of the six-inch map, but not on the second editions.

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1 Paul Bishop and Richard Oliver, ‘Representation of ha-has on OS six-inch mapping’, Sheetlines 94, 6-15
On page 12 the article refers to a ‘sunk dyke’. Having looked at the photograph of this feature at figure 11, I think any OS surveyor would be somewhat undecided about how to map it. The wall at the bottom of the dyke obviously has to be shown, but whether the slopes are steep or wide enough to qualify to be shown appears to be a borderline decision. Perhaps the 1896 surveyor erred on the ‘show’ side whereas the surveyor of the first edition erred on the ‘omit’ side.

Being pedantic once again, the map extract at figure 13 is of a 1:2500 scale map, not strictly fitting in with the title of the article. The article (page 14), discusses the depiction or non-depiction of various ha-has. The criterion quoted in the text seems to rely upon the vertical depth of the ha-has, but as stated earlier, this has never been part of the specification for mapping slopes. It is the horizontal extent of a slope, coupled with its gradient, which determines whether it will be mapped. Perhaps all the slopes in the ha-has listed here were not wide enough to be shown even though they were all four feet deep?

On page 15 the description ‘old fence’ is mentioned. I think that this term was what would now be ‘broken fence’ on modern large scale mapping. A ‘broken fence (hedge/wall)’ is the remains of what used to be a continuous feature, but is now a feature with many gaps, and only short sections of the old feature extant. It is shown as a pecked line with a textual description on modern maps. The annotation ‘old fence’ on the first edition maps is simply describing the discontinuous remains of a former intact fence.

Response by Paul Bishop and Richard Oliver

We thank David Andrews for his thoughts and comments concerning the mapping of ha-has; comment from a retired OS Chief Surveyor is precisely the type of input we were hoping for. And David is correct, of course, to point out that the mapping symbol for the ha-ha slope, when it is mapped, is slope hachures and not pecked lines. Likewise, we acknowledge the inconsistency between the ‘six-inch’ in the title of our original piece and our use of an extract of a 1:2500 scale map in figure 13. However, matters are not quite so straightforward, for the ha-ha shown in figure 13 in our original paper, together with another a mile or so away in Nonsuch Park, are both shown on the 1:10,560 first edition, but not on subsequent editions.

On the more substantive point: we also thank David for pointing out the ‘rule of thumb’ followed by most OS surveyors (‘map a slope that is too steep to walk down’) and the written specification that a slope must be over two metres wide between top and bottom measured horizontally for depiction at 1:2500 scale, and over five metres wide horizontally at 1:10,560 or 1:10,000 scale. Several examples

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2 PB thanks the Earl of Hopetoun and the Hopetoun House Preservation Trust for permission to examine and photograph the Hopetoun House ha-ha during the house’s closed season, and Messrs Piers de Salis (Hopetoun House General Manager) and Peter Burman (Hopetoun House Trust trustee, and Archivist) for helpful discussions. RO is grateful to Richard Porter for drawing his attention to the Nonsuch Park ha-ha, and for suggesting that both this and the Cheam ha-ha were infilled in the 1950s.
indicate, nonetheless, that the OS practice was far from uniform, notwithstanding David’s clearly made point that a slope wider than two metres (six feet), but narrower than five metres (15 feet), would be shown on the first editions of the six-inch map, but not on the second editions.

Our first example is the splendid ha-ha at Hopetoun House near South Queensferry, north of Edinburgh (figure 1). The main ha-ha, marking the edge of the D-shaped lawn on the east front of the house, is a very substantial topographic feature (figure 1, right). We measured the horizontal width of its slope (to the foot of the slope, not to the foot of the ha-ha wall) at ten positions approximately equally spaced around the length of this D ha-ha, obtaining measured horizontal slope widths ranging from 5.3m (~17½ feet) to 8.5m (nearly 28 feet), with an average horizontal slope width of 6.3m (~20½ feet) (standard deviation of 1.0m). This ha-ha clearly satisfies the conditions to be represented on both the first and second editions six-inch mapping. Interestingly, this ha-ha is carefully and elegantly built, and well-finished, because only the monarch approaches Hopetoun House along the straight-line drive to the east front entry. All others must approach that entry around the curve of the D-drive. Hence the monarch is the only person to experience the effect intended by the ha-ha (ie acting as an invisible fence). All others, passing via the D-drive, see the ha-ha wall, which explains its careful and elegant construction. This unusual arrangement does not alter the fact, however, that the unmapped ha-ha satisfies the criterion for its slope to be represented on first and second editions six-inch

Figure 1. Hopetoun House on the OS 1st edition six-inch map of Linlithgowshire (left). There are several ha-bas in front of the house, the most prominent being that shown at right, which is represented on the map only by the D-shaped continuous thick line bordering the lawn in front (east) of the house. A second, outer curved ha-ba, again marked here only by a continuous thick line and no slope hachures, parallels the ‘D ha-ba’ to its east, itself passing eastwards into straight ha-bas either side of the straight drive (and again marked here only by a continuous thick line)
Map extract reproduced by permission of the Trustees of the National Library of Scotland
Photo: Paul Bishop
Perhaps, as David has suggested, OS surveyors were somewhat undecided about how to map ha-has and exercised discretion, very much erring in this case on the ‘omit’ side rather than on the ‘show’ side.

The photographs of the ha-ha at Wollaton in Nottinghamshire (figure 2) suggest that it is ‘qualified’ for the 1:2500, as the slope appears to be more than six feet wide horizontally, but not for the 1:10,560, as it seems to fall short of 15 feet.

A third example is provided by the Dougalston Estate ha-has that were the stimulus for our original piece. Horizontal widths of ha-ha slopes have been determined for 28 ha-ha cross-profiles on more than 1500 lineal metres of the Dougalston ha-has, surveyed by Geomatics MSc students at the University of Glasgow. 3 The horizontal widths of the Dougalston ha-ha slopes range from 1.2m to 5.5m, with all of the horizontal slope widths greater than 5m being associated with the doocot ha-ha (figures 7 and 10 in our original paper). The minimum ha-ha slope width we surveyed on this doocot ha-ha is 2.83m, and – consistent with the OS ‘rule of thumb’ reported by David – this ha-ha is the only one at Dougalston to be mapped as a ha-ha on the first edition six-inch mapping. The frequency distribution of slope widths we surveyed in all Dougalston ha-has is given in the table, showing that horizontal slope widths >2m represent nearly 80% of surveyed slope widths. One might therefore expect that essentially all Dougalston ha-has would have been mapped on the six-inch first edition. Two of the seven widths surveyed on the doocot ha-ha are greater than five metres.

