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

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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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Summer and autumn programme

We regret that the proposed April visit to the School of Military Survey, Hermitage, Newbury has had to be postponed. We hope that it may be possible to rearrange this later this year or early in 2005.

15 May
Details have been circulated to members in a separate mailing.

4 June
The Depot supplements the museum at Covent Garden, and houses equipment and memorabilia for which there is no space at Covent Garden.

10 - 12 June
Paul Ferguson in Dublin has arranged a Thursday afternoon visit to the National Archives to see the OS archive. Our Friday morning visit to the Phoenix Park offices should be particularly interesting as OSI are planning to move out in the next few years. A visit to Trinity College Library is scheduled for Saturday morning. Other visits may also be arranged but there will still be sufficient free time for a look round the Guinness Visitor Centre!

17 June
We are privileged to be invited back for a special visit to view their archive, now housed in a purpose built building.

6 July
Another fascinating location. The visit covers not only geological maps in their library, but their massive collection of minerals, and on our last visit, we were permitted to view their Drawing Office. They also have an excellent shop.

16 October
A joint meeting with the Lincoln Record Society for the launch of their local historic atlas: see page 3 for more information. Speakers include Richard Oliver, Dennis Mills and Rob Wheeler. There will also be a walking tour led by the Lincoln City Archaeologist.
23 - 24 October

Shap Wells weekend

A leisurely autumn weekend in the Lakes with talks by Chris Board on South African maps and Dave Watt on European maps. A visit to Rheged is a possibility for Sunday morning.

17 November

Ordinance Survey headquarters, Southampton

Our annual visit to Ordnance Survey, Southampton.

Places on visits are usually limited to a maximum of twelve, and are allocated on a ‘first come’ basis. Contact Gerry Jarvis, Rulow House, Buxton Old Road, Macclesfield, SK11 0AG, telephone 01625 611594, or email visits@charlesclosesociety.org.uk.

Annual General Meeting, 2005

Everyone who attended the 2002 AGM at Southampton and experienced the generous OS hospitality will understand why the Committee has rushed to accept Ordnance Survey’s kind offer to host next year’s Annual General Meeting on 14 May 2005 at the same venue. Further details will be published in due course.

The Oxford Seminars in Cartography

Nick Millea has provided the following updates to the programme published in Sheetlines 68.

6 May 2004

TOSCA field trip - visit to the History of Science Museum, Oxford
Contact Nick Millea for more information – numbers restricted.

17 June 2004

Mercator: the first modern scientific cartographer

Nick Crane (writer and broadcaster)

All seminars commence at 5pm at the School of Geography and the Environment, Mansfield Road, Oxford. Charles Close Society members are welcome to attend. For further details, please contact Nick Millea, Map Librarian, Bodleian Library, Broad Street, Oxford, OX1 3BG, tel: 01865 287119, fax: 01865 277139, nam@bodley.ox.ac.uk.

D-Day Commemoration Symposium

There will be a joint British Cartographic Society / Defence Surveyors D-Day Commemoration Symposium at the National Maritime Museum on 5 June. The theme is Combined Operations Mapping (Gallipoli, D-Day, Iraq), and the cost £15 for the day.

Those interested should telephone Dr Peter Chasseaud on 01273 476265, or email: peter@parvenupress.freeserve.co.uk.
Historic town plans of Lincoln, 1610–1920

Ken Hollamby

Society Secretary Rob Wheeler, who lives in Harmston near Lincoln, and historical geographer Dennis Mills from nearby Branston have jointly edited Historic town plans of Lincoln, 1610-1920. This atlas of the City of Lincoln is being published as a hardback by the Lincoln Record Society with the Survey of Lincoln in October 2004. It will contain a series of facsimile reproductions from the first surviving plan of the city published by Speed in 1610, through to the 1920 Ordnance Survey Town Map. This is, if not a unique venture, then an extremely rare one. We are interested to learn if any other towns can boast such a volume.

There will be about 128 large pages. The 20-inch-to-the-mile plans published by J S Padley in 1842, 1851, 1868 and 1883, and for the six-inch scale, the 1920 OS Town Map will be in full colour. Padley’s plans are particularly valuable to historians, as the scale is large enough to show individual buildings. The streets are all named, although that does not include tenements in courts, yards and passages behind properties in the named streets. Also reprinted will be the index of streets existing in 1920, published with the OS Town Map. The volume includes introductory essays describing the cartographic, geographic and historic significance of the maps.

In addition to the Padley plans and the OS Town Map, the atlas will contain other smaller scale plans giving a good overall impression of Lincoln’s size, shape and landmarks.
at the following dates: 1610, 1727, 1817, c.1820, 1832, 1835, 1839 and 1848. Even Speed’s rudimentary plan shows the well-known row of windmills on the cliff top in the Burton Road area. The 1832 Reform Act plan was based on OS surveyor’s drawings from 1820 at a scale of two inches to one mile. The small extent of the city is shown clearly on all these maps – even about 1840 housing did not extend south of Bargate (the South Park roundabout), when Bracebridge was a quite separate village well down the Fosse Way. Similar observations can be made about the other entrances to the city, for example, the last building on Ermine Street going north was the Diocesan School, now Bishop Grosseteste College, built in 1842. Within the area of medieval occupation many streets had ‘empty spaces’, for example, Hungate and Beaumont Fee, Church Lane and Lindum Hill (then still called New Road). Along the lower High Street, there were practically no side streets south of St Mark’s. Then Lincoln became a city with railways and foundries, and terraced streets, also well displayed by J S Padley, and began to spread out towards the open countryside.

The official launch of the atlas will be at Edward King House in Lincoln on 16 October when, in addition to the Lincoln Record Society AGM with a talk by Rob Wheeler, the Charles Close Society will also be having a meeting.

The atlas will be sold in shops at £30.00. Lincoln Record Society members will receive copies in return for their annual subscriptions. The publishers are making a pre-publication offer at £22.50 plus postage. This offer is open to members of the Charles Close Society. A descriptive leaflet containing an application form can be obtained from society member Ken Hollamby, 2 Queensway, Lincoln, LN2 4AH. Please send an SAE (preferably 240 × 110 mm, size DL). Ken can also be contacted on 01522 526731 or email ken@abbeyside.co.uk. The offer will close on 30 June, 2004.

Sheetlines index and the annual Almanack

Publication of this issue of Sheetlines is slightly later than planned in order that the new cumulative index to Sheetlines can be distributed in the same mailing. The previous index was issued eight years ago and we have been acutely conscious for some time of the need to bring it up to date. Lionel Hooper has now trawled through the 2900 published pages of all issues prior to this one in order to produce this very comprehensive booklet. We are extremely grateful to him for all his hard work and also to the various members of the Society who have seen and commented on draft versions of the index.

The 2004 Almanack will be distributed with the next issue of Sheetlines. This will include an updated list of dealers in second-hand Ordnance Survey maps. If you would like to be included in the list, or wish to update your existing entry, please send details to Professor David Parsons, Chairman, Publications Subcommittee, preferably by e-mail to dparsons@attc.demon.co.uk or, alternatively, by post to 1 Kent Drive, Congleton, Cheshire, CW12 1SD or fax (01260) 270875. The information required is listed in the last Almanack and on page 4 of Sheetlines 61. David can also be contacted by phone on (01260) 271596 or (07802) 709193.
Cartographic discoveries during a week in Washington

Roger Hellyer

I wrote in Sheetlines 44 in December 1995¹ to report a curious act of vandalism afflicted upon certain copies of England and Wales one-inch Third Edition sheets. Copies of the hachured version of sheets 1, 4 and 5 had been discovered defaced, with the words ‘Third Edition’ in the top left hand corner scratched out, leaving it possible for the casual observer who disregarded what was printed in the bottom right hand corner to view these sheets not as Third Editions, but as Revised New Series. This is not so flippant a comment as it may at first appear, because all three sheets, thus defaced, are present in a collection of Revised New Series hills sheets once owned by the Geological Society of London, and, more to the point, all the copyright libraries held copies of Third Edition sheet 4 in their hachured sets of Revised New Series with precisely the same disfigurement. It is thus hard to avoid the conclusion that an employee of the Ordnance Survey was responsible, though why it should have been necessary to perpetrate this apparent deception is hard to conceive.