Figure 2: The ha-ha at Wollaton, Nottinghamshire; photographs taken by Richard Oliver in September 1997. The normal-sized bricks give an indication of scale.

3 The data here are from Cicek, S.K. 2012. ‘Mapping an 18th Century designed landscape’, Unpublished MSc dissertation in Geospatial and Mapping Sciences, School of Geographical & Earth Sciences, University of Glasgow. PB sincerely thanks Sule Cicek and Geomatics staff for undertaking the mapping (in summer 2012, we note, prior to any of the current discussion of ha-ha slope widths).
**HORIZONTAL SLOPE WIDTHS IN SURVEYED DOUGALSTON HA-HAs**

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<td>1 - &lt;2</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>2 - &lt;3</td>
<td>11</td>
<td>39</td>
</tr>
<tr>
<td>3 - &lt;4</td>
<td>6</td>
<td>21</td>
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<tr>
<td>4 - &lt;5</td>
<td>3</td>
<td>11</td>
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<tr>
<td>5 - &lt;6</td>
<td>2</td>
<td>7</td>
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<td>≥6</td>
<td>0</td>
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</tbody>
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In summary, and notwithstanding David’s very helpful commentary and explanation of OS procedure, it seems inescapable that many ha-has with horizontal slope widths greater than two meters have not been represented on the first edition six-inch mapping. Indeed, a check of the 436 photographs of ha-has on Geograph (http://www.geograph.org.uk/search.php?i=38567801; accessed 29 January 2013) against the relevant first and second edition maps would be an interesting exercise. We might speculate that surveyors for the first edition six-inch mapping were already employing an informal rule that a ha-ha had to be wider than, say, three metres (six of our seven surveyed widths on the doocot ha-ha) to qualify to be mapped as a ha-ha. This informal rule was then formalised at >5m for the second edition six-inch mapping. As David has pointed out, the second edition width rule excluded mapping the doocot ha-ha as such, with only two of its seven surveyed widths being ≥5m. In any event, it seems likely that the surveyors’ discretion as to whether to ‘show’ or ‘omit’ erred more on the ‘omit’ side in relation to ha-has, a conclusion that is clearly consistent with the lack of mapping of the Hopetoun House ha-ha. Of course, the foregoing discussion is predicated on the assumption that the procedures described by David operated at the relevant times in the nineteenth century when the first and second editions maps were being prepared.

Finally, David comments on the use of the term ‘old fence’. We suspect that this is one of a number of terms that appear on early 1:10,560 mapping in Britain (‘foot stick’ is another), but which were replaced later by other descriptions.
I was interested to read the article by John Davies, *London 2012: Why not walk it?* in *Sheetlines* 95. I visited London for a long weekend during the games and built up an impressive collection of maps, guides and other literature from both inside the park and from around London. I was probably quite indiscriminate in my collecting but nearly everything was free (which appealed greatly) and I suppose that I was hoping to find something special amongst the various publications.

John’s article also served as a reminder that the Isle of Man hosted our own international games the year before, albeit on a much smaller scale. The event was the 2011 Commonwealth Youth Games which were held in September of that year and involved 811 athletes from 64 countries and just like the Olympics involved a body of volunteers – 1300 in our case. These games will have passed under the radar of all but the most ardent of sports fans but for a small community of 84,000 people we were quite proud to host the games and the organisers were under a lot of pressure to deliver.

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1 The author is Senior Cartographer at the Isle of Man Government mapping service
As the Island’s cartographer I was called upon to put together a mapping programme to suit the organiser’s requirements and although we only produced one map that could be called a brand new publication we were quite busy in the run up to the event producing “technical” maps to support event planning.

These technical maps were based on the Island’s large scale map data and contained a variety of themed overlays including venues, competitor information, games HQ, hotels, transport routes, recycling locations and road closure information. The maps were printed on large format sheets and posted at strategic locations during the games. They were also used during volunteer training which was satisfying to see (I was also a volunteer).

We also produced a glossy folded map guide which was intended for the volunteers but was also popular amongst the visitors and quickly sold out (if that term can be used for a give-away map?). This was a close cousin to the maps that I saw at the Olympics and included the games logo, sponsors information, a picture of Tosha, the Manx cat mascot, plus plans and information that we expected the visitors to need. This guide included much more in terms of design than the functional technical maps and we worked in partnership with Peel-based commercial cartographer, Vic Bates in order to complete the map and get it printed to a looming deadline.

What I remember now about this project was the quick turnaround demanded for each set of maps. For obvious reasons, deadlines weren’t negotiable – if there was a meeting scheduled for a certain evening, they had to have the maps available. Likewise for the glossy guides, the volunteer training was on one date and the teams arrived on another. Therefore the guides had to be available on those dates.

At the time I was a bit bemused when they all disappeared but after visiting London and becoming a collector myself I can now understand what was happening.

Postscript: As we have three children, I’ve been putting my Olympic souvenirs together in sets of three in the hope that one day in the distant future they’ll thank me for it. eBay has helped fill in the gaps and it’s interesting to see how much competition there is for many of the games maps and guides.
The ‘Withycombe’ style

Richard Oliver

My article on lettering in *Sheetlines* 95\(^1\) prompted several responses from readers. One suggested that it might be a good idea to illustrate the ‘Withycombe’ style as originally designed in 1928, and this appears in the upper part of figure 1.

Although it has been customary for several decades to refer to this style as ‘Withycombe’, this is really a tribute to the ‘project leader’, Captain JG Withycombe: much of the detailed work was undertaken by the Ordnance Survey’s resident artist, Ellis Martin. It would therefore be more accurate to refer to the style, at any rate as originally conceived, as ‘Withycombe-Martin’, though that is more cumbersome. Withycombe was described by his Director-General, Brigadier EM Jack, as ‘an artist by profession and by nature, in addition to being a surveyor’.\(^2\) That was at a meeting of the Royal Geographical Society (RGS) on 12 November 1928, when Withycombe read his paper ‘Lettering on maps’, and gave the background to the new style. The object was to produce something that would be suitable for helio-zincography: that is, it had to photograph satisfactorily, ideally without any need for touching-up on the negative, and should not tend to clog and thicken when the image was transferred to a grained zinc plate. Though the primary inspiration was classical Roman lettering, in the form seen on Trajan’s column in Rome, that was an insufficient basis for designing lower-case and italic, and so these were devised with reference to styles employed on mapping of the early sixteenth through to the early eighteenth centuries. Withycombe argued that from the later eighteenth century the tendency had been to make the thin strokes thinner, producing ‘hairlines’ and the thick strokes thicker: this was suitable for printing direct from copper, and was manageable in transferring an image from copper for bulk-printing from lithographic stone, but it was unsatisfactory for printing from zinc.

As published, the subsequent ‘discussion’ occupies more space than the paper itself. There was a substantial contribution from Arthur R Hinks, the RGS Secretary, who did more than speak: he showed slides, of a style of lettering recently designed for use on maps in the *Geographical Journal* and illustrated in the lower part of figure 1. Hinks contended that the RGS style was about five times faster to produce than was the new OS one. The RGS used quills, and all but larger letters could be formed with single strokes, whereas the OS-Withycombe style was designed for pens: letters were built up by drawing the outlines and then infilling. The general effect of the two styles is fairly similar; preference for one or the other will depend on individual taste, though to me the OS style seems more suited for the large number of minor names on small-scale maps.

Both styles, depending as they did on manuscript rather than type, were susceptible to variation, both because of the personal characteristics of the

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\(^1\) Richard Oliver, ‘A few notes on map lettering’, *Sheetlines* 95 (2012), 33-42.

individual draughtsmen, and because of conscious decisions made during drawing. The RGS only employed a handful of draughtsmen and, as compared with the OS, the immediate impression is of considerable homogeneity. Although the style is best-known from monochrome maps published in the Geographical Journal from the late 1920s into the 1960s, it can also be encountered elsewhere. Two examples are the multi-colour map of Europe and the Middle East at 1:11 million produced by the RGS for the British Council in 1941, and a group of maps showing inns and taverns, produced some twenty years later by KC Jordan, a RGS draughtsman who had worked on the British Council map. Both give an inkling of what the style might look like on a multi-colour topographic map.

The Ordnance Survey variations are both more familiar and more marked. The Withycombe-Martin style was designed during Jack’s directorship, but he was succeeded in 1930 by Brigadier HStJL Winterbotham. At the RGS in 1928 Winterbotham had welcomed the new style in principle, but was critical of some of the individual letters, and his influence may be suspected in subsequent practice. Although the new style was used extensively on the Map of XVII century England of 1930, the first sheet on which it was used exclusively was one-inch Fifth Edition sheet 144, published in September 1931. Drawing of this sheet had begun late in 1928, a few weeks after Withycombe delivered his paper, and there are interesting variations in both lettering and road widths: it can be inferred that when Winterbotham took over at Southampton he had some changes made on those parts of the sheet on which the drawing had not yet started (see figure 2.). Evidently these did not wholly satisfy, for further changes were made over the next few years (see figures 3, 4, and 5).

This by no means exhausts the possible varieties of ‘Withycombe’ even within the Ordnance Survey of Great Britain. The use of the style elsewhere has not been studied, but it certainly had some influence in the British Commonwealth. Two examples, both on mapping put in hand in the mid-1930s, are a 1:500,000 series covering Nigeria and the one-inch of New Zealand. The earlier sheets of the New Zealand mapping particularly strongly resemble the OS one-inch Fifth Edition, in lettering, colouring and marginalia, although the standard of finish varies: work on some sheets was pushed forward for defence reasons during World War II. Particularly close to the OS model is sheet N164, Wellington, of 1950.

The essence of the ‘Withycombe style’ was the minute variation due to hand-work. However, a broadly similar substitute, such as the High Tower demonstrated in Sheetlines 95, can give a similar general effect. I leave others to decide the relationship of High Tower to ‘the Withycombe-Martin tradition’.

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3 A more careful study might modify this view.


5 The one-inch Fifth Edition sheets were drawn in several ‘sections’, at twice published scale.
Figure 1. (top) ‘Alphabets designed for the new one inch map of the Ordnance Survey’, (bottom) the style designed for the RGS: from Geographical Journal, 1929.'
Figure 2 (above). Lettering on one-inch Fifth Edition sheet 144, published 1931, (above left) in south-east part, which was probably drawn first, (above right) in north-west part. Noticeably different are the treatment of the lower-case ‘o’ and the italic lower-case ‘l’, although all the italic lower-case has a greater contrast of thick and thin strokes than do the later examples.

Figure 3 (left). Lettering on one-inch Fifth Edition sheet 113, published summer 1933. Compared with figure 2, the parish-village names are written distinctly larger and have a more ‘open’ feel.

Figure 4 (lower left). Lettering on one-inch Fifth Edition sheet 118, published autumn 1933. The contrast of thick and thin strokes is distinctly less pronounced than on sheet 144.

Figure 5 (below). Lettering on one-inch Fifth Edition sheet 93, published autumn 1939. A maturity of style?

This is a history of IDWO (the Intelligence Department or Division of the War Office) from its origin in the Crimean War as the Topographical and Statistical Department until its assimilation into the new General Staff at the beginning of the twentieth century. IDWO will be well known to many readers of *Sheetlines* as a prolific producer of maps of overseas territories. It also had a highly influential role in providing not only topographical intelligence, but also a very wide range of other information about overseas territories, to the great offices of state. Indeed a central contention of this book is that the volume of intelligence supplied to the Foreign Office, Colonial Office, India Office and indeed the Prime Minister became far greater, more important, and more influential than the more limited information provided to the War Office or to the Commander-in-Chief of the army. There has hitherto been no historical account of IDWO available, and so the present work is essential reading for anyone interested in the development of Britain’s military and colonial mapping, and should be equally essential to anyone studying the growth of Britain’s foreign, colonial and imperial policies during the late-nineteenth century. Furthermore the source material for the book has been assembled from a very large number of sources scattered through public records, private papers and contemporary publications. These include a substantial number of reports printed at the time by IDWO for very limited circulation within government and the armed forces.