Revised New Series hills (NS-2-H)² sheet 1 was listed in the Ordnance Survey monthly publication report in September 1903, and sheets 4 and 5 in January 1904. Why they should have been announced when apparently they had not been printed is just one part of the mystery. They would anyway very quickly have been superseded by Third Edition equivalents (NS-3-H), in which form the three sheets were announced in the publication report for December 1904. Yet it transpires that these three sheets already were in print in NS-3-H form at more or less exactly the time of the NS-2-H announcements, because the embossed printed dates on the disfigured copies read September 1903 for sheet 1, and January and March 1904 for sheets 4 and 5. The question of why their official announcement as NS-3-H should thus have been delayed for several months is yet another part of the same mystery. Is it possible that they were listed as NS-2-H in error for NS-3-H? That seems unlikely since two different publication reports are affected, and the usual way of rectifying this would have been by a correction statement in a later issue. I concluded my piece in 1995 by asking, with rather more optimism than realism, that anyone owning actual issues of NS-2-H 1, 4 or 5 should get in touch.

I bring this all up again now as a prelude to the announcement of my discovery of authentic copies of NS-2-H sheets 1, 4 and 5. During a week in the Library of Congress in Washington D.C., most of which I spent immersed in their remarkably full sets of engraved one-inch maps of all our home countries, England and Wales, Scotland and Ireland, I could scarcely believe my eyes as I opened the folder of Revised New Series hills sheets³ to find all three at the top of the pile. There was no disfigurement to the maps top left, and the dates were correct bottom right. So, in spite of the curious sequence of events described above, all three sheets actually were printed. Yet there is still one final twist in this narrative – the NS-2-H copies in the Library of Congress were not printed until November of 1905, by which time third edition sheets had officially been in print for almost a year, and in circulation for nearly two. Just to complete the picture, I should add that in the same folder there was also a copy of NS-2-H sheet 6, printed in the same month. Readers may recall that

¹ Roger Hellyer, ‘One-inch engraved maps with hills : some notes on double printing’, Sheetlines 44, 11-20.
² To use Richard Oliver’s most useful and self-explanatory system of abbreviation.
this sheet was not even printed in NS-2-H form until April 1904, or a month later than the appearance of its NS-3-H counterpart. For some reason further copies of this map (that had been superseded before it was published) were required eighteen months later. I will leave further speculation about all of this to others.

For those who prefer to examine detail of this sort in tabular form, I append another copy of the list I supplied in Sheetlines 44, updated to include this new information:

<table>
<thead>
<tr>
<th>Sheet</th>
<th>Pub</th>
<th>EPD</th>
<th>OSPR</th>
<th>NS-3-O</th>
<th>NS-3-H</th>
<th>NS-3-H with heading deleted</th>
<th>EPD</th>
<th>BL acc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1897</td>
<td>11.05</td>
<td>9/03</td>
<td>9.03</td>
<td>1903</td>
<td>9.03</td>
<td>12/04</td>
<td>11.03</td>
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<td>2.05</td>
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<tr>
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<td>1897</td>
<td>2.02</td>
<td>3/02</td>
<td>-</td>
<td>1903</td>
<td>3.04</td>
<td>12/04</td>
<td>2.05</td>
</tr>
<tr>
<td>[3]</td>
<td>1897</td>
<td>10.02</td>
<td>10/02</td>
<td>-</td>
<td>1903</td>
<td>3.04</td>
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<td>4</td>
<td>1897</td>
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<td>1/04</td>
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<td>1.04</td>
<td>12/04</td>
<td>5.04</td>
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<td>1897</td>
<td>11.05</td>
<td>1/04</td>
<td>3.04</td>
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<td>12/04</td>
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<td>1897</td>
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<td>2.05</td>
</tr>
</tbody>
</table>

Other previously unrecorded engraved maps turned up in the sets of Irish maps in the Library of Congress. It may be recalled that the first edition of the one-inch map of Ireland was issued in three forms, outline, hachured and geological. As was standard practice at the time, the hachured map began with all topographical detail and the hachures engraved in the same copper plate. 200 of the 204 hills sheets (there are no hills in sheet 50) were engraved in this form by October 1895; this was followed by the issue in November and December of the last four sheets, 136, 145, 146, 156. The hills and outline of these sheets were separately printed from transfers to zinc in copies sold to the public. While it is logical to assume that part way through the conversion process there would have existed engravings on copper both of the outline and the hills, no copies printed from both of them together have previously been recorded, so far as I know, so it was another moment of great surprise to come across sheets 136 and 145 in engraved form. Both carry a stamp ‘Presented by Her Britannic Majesty’s Government’, presumably to Congress. There is in fact a second copy of sheet 145, which arrived in the same collection as part of the General Staff map collection of the United States War Department. It would seem logical to assume that sheets 146 and 156 would have been similarly treated.

The one-inch map in the northern counties of Ireland, from Donegal to Down, had been based wholly or in part on revision for the second edition six-inch map. Revision for the second edition of the six-inch map of the remainder of the country took place after publication of the first edition of the one-inch, but in 1889 to 1895 outline editions of some thirty sheets covering the area from Cavan to Carlow were ‘republished’, incorporating the fruits of this revision. No hachured sheets have ever been associated with this issue, but there

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4 But see footnote 8 below.
5 Reference G5780.s.63.G7. These are double printed hills sheets; further copies of both have since been identified in the Bodleian Library in Oxford (reference C19(24)).
is one such in the Library of Congress collections. Sheet 129 is present, the black hills now on a separate plate from the outline. The ‘Re-published in 1890’ at the end of the imprint in the bottom right hand corner was merely copied from the outline version: we have to look to a later date for the printing of this hills edition. A prototype printing of England and Wales sheet 345 from separate outline and hills plates was made in 1890, and the process became standard there by 1892. However in Ireland, as we have seen, the use of combined outline and hills plates continued until October 1895, and it would be surprising if this issue of sheet 129 was earlier than that. It is possible that it is in some way connected to another version of sheet 129 found in the map library at Trinity College Dublin, reported on in Sheetlines 46. This also had the byeline ‘Re-published in 1890’, and, being in colour, could scarcely have been printed earlier than 1896 or 1897. At the time I suggested it may be a prototype for the one-inch coloured map which started publication in 1902. The Library of Congress map may represent a further link in the chain, stretching from the republished outline edition of 1890, to the addition of separate hachures, perhaps in 1895, to the Trinity College map of about 1896 or 1897, both hachures and outline now transferred either to zinc or to stone, then finally to the published map in colour. The hachures are brown on the Trinity College map; roads, water and woods are also coloured, all county, barony and parish names and boundaries deleted, and the borders of the map redesigned with the latitude and longitude apparatus replaced by an alpha-numeric system intended for use on coloured one-inch maps. Other than the loss of the sheet price, the marginalia is apparently identical to the Library of Congress map.

Sheet 129 Baltinglass was to spring yet another surprise, because there was in the same folder in the Library of Congress yet another unrecorded printing of the hills plate, this time attached to a second edition outline plate of 1899. John Andrews referred to three similar sheets in a record set held by the Ordnance Survey of Ireland. These were printings from the second edition outline plates, without contours, yet again of sheets 136, 145 and 146, double printed with hachures in brown. The outline plate of the Library of Congress sheet 129 is similarly without contours, and the hachures with which it is combined are black. It may be recalled that the published second edition of Ireland with hills was delayed so that contours could first be applied to the outline edition before dealing similarly with the hachured map. In consequence only 66 hills sheets ever were published, with contours, either in second or third edition, or both. The remaining two thirds, which incidentally include sheets 129, 136, 145 and 146, were cancelled in March 1912 when the Ordnance Survey finally gave up publishing engraved sheets with hachures altogether.

I would like to end this short summary with a note about the third edition of the Irish one-inch map. The second revision in Ireland was, of course, never completed, and publication of the maps was no doubt further interrupted by Ordnance Survey’s obligations to the conduct of the first world war. When I was checking for the sheets published in the outline edition for inclusion in the lists in my indexes book I encountered references in the publication reports for sheets which never seemed to be present in collections of the map. Sheets 33, 36 and 45 were all announced in 1915, and there was evidence that sheet 101, in the middle of no man’s land where revision was concerned, was printed in 1917 – indeed

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7 Roger Hellyer, ‘Some unrecorded one-inch maps with hachures’, Sheetlines 46, 35-37.
Republished first edition hachured sheet 129.
Reproduced by courtesy of the Library of Congress. Reduced to 90%.
Previously unrecorded printing of hills plate attached to second edition outline plate of 1899. Reproduced by courtesy of the Library of Congress. Reduced to 90%.
there are two copper plates for the sheet in the National Archives in Dublin. But I was unable to find any engraved copies, just lithographed reprints of sheets 33, 36 and 45 in the Freeman Library in Trinity College, Dublin. Even that copy of sheet 36 has since disappeared without trace. Happily, an engraved copy of sheet 101 has since been discovered in the map collection in Glasgow University library, and another copy of sheet 36 was present in the Library of Congress,\(^\text{10}\) albeit still one printed by lithography. We are thus still confronted with the unresolved question of whether Ireland third edition sheets 33, 36 and 45 ever were published in engraved form, and, if not, why they should have been so announced in the publication reports. But, after the experiences of my week in Washington, I would not bet against it.

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\(^\text{10}\) Reference G5780.s63.G71.

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A guide to the  
*Ordnance Survey one-inch Third Edition maps, in colour*  
*England and Wales, Scotland, Ireland*  
by  
Roger Hellyer and Richard Oliver

This new book contains a detailed history and description of these maps by Richard Oliver. It builds on the original monographs by the late Guy Messenger, and includes much new information, both historical and cartobibliographical. Roger Hellyer’s meticulous cartobibliography covers all the third edition coloured map series: the large sheet series of England and Wales as well as the incomplete small sheet series that preceded it, the map in Scotland and the fragmentary coverage in Ireland, also the district maps associated with each of these series, and, as far as they are yet discovered, the special maps made for military use. The A4 book consists of 168 pages, hardbound, with eight colour and twelve black and white plates.

This important book is being published by The Charles Close Society this month at £12.50, with a special price to members of the Society of only £10.

An order form is enclosed with this issue of *Sheetlines*. Send orders to: Publications Manager, The Charles Close Society, 11 Riverdale, Wetherby, Yorkshire, LS22 6RP. Please enclose payment with order, cheques payable in sterling to ‘The Charles Close Society’, and allow 28 days for delivery.
**Postscript to Aberystwyth**

*R C Wheeler*

Since I produced my notes for the visit to the National Monuments Record for Wales that appeared in *Sheetlines 68*, I have learned rather more about the Large-Scale Master Drawings (or *MS Plans*, as the OS usually referred to them). I have had an opportunity to look at a sample of the Scottish MS Plans – National Library of Scotland is the only institution where one can rely on being able to compare the MS with the published plan. I have also read what Winterbotham¹ published on the topic, which is somewhat more comprehensible when one has seen some of the material he describes.

To summarize Winterbotham, when general revision started in 1892, a process called *card revision* was used. A pull of the previous edition was taken on stout cartridge paper and cut into six pieces, each about one foot square. The reviser noted any changes on his card using graphic revision techniques, based on linking in to existing detail with the measuring of distances but not of angles. The changes were transferred by tracing to the original zinc plate using litho transfer paper.

Only in 1900 did the practice come in of drawing a new MS Plan based on a ‘blue’ of the previous edition. Because of concerns about distortion, it was considered a point of principle that this blue should be taken from the original MS Plan (by a process called Vandyking) rather than from the plate.

From 1918 to 1921, the OS reverted to a form of card revision, at least for sheets with few changes. After that, blues were again employed but a pull from the plate was considered adequate. From 1930, the OS used celluloid-coated paper for the MS Plans. This had the advantage that deletion was possible (using phenyl) so it was possible to take a black pull, which saved the need to redraw features that had not changed. The corresponding disadvantage was that ink took a very long time to dry, so in 1934 the OS was reverting to blues on paper on sheets with a lot of changes.

The first point to note from this is that, for revisions of maps up to 1900, there were no MS Plans. One of the questions asked at Aberystwyth was where the Montgomeryshire blues had gone to. The answer is that, since no Montgomeryshire revision was done after 1901, there were never any blues!²

The second observation is that we must expect to find three types of blue impression according to whether they were taken from the previous plate, or from a previous MS Plan, or (somehow) from card revision material. These will be considered in turn.

**Previous Plate**

Blues taken from the previous plate are the least interesting category. Towards the end of the period, some of them show price stamps, implying that they are photographic copies of a normal impression. Otherwise, there is little to be said.

**Previous MS Plan**

Blues from a previous MS will normally be second editions which explains why (as my Aberystwyth notes stated) they tend to be of the period before 1914. However, there are

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² Not entirely true: Richard Oliver’s *Concise Guide* notes two sheets revised in 1924. But that did not stop Winterbotham from recording the county in 1934 as 100% on card revision.
counties with a late enough second edition⁴ and an early enough third, for the third to be produced from blues of the MS Plans of the Second. Edinburghshire is such a case.

These blues lack names and they lack areas of parcels. Just occasionally (e.g. the Carnarvonshire part of Pembrokeshire 7.8 (1906) shown at Aberystwyth) parcel numbers and stamped ornament are lacking as well. I postulated in my Aberystwyth notes that these represented an intermediate state of the previous edition’s MS Plan, before names and areas had been added. This hypothesis does not accord with Winterbotham’s statements about the processes used. Such an intermediate state would presumably be a photographic copy, with names etc being added to the original drawing; but can one vandyke a photograph? On the other hand, redrawing or tracing the previous MS to produce a blue would violate the principle of keeping close to the original. This only leaves the possibility that names and areas have been deleted from the vandyke of a complete MS Plan. If deletion was so easy, why was the whole business of drawing on blues followed, until the equally troublesome process of pulls on celluloid-coated paper? I can only suppose that one could somehow prevent part of the original from vandyking but that the vandyke copy was not good enough to print from. Certainly the blues have thick linework and are of nothing like the crispness of a modern photocopy.

One of the maps on display at Aberystwyth (Carmarthenshire 47.5 (1913) – a third edition) had blues which extended slightly beyond the neat lines. I still cannot explain this and I have not found another instance.

**Previous Card Revision**

As soon as the OS embarked on a third edition (as early as 1904, in Cheshire), it will have encountered the problem that it had no MS Plans of the previous edition it could work from. Before addressing the question of how the blues were made up, there are two other matters that must be addressed.

The first is Winterbotham’s remark that anything added in the first revision was ‘ringed around and drastically tested in the field’.⁴ If the fit was seen to be bad, this detail was omitted from the trace. The traces were printed in red so that the blue print of the MS for revision could be seen more clearly and to allow legible correction in black. This suggests a three-stage process: testing, using perhaps merely an annotated pull of the second edition; field drawing, on tracing paper printed in blue with a copy of the first edition MS and in red with the tracings made at the first revision for transfer to the plate; and finally the drawing of a new MS on a blue base whose nature is yet to be explained.