All of this makes for a very good start indeed. However the resulting book is problematic in several ways. Although the author (himself a former intelligence officer) emphasises that the provision of intelligence requires not only the gathering of raw information, but also the evaluation and contextualisation of that information before it can be used effectively, the contextualisation of the information in the book is often suspect or frankly weak. This is very clearly reflected in the footnotes and bibliography. These are filled with primary source citations, but there is a striking absence of any acknowledgement that many historians during the subsequent century or more have examined aspects of the political, military and colonial history of the period. As a result the author’s understanding of the shifting political currents in London often seems over-simplistic and limited by the content of his archival material. His understanding of events and opinions in the wider world seems even more simplistic and often frankly wrong. For example, although he recognises that many contemporary British and Indian opinions about what the Russians were up to in the Great Game were ill-informed and thus dangerous, he seems not to appreciate that the understanding achieved by IDWO at the time was, while better-informed, itself capable of improvement. In particular the conflicting views, opinions and actions both of individuals working in St. Petersburg and of Russian explorers and
military commanders active in Central Asia can now be recognised much more clearly than at the time. Very similar criticisms could be made of his account of the events leading up to the Fashoda incident and other landmark events in the scramble for Africa.

A major focus of the author is to identify IDWO as an embryonic General Staff in Britain at a time when the continental powers were developing their General Staff organisations in the light of the experience of the Franco-Prussian war. His argument seems plausible, but might have been greatly assisted by some reference to the existing literature on developments in other countries. In particular Arden Bucholz’s categorisation of the war-planning functions of the German Great General Staff, as being organisational, representational, educational and analytical, could have provided a useful yardstick with which to evaluate the activities of IDWO. David Alan Rich has shown that in Russia, as in Britain, there was continuing resistance at senior levels to the idea that military officers should have technical and scientific training and expertise. Such very close similarities between the Russian Main Staff and IDWO could usefully have been emphasised, particularly in the context of the Great Game.

To anyone wanting to know about the maps produced by IDWO the book will be a disappointment. Despite noting that maps were the most widely known product of the department, and also that the need for maps of the Crimea had led to the foundation of the department, the author largely ignores them. There is no citation of the published catalogues of the maps, and no attempt to describe or evaluate them. A condescending comment on page 164 about ‘sweating jobbers in the basement’ also suggests to me an ignorance of the skills required for high-quality cartographic lithography. And while the union of what was then the Topographical and Statistical Department with the Ordnance Survey after Jervis’s death is mentioned, as occasionally are individual postings of officers to duties with the OS, there is no attempt to describe or understand how the two bodies interacted, either before or after their parting in 1870. Indeed there are no citations of the substantial existing literature on the history of the Ordnance Survey in this period, although in fairness it must also be said that Seymour’s History of the Ordnance Survey hardly mentions the Topographical Department of the War Office and does not index it.

Surprisingly, the book itself contains no maps to illustrate the complex play across the globe of the events described. This makes the text difficult to follow at times, particularly since the place-names mentioned are those current in London in the nineteenth century, not those appearing on present-day maps. The Oxus is relatively easy to identify as the Amu Darya, but I remain uncertain where

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'Penjdeh' was (see pages 170-71). Might it now be the Panjshir valley, so notorious in Soviet times? My disorientation was further exacerbated by rapid shifts of the narrative between Anatolia, Persia and Afghanistan.

Nevertheless the great value of this book is its identification of so many primary sources. Accordingly, the comment in the introduction that many of these 'remained in the Ministry of Defence Library (Central and Army) until the mid-1970s' brought me out in a cold sweat. Much of the source material used by Thomas Pakenham for his well-known book on the Boer War was subsequently 'weeded' and so destroyed.\(^5\) I sense that the research for the present work may well have been carried out some time ago and that some important sources he identified may likewise have subsequently been destroyed or dispersed without trace. I hope my fears are unfounded but, if the original sources are now lost, the analytical weaknesses noted above become the more regrettable while the book itself becomes the more valuable. It is certainly well worth reading.

John L Cruickshank

John Davies gives an interesting account of the special maps produced by for the 2012 Olympics\(^6\) (all of which were dated April 2012). However, an earlier map, dated December 2011 in much the same format as the *Why not walk it?* series may be regarded as a prototype for these. It is entitled *Continuing your journey in the Olympia area* and was issued to assist those inconvenienced by the withdrawal of regular weekday Underground services to Kensington Olympia, which took place on 11 December 2011. Because of this rather limited purpose the quantity produced is likely to have been far smaller than for the Olympics maps.

There are some presentational differences. The cover does not depict the trouserless individual featured on the other maps, but is a simple extract from the map itself, with the TfL logo but not the National Rail or Network Rail logos. The map itself appears to be on the same scale and in the same style as the *Why not walk it?* series, but covers a smaller area (one vertical fold less).

This map does include the OS and TfL Copyright statement mentioned by John, but intriguingly, my versions of the Victoria, Charing Cross and Liverpool Street maps omit this. Presumably, the maps were reprinted at some point, but whether the Copyright statement was added or removed in the reprint is impossible to say. All are dated April 2012.

Graham Bird

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\(^6\) John Davies, *London 2012: Why not walk it?*, Sheetlines 95, 16
Fashion page

Ordnance Survey used to sue the pants off anyone using their data¹ – now they give them the tee shirt (left).

And not just the tee shirt, free beer and pizza as well. At OS Developer Events, developers (possibly lured in by the promise of such freebies) are encouraged and assisted to create innovative geo-spatial applications for websites and mobile devices.

OS OpenSpace is an API (an interface which developers can incorporate in their applications) which provides access to OS OpenData (the maps). All for free!

Just released is OS OpenSpace v4.0, which supports mobile touch devices, meaning any website using OS OpenSpace can be viewed and panned on tablets and mobile devices, enhancing user experience and providing even more possibilities for web developers. The new functionality, such as kinetic mapping, enables smoother panning; and new touch screen functionality allows users of website applications to easily add markers, routes etc. using a tablet or mobile device.

Developer events are held from time to time in various locations around the country and are free to attend. Places must be booked in advance. For more information see www.geovation.org.uk

A less impressive fashion item is this leisure shirt, whose digital display (left) continues to show the same fixed geo-location (Newcastle-upon-Tyne city centre) wherever the wearer travels. Clearly an improved API is needed.

[Readers should not be alarmed; we do not expect the Fashion page to make a regular appearance in Sheetlines.]