The second matter is the material on the blue which is not from either of the previous editions.

a. A number of the junctions of field boundaries are annotated ‘J’ in upright Egyptian lettering. Winterbotham notes (p.35) the ending in 1918 of the practice of classifying junctions of fences; all junctions in future were to be regarded as equally reliable. He does not explain how junctions were classified in the first place, but clearly ‘J’ is a precursor of the ‘rp’ of 50 years later.

b. One sometimes encounters ‘OLD’ in similar lettering, often with an arrow. Is this perhaps a warning to the reviser to avoid confusing old detail on the map with a new

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³ For the replotted counties, editions here are counted from the first 1:2500 edition. Dates are of revision, not publication.

⁴ Winterbotham (1934) p.32.
feature alongside it? At any rate it seems to be, like the ‘J’s, an addition made as part of the second revision process.

c. Some buildings, or building-like shapes, are filled with an X. This appears to date from the first revision and to be an indication that what might otherwise be supposed to be a building should not be shown as such on the second edition.

d. There are dotted lines, seemingly representing verges to roads or other boundaries of vegetation types, which do not appear on the second edition.

e. There is detail which does not appear on first, second, or third edition. For example, on Linlithgowshire 3.14, there is an industrial tramway which appears only on the second edition. At one point there is a passing loop which, on the blue, has a small building over one arm of the loop; this building does not appear on the published map. One of the principal reasons for wanting to understand how the blues were made up is to understand the significance of such detail.

f. Finally there are graticule crosses, or sometimes continuous lines, to facilitate division into six card-sized pieces. This clearly dates from the making up of the blues, because, where the meridian has changed for the third edition, the graticules correspond to the new sheet lines rather than the old ones.

Also on the blues are handwritten notes which provide useful evidence. Carnarvonshire 11.6 (1916), shown at Aberystwyth, has:

The detail within the fine dotted line has been replotted, the first examiner’s corrections, and first revision improvements, have been added, the whole area requires careful examination on the ground.

This serves as a reminder of the material available: the notebooks of the original surveyor for the first edition, the tracings made during field examination for that edition, and the cards from the first revision. We should note that improvement seems to mean update. On Linlithgowshire 3.3 (1915) we have:

The Field Ex. tracings of the portion of [old] 1.7 of Linlithgow on this sheet are in such a dilapidated state that it is impossible to use them for the purpose of ascertaining old junctions.

Again we see the field examination from the first edition being made use of, in this case as part of the ‘J’ process. Linlithgowshire 3.6 has two notes:

NOTE: Owing to discrepancies between MS plans the boundary and other detail between Linlithgowshire and Stirlingshire cannot be inserted. Reviser will test and supply omissions.

NOTE: Revised cards differ at ABCDE. Reviser to test.

The first of these reflects a problem with the plans of adjoining counties on different meridians failing to join properly. The second is a problem at the junction of adjoining sheets (on the old sheet lines) where field boundaries on one sheet were consistently a couple of millimetres west of those on the adjoining sheet.

The blues lack names. They lack parcel numbers (as well as areas) though on some Welsh sheets parcel numbers have been added roughly by hand. They lack ornament, including the diagonal hatching of buildings and vegetation symbols. Isolated trees are the only exception to this. How were they made up?
Winterbotham’s account of what was used by the revisers in the field suggests that, as a base for the fair drawing, a vandyke of the first edition MS was taken with unwanted material (including anything deleted at first revision) removed, and the tracings onto litho transfer paper from that revision added. The whole must have been assembled onto the new sheet lines where necessary and given a new border with the new sheet designation, not to mention graticules. This would correspond to the process described in the note on Carnarvonshire 11.6, except that there the original MS was clearly thought unsatisfactory. This was a most laborious process: could they not have used the cards from the first revision? Recall that the cards were based on pulls from the first edition plate. Winterbotham clearly reflects a view that the distortion involved in transfer to the plate was unacceptable. Besides, as confirmation that the cards were not used, if the line on the blue where cards join is inspected, there is not the slightest hint of misalignment. The easiest approach would have been a pull from the second edition but the presence of detail not on the second edition clearly excludes this. The deletion of parcel numbers only for them to be roughly added later seems inefficient: either the preparation of an uncluttered basis for the field revisers was paramount, or else the convenience of the area men was ignored.

If this view is accepted, then detail found on the blue which is not on the second edition may represent detail drawn on the cards in the field at the first revision and traced onto litho transfer paper but not subsequently transferred to the plate – is that possible? – or else deleted from the plate. Alternatively it may represent material from the first edition MS which had somehow vanished by the time that plate was used to print the cards and hence was not marked for deletion because it was not there for the reviser to delete. There again, it could be material on the first edition plate which ought to have been deleted but was not. This third category ought to be capable of being checked against the published first edition; the first two cannot in general be distinguished. The tramway example given at (e) above is a rare case where the context establishes beyond doubt that the material dates from the first revision.

Perhaps further examples will make it possible to lay down some rules about the correct interpretation of extra detail from this category of blues. Until that happens, users should be aware of the potential ambiguity.

**Observations**

The processes for making up blues described above can only be regarded as a hypothesis. It would help to confirm or refute that hypothesis if some of the material used – first edition MS plans, field examiner’s tracings, tracings from card revision, or even the cards themselves – could be compared with the blues derived from them. Has this material perished in its entirety?

When security deletions were required, it is believed that a duplicate plate was made and the offending material was expunged from this ‘Sales copy’ plate. A blue made from a MS Plan – i.e. of up to 1918 – should be unexpurgated. A blue made after 1918 will only be unexpurgated if it was made from the ‘Official Use Only’ plate. So the appearance of a price stamp on the blue may indicate that there had been no deletions on that sheet. Or perhaps there was some good reason for using the Sales version in all cases, perhaps because that was the original plate and the ‘Official Use’ version was a copy, with potential for distortion. There is scope for further investigation here.
Rob Wheeler’s short account of the German maps of England of World War II has (not before time) drawn this extensive group of Ordnance-Survey-derived series to notice. However, as he himself emphasises, there remains a need for more thorough reviews and cartobibliographies. Furthermore the English maps need to be considered in their context, which not only includes the Scots and Irish series but also necessarily includes the equivalent German maps of other European countries. This note is intended to provide further impetus to the study of these maps, but it too can only be considered preliminary¹.

After listing some of the map series produced by Generalstab des Heeres, Abteilung für Kriegskarten und Vermessungswesen (Gen St d H, Abt f Kr Kart u Verm Wes), Rob stated that he had not noticed any editing of the topographic content of these maps during their derivation from their Ordnance Survey. This may be so, but in other ways substantial editing took place. The nature of this editing reveals what to continental users were seen as the weaknesses of the Ordnance Survey originals. This can be demonstrated using the example of the 1:100,000 maps. The editing involved in the production of these series parallels what was later done by the Ordnance Survey itself when it came to create the 1:50,000 First Series.²

The first and most obvious editorial change was in the scale. The OS half-inch maps were enlarged to 1:100,000. This of course was a scale to which all German soldiers were accustomed. The 1:100,000 Reichskarte had been the standard military map of Germany since the formation of the second Reich in 1870 and had since been produced in many military and civilian forms. Other German 1:100,000 maps of European countries were produced for the start of the second world war, including one of the Netherlands produced by enlargement of the Dutch 1:200,000 map. Such enlargement however inevitably involved some technical difficulties. Enlargement of any original makes all line-work thicker. Any flaws in the original are also magnified and made more obvious. Together these make direct photographic enlargements look cruder than the original and even clumsy. The Ordnance Survey City Link maps provide recent examples of these effects. The German productions do not however suffer from them. Indeed the line-work is very fine; to my eye cleaner and clearer than on the originals.³

The published OS originals were available (for most of Britain and Ireland) in two styles: with layer colours, or with hill shading. Both styles also showed contour lines. Both styles of originals showed the sea in a greeny-blue wash, but the hill shaded maps only used this to outline the coasts (shading to unprinted white for the open sea), while the layered map used three different shades of blue to indicate underwater depths and coloured all sea areas. Neither style suited the practical (or reprographic) needs of Gen St d H.