¹ See, for example, *AA pays £20m in copyright dispute*, BBC News, 5 March 2001, http://news.bbc.co.uk/1/hi/business/1203480.stm

The committee had been considering the scope for publication of a book on Ordnance Survey maps and railways. The appearance of this volume has certainly demonstrated that such a publication can appeal to a mass-market readership. Of its 303 pages, rather more than half consist of map extracts, mostly in colour. And the reproduction is good. The more important maps are reproduced in their entirety at a reduced scale, followed by one or more extract at full scale. These extracts often occupy a double-page spread with bleeding edges, so one can gauge the full visual impact of the map.

Visual impact and cartographic design are the aspects that chiefly interest the authors. Beck’s London Underground map of course features prominently, but the book also covers George Dow’s diagrammatic maps for the LNER and LMS, and modern equivalents too. Other aspects of visual design also appear: I learned (with dismay) that the style of design introduced by British Rail in 1965 influenced most of the railway operators in Northern Europe.

The book is pulled together by a potted history of railways in the UK. Anyone looking for a coffee-table book on the subject, or with an interest in graphic design will find the book a splendid one, especially if a copy being remaindered can be found.

As the reader may have come to suspect, I was hoping for something more. Having demonstrated that a study of maps of fen drainage can shed light on the history of that subject and vice-versa,¹ I had supposed that the same would be true of railway history. *Mapping the Railways* points to three fields where such a relationship might apply but fails to follow them up. The starting point for two of them is the OS five-foot plan of York station of 1851. Here we have a detailed representation of what was almost a standard design for 1840s Midland Railway termini: four roads under a train shed, with arrival and departure platforms on opposite sides. all four roads being linked transversely by wagon turntables midway and at the buffers. The plan shows us that these turntables took a segmental ‘bite’ out of the platform. Does that mean that trains could not load passengers while straddling such a turntable? Such turntables would be useful for unloading private carriages: for example, the officers of Christ’s Hospital travelled to Lincoln in 1847 in the carriage they would use for visiting their Lincolnshire estates mounted on a carriage truck. A letter written shortly after complained of delays in unloading. Perhaps they were shunted to a siding for this; if not, the locomotive that had hauled their train was presumably trapped all this time at the end of the arrivals platform – there were no points there by which it could be freed. Perhaps a wider study of major stations on early five-foot plans can throw light on questions like these.²

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² Alan Godfrey touched on the complexities of mixed-gauge stations when writing the notes on the Westminster & Victoria 1869 1:2500 sheet, numbered by the OS *London XLIII*, by Godfrey *London 75*.
This same plan also shows the electric telegraph running to a room adjacent to one marked ‘Post Office’. Halfway along the arrivals platform (and adjacent to one of the wagon turntables) is ‘Signal Lamp’. Can we make any deductions about Signal & Telegraph practice at York in 1851? If we chose a station with an early five-foot plan for which a detailed accident report survives – and there were plenty of accidents at that date – would the map offer useful insight, or would the accident report offer insight into the rules being applied by Ordnance surveyors?

The third field concerns the plans deposited with Clerks of the Peace to satisfy the requirements of Parliamentary standing orders. The style of deposited plans from after 1837 is well known; they are invariably lithographed, and though exceedingly useful are visually unattractive. Prior to the change in standing orders in 1837, such plans were made to a smaller scale and were often engraved. The book reproduces such a plan, dated 1820, showing an ‘Intended Railway or Tram Road from Stockton to Darlington’. This shows ‘Mr Overton’s Line of Railway’ (intended for horse haulage) with every plot through which it passes delineated and numbered, as one would expect for a deposited plan of this date. It also shows ‘Mr Stevenson’s (sic) Line of Railway’, which was laid out with gentler curves to facilitate the new-fangled notion of haulage by steam locomotive engines. The boundaries of properties passed through by this line are not marked in any way. The authors observe that the second line must be a later addition to the plate. What they do not remark on is that a map in this state would not be adequate for a deposited plan. Quite possibly a later state still exists in which the properties passed through by ‘Mr Stevenson’s Line’ are delineated and numbered just like those on Mr Overton’s Line. I do not expect the authors to have produced a cartobibliographic listing of all the states of this map, and I certainly do not aspire to do so myself. What I want to observe is that the survival of the state they reproduce suggests it had a reasonable print run. From what I have seen of other statutory undertakings of this period, I would presume that copies were sent out to subscribers or potential subscribers for shares. Investors in this era seem to have liked to satisfy themselves of the details of the scheme they were supporting. In contrast, once the new-style deposited plan appeared in 1837, this requirement to communicate topographical detail to investors seems to have vanished. Is this because 1837 just happens to mark the change from investment by local people in local schemes to speculative investment by outsiders who were quite happy to be told that the Lincoln and John O’ Groats Direct Railway passed through country well-suited for railways and likely to produce copious revenues from the mercantile and agricultural districts which the line traversed? There is scope for a book here which really would use maps to throw light on railway history and vice-versa. Let us hope it will not be too long before someone takes up this topic.

Rob Wheeler

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3 This state is probably of 1821.
4 A complete invention - but there were real schemes described in this manner.
Who drew Westmorland man?

Every now and then, when rummaging around with maps, something unexpected leaps out at you. Such an event occurred recently at the National Library of Scotland, Map Collections, when a face from the past peered out at the librarians. Nestling in a title line, from a volume of Ordnance Survey maps, the face that looked back at us, was young, male and sketched in grey pencil, with coat lapels drawn in with a purple/blue pencil.

Trying to decide when he was drawn, we made a study of the clues. The purple/blue marks that make up our man’s lapels, are a waxy, crayon-like substance that looks very similar to markings drawn by an oil-pencil. Nowadays these pencils are mostly used to mark metal, glass and ceramic, but oil pencils were used by engravers to mark copper printing plates, to show corrections and alterations that needed to be made to a plate. On this evidence, the drawing was done by someone after the mid-nineteenth century, (ie: after the date of the OS map title) but prior to the mid-twentieth century, since engraving was not regularly done by the OS after the first world war, and therefore there would have been few, if any, oil pencils in the workplace, to pencil in the lapels of our ‘Gentleman’.

It is unlikely that a librarian or researcher would have drawn in the lapels, because oil pencils were not common tools with the non-trade public. A non-printer and non-cartographer would have been more likely to draw graffiti with a graphite pencil.

The style of the design, the use of the curlies on the letter ‘O’ to suggest sideburns, and the ‘general feel’ of the drawing, expressed by the large creased lapels, the cravat, moustache, and hair parted down the middle, makes one think of a Victorian gentleman. A gentleman who was drawn into the title line of the Victorian era ‘Westmorland’ OS maps; part of the collection ‘OS of England & Wales, Bound Volumes of 1st edition, County Series, six-inch engraved maps, 1840s-80s’ (Berkshire-Westmorland volume).

So, attempting a ‘forensic’ deductive approach, using the observations noted above; ‘Westmorland Man’ was drawn some time during the mid-nineteenth to no later than the early- twentieth century, and he was ‘doodled’ by someone with a spare minute or two, and with a flair for sketching, as well as access to trade tools. Maybe our artist was a cartographer, a printer, or a ‘larrikin’ apprentice? But ‘Westmorland Man’ is not really an act of vandalism, he wasn’t drawn on the map, he’s really just ‘cartographic graffiti’.

Robert Harold, NLS Ordnance Survey catalogue project

This article first appeared in January 2103 edition of Cairt, newsletter of the Scottish maps forum, and is reproduced by kind permission of the author and the editor.
The original is available online at www.nls.uk/media/1058965/cairt22.pdf
Kerry musings

David Archer

I hesitate to mention the word fractal with so many members well versed in the numerical sciences, but any collection of Ordnance Survey maps should bring it to mind. A fractal, where the same pattern repeats over and over, or, for OS maps, nearly the same pattern is repeated with different sized collections. The map market after our Annual General Meeting displays a pattern, repeated over and over, on a smaller and smaller scale. The stalls composing the whole event contain a wealth of fairly standard and easily found maps, with some less common examples. A single stall will similarly be home to mostly standard maps, with a few unusual items; a pattern repeated in a single box on any stall, where, within a box, a group of maps from the same series will be mostly common numbers with the odd scarce map. Got the idea?

Any group of OS maps exhibits this pattern, a few scarce items amongst the many. A small quantity of maps formed our first sales catalogue, yet in Catalogue 54, which was much bigger, the proportions were very similar, lots of Seventh Series and Populars with fewer Thirds and so on. Lots of easily found sheets with a few scarce sheets. This holds true for the whole Ordnance Survey output since 1801, for a copyright library, for your collection, or for the box in the bookshop (with luck). It also holds true for the handful of truly superb private collections, where everyone has the really rare items, considered common in this context, but each has a few maps unique to any collection. Thus, a basic pattern is repeated, whatever the scale. Subconsciously, we all know this and take it into account when deciding on a strategy for inspecting a collection of maps, where we try to weed out the few from the many. Consider the aforementioned map market at the AGM. ‘The doors will open in one minute’ Rodney tells the stallholders, and in sixty seconds the first members drift in. It never fails to amaze me just how slow the trickle through the door can be. Is it a reluctance to finish map conversations, or fear of the enormity of the task ahead? Collectors with a map hunting strategy? Not at first sight. And then they spread out and start looking. Spot the strategy.

Me and my sort. I like to get a feel for the totality that is on offer, and hopefully find anything really obvious before others do. I move around the whole venue very quickly, glancing at each table, looking for anything displayed prominently and peeping into the odd box or two. Then, if I can remember them, I return to the most promising stalls in descending order of promise. Standing in front of each stall, I repeat the process. I speedily scan the whole stall and then glance through each box, inspecting a map or two before I return to the most promising box. Here, yes, you’ve guessed, I skip through the box. Quickly, and then on to the next stall. I only focus on the visually obvious and miss a tremendous amount. I rely on things being easily seen, on stallholders recognising unusual items and having them displayed prominently. My approach acknowledges the power of distinctive covers or packaging in aiding identification. A lot of luck is needed, and an acceptance that during the
afternoon I will be shown and envy treasures that others have found using a more reliable strategy. I never find those unusual gems that can only be found by opening a map, as doing so slows you down terribly. Mine is no way to operate if looking for specific print codes, for example. But then, I am never looking for anything specific, just things that stand out. Literally, whatever catches my eye. Any map that hides a scarce print code deep within its folds is of no interest as I do not really collect maps. I just accumulate things I like. And having whizzed round a couple of times, I give up. Nobody has ever caught me ploughing through box after box as I do at record fairs.

At the opposite end of the spectrum are those who have a vast collection and are looking for anything they do not have. And do not know they are looking for it until they see it. They have built large collections, lacking only a handful of obvious maps, whilst containing a tremendous number of unusual and interesting morsels. Such people accept that the goodies are there for the finding and systematically go through every stall, skipping only the sections that really do not interest them. These diligent souls find some very nice material, even quite late in the day. At the end of the afternoon they appear, seemingly shattered by the concentration needed, but clutching a handful of five or six nondescript maps ‘which are of interest’. Found by hard slog, guided only by memory. It has to be done this way, there is no alternative. A variant on the systematic searcher are those looking to complete a map series, whatever that means, if such were possible. These collectors all have wants lists, and go from stall to stall, seeking only their pet series, hoping to find items marked as lacking in their lists. Such searchers always appear to be the most unhurried people in the world, oblivious to the squeals of delight as others find something nice. The only thing that might shift them is the presence of another collector checking a wants list through the same series. Having paid for any purchases, they gleefully amend their lists to prevent buying the same map later in the day. At the 2012 AGM, David Frankland had his now much reduced list down to a fine art, clearly set out on a stiff piece of card hung around his neck, with both hands free and no need to flick between pages of a book or unfold a torn and creased piece of paper.

A third group of members are merely ‘interested in maps’ and are not looking for anything in particular, just something that takes their fancy. (A bit like me, but read on.) They follow the middle way. Totally relaxed, they wander around the room all afternoon looking to be entertained. The word haste is not in their vocabulary. A map is picked up from a stall, opened wide and spread across the boxes before unwilling neighbours are invited to discuss the discovery, which is eventually replaced, mis-folded and mis-filed. “Very interesting”, and they drift off, allowing the irritated neighbours to dive into the previously obscured boxes. Chris Board frequently arrives at our stall late in the day after others have gone and seemingly just chats. But all the while his eyes roam across the boxes, seeing only the top edges of maps. Year after year, with minimal handling he pulls out something interesting that the hordes have missed. Effortless. An art in itself. But no matter how you approach the search, it all comes down to luck in the end. Maps are found or missed by deviating from the normal, such as going round the
room in an anti-clockwise direction this time. A collector desperate for a given map misses it because someone has dumped it in the wrong box.