The original OS sheets conformed to a standard size. The original sheet lines included (particularly in Scotland, but also in England) some substantial overlaps. Despite this, some

¹ R C Wheeler, ‘German maps of England of World War II and associated publications’, Sheetlines 68, 26-31. I have used German names and abbreviations explained in his article without further definition.
² The examples are drawn from my own collection which includes an almost complete set of Scottish 1:100,000 sheets but only eleven of the England and Wales sheets.
³ The line-work of sheet 7, Meppel (MV date 1936, print code 10.39) of the ‘Niederlande 1:100,000’ series is not as fine as that of the E&W and Scottish series. It nevertheless appears remarkably fine considering the degree of enlargement.
sheets still included substantial areas of sea. To Gen St d H overlaps and large areas of sea represented both a waste of paper and of effort. Differing sheet sizes were seen as preferable, and so overlaps were eliminated and sea areas reduced as far as possible.

Finally height data in imperial units was no use to soldiers educated to work with metric measures (or at most old German measures). While the OS contours were reproduced, they were relabelled with metric values. Similarly imperial height values for OS trig points and other spot heights were replaced with metric values. Only the marine contours continued to be given their imperial values (and were explicitly stated to be in fathoms on the face of the map); even these were given alternate metric values.

For all these reasons direct photographic reproduction of the originals was not practicable. Indeed the then limitations in the technology of achieving colour separation made it impossible to prepare reproduction material in different colours directly from the printed map. The difficulties this caused to the Ordnance Survey after the bombing of Southampton have been well described. The Germans had the same problem from the beginning. Their solution seems to have been to redraw copies of the maps from the originals, modifying detail as required.

Blatt 29, Campeltown, of the 1:100,000 Karte von Schottland provides examples of these modifications from the originals. The sheet is small; while the OS sheet 29 included all of Arran and thus overlapped with both 26 and 30, the German sheet only includes the southernmost part of Kintyre. Contours on land are shown in brown. There are no layers nor any hill shading. Woods are shown as green blocks with black tree symbols (as on the hill-shaded map). Submarine contours are shown by dotted lines as on the layered map. The copying is remarkably close, but here and there the drawing quality is better than in the original. Examples include the submarine contours around the rocks near Sanda Island, and the continuity of line-work through the name of Davarr House just south of Campeltown Loch. Principal spot heights (mostly hill tops) are in large red figures while other spot heights are in fine black figures. The sea is uniformly covered with fine blue horizontal ruling, while inland water is in solid blue. All told only black, red, green, blue and brown printing plates were required. There was little rock drawing to be copied on this sheet, but sheet 11, Skye, shows that the complex rock drawing of the Black Cuillin was copied with precision.

As Rob Wheeler pointed out the 1:100,000 series was produced after Hitler’s ban on collecting UK intelligence was relaxed in 1937. All the England und Wales and Schottland sheets bear magnetic variation diagrams for 1938. Most of the England und Wales sheets that I have seen have print codes (outside the lower right margin) between 9.38 and 6.39. A copy of sheet 9, Leeds, with the code 10.39 repeated on each colour plate may not be the original printing. The Schottland sheets were prepared a little later. They carry print codes between 6.39 (sheets 20 Forfar, 24 Broughty Ferry, 29 Campbeltown) and 1.40 (sheets 5 Lewis, 15 Aberdeen, 18 Ben Nevis, 31 Dumfries).

A point worth emphasising is that, despite the high quality workmanship, there is no indication on the 1:100,000 maps of what organisation produced or published them. Rob Wheeler indicated that it was usual for German military maps to bear an abbreviated version of the name of the Abteilung that published them. This became so after the outbreak of war, but was not so initially. Preparation and printing of many of the 1:100,000 sheets took place

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5 The map measures 39 cm × 29 cm between the neat lines; the paper measures 60 cm × 50 cm. The corresponding measurements of full size sheets are about 77 cm × 58 cm and 90 cm × 72 cm.
before the outbreak of war. That surely had to be concealed at the time. Furthermore one possibility to consider is that they were in fact prepared by a notionally civilian body such as the Reichsamt für Landesaufnahme. If so concealment would have been the more essential. It should be borne in mind that during the 1930s the Reichsamt für Landesaufnahme cultivated a high quality of line-work, such that for some years the organisation returned to the use of copper engraving of maps, with electrotyping of plates for reproduction. The quality of the England und Wales and Schottland 1:100,000 series is very much in this tradition.6

Despite the high quality work required for the production of these sheets they were nevertheless far from ideal for German (or British) military purposes. The grid finely ruled on these maps was the OS alphanumeric squaring of the original maps, however no numbers or letters were provided either on the face of the map or in the margins to enable its use for position reference. The grid lines had presumably been used during the redrawing of the map, but were not intended for any later use. There was no metric grid and while the graticule was figured in the margin it was not indicated on the face of the map. This not only applied to the German maps of Britain in 1939 and 1940. Although pre-war issues of the 1:300,000 Übersichtskarte von Mitteleuropa covering Germany itself had been gridded with a succession of Gauss-Krüger zones of 3° longitude, these did not extend through the outlying sheets of the map. Elsewhere the German military series reproduced local grids as and where they existed. Thus the Sonderausgabe VII.40 of sheet T49 Czernowitz of the Übersichtskarte von Mitteleuropa prints the Russian Gauss-Krüger grid within the USSR, the Romanian Lambert Grid in Romania, and no grid at all in Hungary.

In 1940 (if not earlier) Luftwaffe editions of ‘conventional’ maps bore a red Gradnetz (graticule) overprint, but this was no use for artillery who required a rectangular grid.7 Under the conditions of war the need for consistently gridded maps became obvious. An early stage of the introduction of such grids is provided by the only Irish sheet I have (a mutilated copy of sheet 17). These sheets were prepared well after the British sheets. Sheet 17 carries a print code of 7.41 and a magnetic variation date of ‘Mitte 1940’ (Mid-1940). The style is similar to that of the sheets of Britain, but the line-work is noticeably coarser. The map carries a Gauss-Krüger grid for the zone 9° West of Greenwich. The use of Gauss-Krüger grids in such zones was thereafter to become formalised with the introduction of the Deutsches Heeresgitter (DHG).

The consequent production of new maps of Britain is shown by the Deutsche Heereskarte von Grossbritannien und Irland 1:200,000. This was produced as a series of sheets covering one degree of latitude by one-and-a-half degrees of longitude. The graticule was numbered eastwards from Greenwich, although conventional westward figures are given on the blue plate. Ausgabe (edition) nr 1 of sheet O 30 SW 3 INVERNESS was prepared by Oberkommando des Heeres Gen St d H, Abt f Kr Kart u Verm Wes (II) in 1942

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6 It should also be noted that neither the Netherlands series mentioned above nor the 1:100,000 ‘Sonderausgabe IV.1940’ of Norway carry any indication of the publishing organisation. This last was a direct photographic reproduction of the (monochrome with blue water) Norwegian 1:100,000 series modified only by amalgamation of adjacent sheets and the addition of photo-enlargements from the (fairly crude) Swedish 1:200,000 to fill sheets extending beyond the Norwegian frontier. For the use of engraving by the Reichsamt für Landesaufnahme see C Koeman, ‘The application of photography to map printing and the transition to offset lithography’, (in) David Woodward (ed), Five centuries of map printing, Chicago, 1975, citing W Kleffner, Die Reichskartenwerke, Berlin, 1939.