And then there is the problem of what to do when you find a map that looks promising. Do you waste time, and study it? Note its existence and location for future study and press on? Or do you start a pile of ‘possibles’ which moves across the stall with you? I can offer no explanation, but until recently, unless I was certain that I wanted a map, I would always put ‘possibles’ back in the boxes with the intention of going around the room a second time to look at them. Everyone has done this, and all have regretted it because the map is either forgotten or sold to someone else. I assume my thinking was that spending time on ‘possibles’ risked losing ‘c certains’. As you see, I am not very good at looking for maps. I just like to see what is available, and press on hurriedly.

So, the wise virgin builds a pile of ‘possibles’ and then sits on a seat beside the stall holder to consider what is wanted. A good or a bad thing to do? Holding on to things while you search a stock and then to put them back is unfair to other customers who might want the maps, and to the stall holder who might lose a sale to someone else. But having a pile allows you to speed through the stock without time-consuming checking. Opening folded maps slows things down. And if you do open a map whilst checking, you stop others from looking and are a real nuisance. Being polite and undertaking the check away from the stall means you lose your place. Better to add to the pile and press on, refiling unwanted items as quickly as possible. Seeing a pile build up allows the stall holder to ponder the likely total price and consider whether any discount is appropriate. It might also put pressure on the compiler, especially if a neighbour looks interested in something in the pile. Any stall holder will confirm that the easiest way to persuade a waverer to buy a map is to ask an interested neighbour whether they might want it. ‘I found it first, and if he wants it, I really should buy it.’ No, these days, I do like a pile to consider, and if some are thrown back, well, that’s the way it goes. And having decided on my purchases, I like to have them put at the back of the stall to collect and pay for later, even though I sometimes find it hard to remember what I have and where. But oh, how frustrating to see wonderful things sitting on the floor waiting to be collected by others. In my book, the cardinal sin is to have things put aside and then say they are not wanted. Ban that person. One is honour bound to take a reserved map, even if another is found at a lower price elsewhere.

Tim Nicholson had a style of his own. At bookfairs, one could hear him go from pitch to pitch, ‘Do you have any Ordnance Survey maps?’, ‘No?’. ‘Thank you’. Pitter-patter, pitter-patter. ‘Do you have any Ordnance Survey maps?’ It paid off handsomely. Attending all the major fairs, week after week, he was remembered, and people put things aside for the man who always asked for OS maps. And it saved time, especially with two fairs on the same afternoon. This approach was used at the AGM map markets, when Tim would appear and ask me whether I had anything of interest for him. If the stall holder knew what they had, looking through stock was obviously considered a waste of time.

The full collection of past Kerry musings is at www.charlesclosesociety.org/kerry
Interest in the Ordnance Survey of Great Britain’s triangulation pillars has grown as their importance has diminished. They came into being as part of the retriangulation of Great Britain that was begun in 1935, suspended during World War II, completed in 1962 and finally published in 1967. Like other national triangulations, that of Britain was divided into primary, secondary and tertiary orders: most of the stations for the first two were marked by pillars, though some, for example on church towers, were marked in a more discreet manner. A number of them continue in use, in order that the ‘OSGB36’ triangulation can be related to more recent GPS observations. Whereas both triangulation and GPS observations function as a skeleton to control detail survey, triangulation depends on intervisibility between stations, which means the ability to sight for 30 to 40 miles for primary stations, and 5 to 10 miles for secondary stations. Whilst a minority of primary stations were located in reasonably accessible places in populated areas, such as on cathedral towers, most were on hilltops, often pretty remote.

Up to the 1980s the pillars were, well, just there: purely utilitarian things. Then, around 1990, it became known that the development of GPS would make many of them redundant, and the prospect of their loss stirred many people to their defence. In the event the cost of wholesale removal, combined with the ‘adoption’ of some of them, has ensured that the majority of the redundant pillars continue in being. Not only that: there is a sport of ‘trigpointing’, the logging of visits, which has now extended beyond the pillars themselves to the flush-brackets for levelling which are set into all the pillars, as well as many other structures. It is therefore unsurprising that ‘someone should have written a book about it’: in fact the website www.trigpointinguk.com advertises some related ones, such as on ‘trig walks’.

*Primary trigs in Wales* describes the selection of sites, building the pillars, and the early observations from them, and gives a summary of information for each pillar. This information is largely from OS records, some of which are in process of being transferred to The National Archives, and it demonstrates that there is considerable scope for similar books for areas elsewhere in Britain. Not the least valuable part of the book is the guide to pillar numbering, on page 36. The accounts of pillar construction are accompanied by contemporary news items:
such context is to be commended, though I could do with rather less sport. There is other interesting information, such as on landowners, though some passages, such as the paragraph on the Duchy of Lancaster (pages 45-6), seem unnecessarily prolonged. These asides are not always well integrated with the text: one has an impression that they may have been afterthoughts. However, they are bound to add to the interest for those who are not narrowly focussed on maps and survey.

So far the book is good in principle, but there are several faults. Some of them can be attributed to self-publication: often one wishes that a second pair of eyes had been at work for malapropisms, for example ‘voracity’ rather than ‘veracity’ on page 100. Similarly, surely ‘Great Britain’ rather than ‘United Kingdom’ (which implies inclusion of Northern Ireland) is meant on page 16. And it is puzzling that, on page 191, Aberystwyth and Aran Fawddwy pillars seem to have been repaired before they were built! It is also unfortunate that the list of chapters lacks page numbers. It is for this sort of thing that we need proof-readers and publishers’ editors. Other faults are less likely to be picked up by a publisher, but undermine the author’s authority: many of these come in the first chapter, and include death-dates of 1791 and 1821 respectively for William Roy and William Mudge, and evident confusion of purpose: did the 1:25,000 really replace the county series (page 12)? Some of the text might be reorganised: the character-sketch of Martin Hotine on page 162 surely belongs in chapter 1.

Illustrations are scattered through the book, but the best of them are in a six-page section of photographs from the ‘Ordnance Survey Archive’. A few of these, such as that of Hotine and others at Turiff in 1937, are relatively familiar, but I believe that most appear for the first time, including one of what can only be described as a cowboy pillar-builder. They are printed on the same paper that is used for the letterpress, which is adequate for whole-tones, but not really so for half-tones.

An advantage of self-publication-on-demand is that it is possible to correct the text without waiting for bulk stocks to sell out. This book is a worthwhile read, and at the price is a fair buy compared with some broadly comparable books that have come my way recently, but with the text cleaned up it could be considerably better.