7 The Fliegerausgabe issued by Generalstab der Luftwaffe of 1:300,000 Übersichtskarte von Mitteleuropa sheet T56 Wi komierz Sonderausgabe XI.1940 exists in a state with print code V.41 on the black plate but 11.40 on the red Luftwaffe overprint plate.
and reprinted in June 1943. The DHG zone centred on 3° west of Greenwich is given on the black plate while a graticule is also printed in blue. The map states that it is based on the 1935 OS quarter-inch map of England and Wales; clearly Oberkommando des Heeres was not concerned about Scottish sensitivities! The map is a close copy of the OS fourth edition map, but place names have been redrawn in slightly larger sans serif alphabets (although county names remain in the Ordnance Survey alphabets). The effect of the enlargement from the original is that place names appear much more prominent. Sea and foreshore areas have been completely redrawn based on the German admiralty 1:100,000 chart. Thus the sea is peppered with soundings, while names of water areas (e.g. Moray Firth) are given in German backward-sloping alphabets. Inland water names are also given in blue using similar backward-sloping alphabets. Compared to the OS maps, the railways are very much accentuated by thickening of the black line railway symbol. As with the earlier maps all heights are given in metres. Contours are at 61 metre (i.e. 200ft) intervals. Isobaths are at 10, 20 and 40 metre depths. The map is stated to incorporate material from the Grossbritannien Mil. Geo.-Angaben 1:1,000,000 Sonderausgabe VII 1940, but I have not identified any obvious revisions of the OS original. The OS 10,000 yard grid still appears as a series of blue ticks in the margins of the map, while a description of the origin of the OS grid also appears in a box outside the right margin. Overall the map is very clear and attractive, although the smaller area (in comparison to the OS sheets) covered by each German sheet might have been a disadvantage if they had ever been used on the ground. Why the addition of huge numbers of depth soundings from admiralty charts was thought worthwhile baffles me.

The maps produced of battlefield areas after the allied landings in Normandy show however that the conversion of the German military maps to a single grid system remained incomplete. Even in 1944 the German 1:25,000 maps of northern France (reduced from the French 1:20,000 maps) still bore the French Lambert Zone North grid without any German alternative. A spectacular example is provided by sheet 32 Ost Amersfoort, of the Topografische Karte der Niederlande 1:50,000. Produced by Gen St d H, Abt f K u Verm W, with a magnetic deviation diagram for mid-1944 and a print code VIII.44 (D408/1), this carries in red a reference system eerily reminiscent of the ‘systems of squaring’ used on British First World War maps, although it seems to be based on the graticule rather than the sheet margins. Large (almost-square) rectangles identified by pairs of letters are divided into nine smaller but similar rectangles identified by number. Each numbered rectangle is then divided into quarters identified by lower case letters a-d. Finally, according to the example given, eastings and northings were to be estimated, but only to one tenth of a quarter rectangle. The sizes of these rectangles are such that this is a very crude reference system indeed, particularly since the easting and northing tenths were not the same size. The map also carries a different 2cm grid in inconspicuous fine rulings on the black plate. The numbering system for this appears as small red figures near the edge of the face of the map where they become lost in topographic detail. The numbering of this grid is stated in the margin to relate to the new Netherlands stereographic co-ordinate system. Finally German Gauss-Krüger grid and graticule values are also given (much more clearly) in the margin.

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8 Sheets of the French 1:20,000 maps were photographically reproduced in monochrome at 1:25,000 with unchanged sheet lines by the Kartographischen Abteilung II of the Reichsamt für Landesaufnahme, before printing as Truppenausgaben in the field. These maps bore the French Lambert Zone North Grid. Example: St. Pol Nr 3-4 (XXIII-6/3-4), Truppenausgabe Nr 2, with magnetic deviation for mid-1943, print code I.44, printed by A.-Kart.-St. (mot.) 515. This was printed on the reverse of the cut down copy of sheet 17 of the Irland 1:100,000 series described above.
Along the lower edge of the map the Netherlands and German grids appear to coincide, but since they are at different angles to the graticule they diverge substantially towards the upper edge. The map is stated to be ‘Als Schiesskarte geeignet’ (intended for map shooting), but the conflicting reference systems must have caused immense confusion.

This discussion of the German military maps derived from Ordnance Survey original mapping has concentrated on the smaller scale topographical series. As Rob Wheeler’s article makes clear these are only a small part of the mapping output of the various German military organisations; there is much more work to be done. The style of production of the maps was part of a long established German tradition, yet they were also unavoidably developed from Ordnance Survey traditions. Their hybrid nature of itself makes them interesting, yet they also have an important place in the development of German military mapping during the second world war. The tardy application of grid referencing systems to these maps indicates that the lessons drawn in Britain and France from the mapping of the Western Front in the first world war were absorbed by the German General Staff much more slowly. The Oberkommando des Heeres General Stab des Heeres is sometimes seen as an almost infallible organisation, the pinnacle of development of military science from the days of Frederick the Great and von Moltke. The implication of this brief study is that this image requires revision. At the opening of the Second World War German military mapping was not technologically up to date, while the great technical artistry of some of the maps looked backwards to the nineteenth century.

We should recognise that the study of these maps may be valuable not only as an exercise in cartobibliography. The conclusions drawn may have rather wider historical implications.

*The editorial office, from German 1:100,000 Blatt 32, Bristol, 1938 (slightly reduced). Note the ruled blue of the sea and the metric contours and spot heights.*
Some years ago we had a meeting at Rob Wheeler’s house when he lived at Princes Risborough, and the topic was something to do with trig points on churches, and towers. Shortly afterwards I came across what I thought was an unusual example at Therfield, near Royston, in Hertfordshire that depicted a trig point, on a trig point (see map). As the location was not all that far from me, I went off to see what I could find. It turned out to be a large water tower, that must have had a survey point on the top, and nearby was a conventional trig point (see photo). You will notice that the map extract is from the old Provisional two and a half-inch map, the current Explorer map only seems to show one trig point, the conventional one. The grid reference is TL 331372.

*Can anyone explain why two trig points were needed? – CJH*
Monochrome to polychrome at the Ordnance Survey in the nineteenth century

Ian Mumford

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The first map of the Ordnance Survey, usually referred to as Mudge’s Kent was published for the Board in 1801 by the commercial map publisher Faden, since the Board had no experience of map selling. It was laboriously printed in black from engraved copper plates, and made up for expensive sale in a variety of forms, including dissected and mounted on cloth, for library or highway use, often with the main roads hand coloured in a warm brown.

At the end of the nineteenth century, in response to pressures to increase its popular appeal, the OS was still publishing a one-inch to a mile map in black with main roads coloured brown, but cheap, exploiting the mass production possibilities of high speed printing by power driven lithographic presses.

Had so little of the product changed in nearly a hundred years?

If you were to ask the man in the street today to describe a typical OS map, its colourful appearance would probably be considered its most striking feature. Yet of the entire current inventory of OS maps and plans, numbering more than a quarter of a million different items, some 98% are monochrome, and of the remaining 2% the majority are printed in only two colours. Has so little changed with the large scales as well in the last 100 years?

What I hope to demonstrate in this paper are some of the ways in which during the nineteenth century politics, economics and technology contributed to a cartographic turmoil at the OS in the last few years of that century which have some interesting parallels with the inertias and changes which have taken place in the late decades of the twentieth century; but that half of the story I will leave to others to develop.