Incidentally, the author is not to be confused with the Editor of Sheetlines!

Richard Oliver
A question of early Benders

John T Pounder writes:

In The earliest Bender? Richard Oliver writes that the earliest British example is Ordnance Survey one-inch New Forest, issued in 1938. But I have in my collection a one-inch Fifth Edition Special District map St Albans published 1937. This map is mounted on cloth and has Fifth Edition-style blue cover with the horizontal fold at the top.

Richard Oliver replies:

John Pounder has drawn attention to something that might have been made a little more clear in my note in Sheetlines 94. I said there that the New Forest sheet, published in September 1938, was the first appearance of the Bender fold on any British map. This sheet was a prototype for a redesign of the one-inch and half-inch maps devised around a suitable size for Bender-folding, and it had not previously appeared in any other style of fold. (However, dissected copies of New Forest were issued in the established book-fold style.) Nonetheless, earlier sheets, including many one-inch and half-inch printed from 1937 onwards, are encountered Bender-folded. The reason is that it was long-standing Ordnance Survey practice, from the 1900s to late in the twentieth century, only to fold enough copies of a particular sheet for a few months’ consumption, which explains why the same printing can often be encountered in several cover-styles. New Forest seems to have been the only Bender-folded map on offer for several months, but around the early summer of 1939 ‘Bender’ was adopted as standard, and both new printings and existing stocks of the one-inch and half-inch series were issued in this style. In fact, many of these sheets were unsuited to the four vertical panels of New Forest and used a ‘semi-Bender’ fold of three vertical panels, all open at once and to my mind very awkward inside a car, or outside with any sort of breeze!

An oddity which I cannot explain concerns the two latest full-colour printings of ‘pre-war one-inch’, both made in 1941. Fifth Edition sheet 127 was issued in semi-Bender style; England & Wales Popular Edition sheet 135 reverted to the book-fold style. It would be interesting to hear from anyone who has the ‘3041’ printing of 135 in a Bender cover – or of 127, ‘3041’, in book-fold.

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1 Sheetlines 94, 49
**Letters**

*From Ken Hollamby:* Some of the pleasures of looking for old maps are the cartographic byways that open up for exploration. Here is a selection from my recent discoveries.

In 1923 the Ordnance Survey published a small four page flier promoting the Ministry of Transport *Road Map of London & Environs*. There were six maps in the set at a scale of two inches to one mile. The illustration on the cover is a wood cut, black on cream paper, by Arthur Palmer, illustrated on page 41 of *Map cover art*. John Paddy Browne comments that this is Palmer’s poorest illustration, a crudely made woodcut, and, in respect of the *Weymouth, Yeovil and Taunton* half inch map, dreary. He prefers Ellis Martin’s atmospheric design *The road ahead by night*, on page 99 of his book. The Ordnance Survey or perhaps the Ministry of Transport chose not to use this design. John Paddy Browne’s comments may be artistically valid but this was about selling maps. Driving at night wasn’t much fun in the 1950s so in 1923 it wasn’t to be encouraged. Palmer’s illustration might be dreary but from a marketing viewpoint does a much better job. It must have been difficult to read a map at night in the car depicted in the Ellis Martin illustration.

I grew up with petrol from Shell-Mex and BP but where did the Mex come from? A recent addition to my collection is the *Mex Motor Spirit Map of the River Thames*. This is an undated 36 page, 7 inch by 4 inch booklet, promoting the use of motor spirit by river traffic. The coloured maps are by George Phillip & Son Ltd. Mex was the trading name of Bowring Petroleum Co. Ltd. who became part of Shell in 1921 when they traded as Shell-Mex Ltd. and became Shell-Mex and BP Ltd in 1931. From the booklet we learn that Bowring were the distributing agents for the Anglo-Mexican Petroleum Products Co. Ltd. They boasted that ‘Mex Motor Spirit has now attained a front rank position...’
amongst British motorists. Mex Spirit has consistently proved its uniform high quality'. The booklet seems to have been published during WWI as it contains an *Abstract of Certain Bye-laws (1914)* affecting petrol motor launches.

From *Postscript*, the very tempting remainder catalogue, I purchased *The Landscape of London* reduced to £3.99. This was published by Anderson Geographics and reviewed by Richard Oliver in *Sheetlines* 88. It is described as 'a unique 3D map revealing the natural landscape of Greater London'. This reminded me of my first contact with contour lines. I grew up in Streatham, south-west London, which is separated from south-east London by the Claygate Ridge (highest point 119m). This was brought home to our young minds when at school we cut out cardboard sheets for each contour level and assembled them to produce a model of the underlying landscape.

Richard Oliver came to my aid when I was looking for information about the one inch third edition map of *Sheffield and the Peak* but couldn't find it in his and Roger Hellyer's *A Guide to Ordnance Survey one-inch Third Edition maps, in colour*. Richard said that this series didn't meet the criteria for inclusion in the book as they are not in colour other than, in my case, the roads. He drew my attention to the late Tim Nicholson's paper.1 The circle was completed when I was discussing Ordnance Survey publications with a dealer from Yorkshire at a recent Lincoln antiques fair. He told me that he missed Tim who purchased OS ephemera from him.

**From Charlie Beattie**: I was surprised and delighted to see the picture of CCS visit to Brislington.2 Alas Dave Andrews attributes to me greater powers than I actually possessed at the time in respect of his dress code. On the other side of the welcoming board at the rear is his Region Manager John Miell ... 'twas he who must be obeyed! Dave is correct I was the RME for the West Region (appointed 1988) but my bosses were in HQ at Southampton, so you could say I had ‘access to, but not powers over, any of WR staff’. Dave is also correct in that at the time his ‘black hole’ which housed the Digital Field Update System (DFUS) was the star attraction. One of my tasks was to make all the local authorities and other major users of large scale mapping fully aware of the new technology and the benefits to them that would surely arrive if and when they ‘came on board’. For the LAs it took a while but they all signed up eventually though I don’t think it would have happened, at least in the relatively short time scale that it did, without the support and goodwill of the region’s staff. As to the visit itself, the year is the giveaway, 1991, our bicentenary, plus the fact that at the time I was also secretary of the British Cartographic Society and in close contact with our then Vice President, one Chris Board! I do recall the visit, for us it was very enjoyable and I can assure you that having the opportunity for a group photograph was not given to all. The Region felt honoured to receive such a visit in its special year.

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2 *Sheetlines* 95, 54