In discussing map production at the OS in the nineteenth century it is, I think, necessary to identify which of its various personas we are talking about. In his review of 12 years at the OS from 1887 to 1899 Sir John Farquharson, in a lecture given at the RGS early in 1900, drew attention to the need to differentiate between the work done for other departments and that done as authorised from time to time in various scales and forms for sale to the public. His emphasis on authorised civil activities has a somewhat piquant flavour. Although the OS had been removed from the War Office to the Office of Works in 1870 and twenty years later to the Board of Agriculture, it remained essentially under some measure of military control for another 113 years, losing its last military post, a Brigadier, in 1983. Farquharson himself had become, unnoticed, the first non-serving military officer to be Director General, as he had been forced to retire for age from the army during his incumbency. From Sir Henry James onward the army availed itself of the technical leverage and resources of the OS in the matter of printing maps in colour before they were authorised for civil publications. In this paper, however, I will have little to say about meeting the requirements of the military and other departments at the OS on an agency basis. I am also not concerned here with the colouring of field documents or draughtsmen’s manuscripts.
Broadly speaking there was the early period of the creation of the military map of the kingdom at the one-inch scale under the Board of Ordnance until 1854 and continued under the War Office until its virtual completion in 1870. That project involved a commitment to copper engraving, with a resultant heavy investment in the process as a method of map production. The enormous inertia resulting from having a permanent, highly paid and possibly pensionable staff of engravers with immobile skills could not be overcome until the Draconian cuts after the Great War in 1923. The initiation, for administrative and economic reasons, of larger scale mapping in Ireland in 1825, although a separately conceived undertaking, was also committed to copper engraving. When similar civil pressures developed on the mainland of Great Britain in the late 1830s the larger scale went the same way for some years until, in the middle of the century, the impossibility of engraving large numbers of sheets at the finally agreed scale of 25 inches to a mile became apparent.

Things could have been quite different. The first lithographic printing press sent to England by its inventor, Senefelder, to establish the patent, arrived in the same year, 1801, as Mudge’s map was published. The process did not have any impact on map making until 1808, after it had been acquired by the HQ of the Commander in Chief, Army at Horse Guards, a totally separate organisation from the Ordnance Map Office at the Tower. Some other countries in Europe, starting their national mapping programmes later than France and Britain, were able to refine and exploit the new technology as an economically viable method of map production not only for the cadaster but also for military purposes. Although important innovations in artistic and jobbing printing by lithography were apparent in England from 1818 onwards in the hands of Ackerman and Hullmandel, printing of important maps, and particularly maps in colour, flourished elsewhere.

Senefelder’s original description envisaged not only printing in colour but also printing from metal plates. Hauslab, an Austrian officer at the beginning of an illustrious career in the theory and practice of map making, having learnt the processes at Senefelder’s establishment in Munich, published in 1825 a scheme for printing maps in colour by lithography. This was developed in Vienna and from 1827 led to the production there of increasingly important maps of the environs of towns culminating in the quite extraordinary map of the Vienna area. It was in 112 sheets at the scale of 1:14,400, in up to five colours from four printings, and appeared between 1830 and 1844, with many sheets in more than one edition.

In passing it should be noted that printing in colour from engraved and relief plates occurs from very early on in the history of printing, but the accurate registration of the large plates normally required for maps presented particular problems. The search for a process applicable to the common letterpress method produced an ingenious patent by Firmin Didot in France in 1823 specifically for maps. His application is illustrated by a map of France printed from eight plates in relievo, six for colours and two for composed type. The result is good, but as Dr Elizabeth Harris has pointed out, it demanded much virtuosity in workmanship, and the process resulted apparently in no other application.

By the time the War Office took over British national mapping in the mid 1850s there were several examples of countries publishing their mapping by lithography and in colour, but there was very little debate about colour in relation to OS mapping. In his period as Superintendent of the Survey, Col. Hall apparently carried out a few attempts to print contours in colour on a one-inch map, although he had no example available to be discussed by the Committee on the Survey of Ireland in 1853, and they had to make do with a handcoloured example. In the rather slight discussion which ensued it appeared that some
members of the Committee were thinking in terms of colour being applied locally to the plate as a tint, and Capt. Gossett was at pains to get them to see that this was not applicable to line features. R Griffith, the geologist, said he had seen recent foreign maps printed in three or four colours by lithography from separate plates. John Arrowsmith, a notable map publisher, made some interesting remarks. Having confirmed that he had never printed any large map in colour from copperplate, he went on to say that he had printed Siborne’s maps of the Battle of Waterloo in colour using two steel plates and a number of stones. Close examination of unmouted copies of these maps reveal that he had used mechanical devices such as pins and wedges to register the paper for the successive impressions. The Ellesmere Committee in 1854 in its discussion on contouring reported ‘That contour lines selected from those obtained for the large surveys (if of a different colour) would be a useful addition to the One Inch map’, and in its conclusion said ‘We trust therefore that no question of contouring will be allowed to delay that work of first importance: the contour lines that have already been completed may be introduced in a different colour on the map at that scale but the publication of a first impression of the remainder should not be deferred for a similar addition’. This option was not taken up by the OS. An experiment in 1854 at putting coloured contours on an engraved six-inch map of Yorkshire recently noted in Sheetlines¹ was just too late for Hall to get the credit.

With the advent of Henry James as Superintendent in 1854 a number of developments took place. Having convinced yet another Committee that by lithography he could provide printed copies of the larger scale plans cheaper and more accurate than by manuscript copying, he then changed his lithographic processes from stones, which were dangerously heavy at that size and susceptible to breakage, to zinc plates. This was not quite the innovation he claimed, since an excellent map printed from zinc had been produced by Noizet in 1824 in France, and in 1834 Breugnot had taken out a French patent for a method of printing very large maps from zinc plates. Industrial production of the refined quality of zinc sheeting required for printing rather than roofing had also become available. Lithography nowadays almost invariably involves printing from metal, whereas in the past the term zincography was used more specifically.

To improve the legibility of his otherwise somewhat crudely executed large scale plans at 25 inches to a mile, James made a virtue out of the fact that he got them handcoloured by boys. In his first Report to Parliament for 1855/56 he said ‘All large maps are greatly improved by colours, to clearly distinguish the houses from the courts or gardens attached to them, and for clearly defining the extent of water, and the direction of the roads. I have therefore had a number of boys from 13 to 14 years of age, taught to colour these large maps; they are paid from 6d to 1sh a day, and we find the average cost of colouring a sheet is 1¼d. We charge 6d extra to the public for the coloured impressions. I enclose a portion of a coloured sheet’. Interestingly, his illustration in the Report of the way in which manuscripts were coloured in preparation for photography is itself lithographically printed, the yellow register pinhole being visible in one corner, as also in this case, the mis?-register!

An alternative to printing in a separate colour could be achieved by manipulating the plate to produce a tinting, and in the same Report James describes how a ruling machine was used to produce tints in prints from copper. Evenness resulted from the width of the line followed by the roulette being the same as the spacing of the teeth on the roulette. This was

¹ Sheetlines 29, 27.
done at a trifling cost compared with the previous method of working the plate by hand. It was some time before the idea of similar tinting on zinc plates was achieved – on many the irregularity of the spacing produces a moire effect. Much later, patching in of transfers from an engraved ruled master plate was to become standard at large scales.

Another example of colour printing in the Report (Plate 9) has the hills printed in brown, again with a single pin register. Since for essentially propaganda purposes James had 1500 copies printed of this his first Report, colour printing was an obvious choice for the few small illustrations to which it was applicable although he does not draw attention to the fact.

In the years that follow 1857 James made little or no reference to colour. In his review of foreign mapping before the Wrottesley Commission in 1858 he mentions only one important map of Spain at 1/100,000 as being in chromolithography, and colour was not an issue in the evidence of the 1861 Cadastral Committee. However, in the return of names and duties of staff in 1863 he lists twenty civil colorists (sic) only one of which had more than five years’ service or earned more than 2/6d a day; he had been there eight years and was paid 4/3d a day. He was probably the ‘Joe’ all newcomers sat by, in the same manner of training remarked upon by Cowan in 1982 in reference to his memories of the old Colouring Department at Southampton. There was also one military Colourist (sic) whose military rank was Bugler and trade pay 1/- a day. Nevertheless there is some evidence of a few sheets of the 25 inch map being printed in colour. Three examples printed in 1859 were shown at a meeting in the National Library of Scotland in 1981, being isolated sheets in otherwise normal blocks of plans of town areas. There may have been others, since before the Dornington Committee in 1892 it was stated that one or two towns on the 1/2500 scale had been printed in colour several years before and could not, at that time in 1892, be obtained uncoloured. The whole question of identifying early colour-printed large scale OS plans is fraught with difficulty. For years in the 60s and 70s the OS catalogues do not state that the prices listed for sheets are for hand-coloured copies, although in the later period when sheets were individually listed, and not sold as parish or town sets, a quick check shows that within an area the price was related to the amount of hand colouring involved. Two adjacent sheets of Aberdeen 1/500 are shown in the 1878 catalogue as price 4/- and 2/- without any clue that the dearer sheet is lithographed with hand colouring and the cheaper one engraved with buildings tinted by rouletting.

After the OS was transferred to the Office of Works in 1870 a confidential inquiry was held which reported in 1871. In the process of probing into various aspects of staffing and tasking the Committee made it clear that they considered, for instance, the portrayal of gravel walks in gardens quite unnecessary. Having stated that they considered the art of zincography had been so developed in the Survey Department as to render it sufficient for all maps at larger scales than the six-inch, they also thought that engraving and printing should be done under HMSO trade contracts – if only the staff of engravers could be reduced! In answering questions James supplied tables of costs. Included in the cost of one impression of the larger scales he said that colouring accounted for 24 farthings (i.e. 6d) out of a net selling price of 1sh 8d in the case of cadastral plans, and 32 farthings out of a net selling price of 2sh in the case of zincographed town maps. This is a much more significant element of cost as compared with his earlier statements, and the matter was to loom even larger as a problem in the 1890s. Wilson reported to the Leach Committee in 1891 that colourers were paid from 6d to 12/- a day, but also stated that colourists up to 18 years of age got 6d to 2/- a day with only a few examiners getting 3/6 a day. By 1896, Farquharson told the Fisher Committee that it
took a boy three weeks to colour a 25 inch of say the middle of Liverpool, that is a maximum of 18 to 20 shillings, more or less, with boys paid about one shilling a day.

There are a few explicit technical statements on hand colouring that are worth giving. In the compendious manual of Methods and Processes gathered together in 1875 it states, in relation to zincographed sheets ‘Before the zincographed impressions are issued for sale they are coloured by boys, who are supplied with approved specimens for their guidance – water cyanine blue, buildings in liquid carmine and roads in raw sienna’. An addendum of the following year said ‘some of the zincographed sheets are now printed with the houses tinted by means of ruled lines instead of being coloured by hand’. The most detailed account of colouring, including stencil colouring, is to be found in a series of articles on the OS published anonymously in *Engineering* in 1888 by Captain H Sankey RE:

A certain number of the 1/500 and 1/2500 plans are coloured, that is the houses are painted in carmine, the roads in burnt sienna, and the water in blue. On all the photo-zincographed 6-in maps the water is coloured in blue. This work is done by hand because it has been found by trial that, owing to the small demand for coloured impressions, it would not pay to produce them by colour printing. Boys are employed for this work, and the plans are coloured by them by piece-work. A method of stencilling has, however, been adopted for certain special work when the number of impressions required is not less than 50, and not more than 1000 or 2000 according to the size. The work obtained by this method, both as regards sharpness of outline and register is good, but of course a great deal depends on the accuracy with which the stencil has been cut, and as regards the rate a draughtsman can on average stencil (in one colour) 100 copies per hour, the size of the impression being about 12in by 12in. As a rule oiled or paraffined paper is used for the stencil, and is cut with a sharp knife, and being transparent, registering is an easy matter. A very good stencil paper has lately been made by passing sheets of Evans’s thin paper through molten paraffin wax, and afterwards varnishing both sides with shellac varnish made by dissolving gum shellac in alcohol. This paper cuts easily, lies flat, and is very transparent. It is a good thing to varnish the stencil after it has been cut. Very thin zinc is an excellent material, but it is difficult to obtain sufficiently thin in large sheets. No 1 zinc, the thinnest usually rolled, being too thick; 3 mils is the proper thickness, which allows of the stencils being cut with a sharp knife.

Very thin copper sheets, deposited electrolytically on a polished copper plate to a thickness of 3 of 4 mils, has been tried and found to make very good stencils for houses etc, but cannot be used for roads or rivers because the copper is too springy, and does not lie flat enough. The metal is, however, too hard to cut with a knife, and the best way to make the stencil is by means of nitric acid. For this purpose the metal sheet is covered over with etching ground. The parts to be cut out are then scratched through the etching ground with a sharp needle, and the nitric acid is poured over; in about ten minutes the stencil will be cut through. It should be immediately washed in water, after which the etching ground can be removed with turpentine, and the stencil is ready for use. The stencil brushes require careful selection, and the size used depends on the class of work. For instance, for colouring roads and houses a brush 1½ in in diameter, with 1¼ in hairs, is used, but for applying colour in flat washes a brush 2 in in diameter, and with 3½ in hairs, is best.

When long editions are required, as is sometimes the case, or when it would not be possible to cut a stencil, as, for instance, for hill shading, the colours are printed by zincography in the normal way.

The importance of this account is not so much for its reference to the small number of copies required of the large scales, as for its mention of the use of stencils in producing
considerable numbers of copies of what appear to be report or book illustrations as well as military maps, up to as many as 2000 copies. An example of the labour involved in book illustration is to be found in the prefatory remarks in Moorsom’s *Historical Record of the 52nd Infantry* published in 1860, in which there were 19 lithographed plans. Some 500 copies of the book required 9600 prints to be coloured!

The international state of colour printing of maps can be judged to some extent from the reports of the numerous International Expositions which followed from the Great Exhibition of 1851. A French report on the Paris Expo of 1878 noted that even before 1851 the advantages of printing maps in colour had been noted. 1867 had seen the start of regular production in colour in Belgium, while in Holland the elaborate Eckstein process had begun its impressive, if fated, career. By 1878 there was a trend towards printing in several colours both by lithography, and, for cheapness, from relief zinc plates in the letterpress. The problems of registering colours increasing with the size of the sheet, many of the national map series were being produced in smaller formats.

In his detailed report on the Third International Geographical Congress and Exhibition held at Venice in 1881, the American Captain Wheeler lists large numbers of map series in various countries which had been completed or were in progress, utilising different methods of colour printing, and he reproduced in his report half a dozen examples in colour of national map series from Switzerland, Spain, Saxony, Java and France. Although the OS did not exhibit at many international exhibitions there is plenty of evidence that the military staff who were in the OS, the War Office and elsewhere were well informed on what was going on in foreign military geographic institutes. In *Notes on the Government Surveys of the Principal Countries* prepared by the Intelligence Branch of the QMG’s Department at the War Office and published by HMSO in 1882, it says in the introduction ‘Printing in colours is much practised on the Continent’, and goes on to say ‘The advantage of colours in reading maps is recognised by all, especially for military maps, but the technical difficulties in the process of printing in colours are too great for general purposes; in time, however, they may be obviated ... In some foreign countries the tendency is apparent in cartography to adopt chromo-lithographed maps with contours; in the place of maps in black outline with features represented by hachures’. Considering the number of countries by then publishing many different maps in colour which are detailed in the rest of the volume, these statements appear overly defensive coming from a country which had for long claimed to be the cartographic envy of the civilised world!

Early in 1890 a Council Member of the RGS, Douglas Freshfield, proposed to the Council that an exhibition of principal national map series should be established in the Society. The only evidence of following up this intention is a small selection of OS maps being received for that purpose by the Map Room in June 1890. Nevertheless, Freshfield was able to lay before the Dorington Committee in 1892 a varied array of foreign maps, many of them printed in colour. Notable amongst those received in 1890 were copies of one-inch sheets 255, with contours in red and water in blue, and 274 with water in blue. Unfortunately the former example has not been located. In 1891 both Wilson and his principal critic Crook thought them tolerably successful experiments, but the lack of demand for them arose from nobody knowing of their existence!

By the 1880s at the OS increasing numbers of large scale plans required printing from zinc plates. Nowhere in the country was the trade doing fine litho printing in such large sizes, so a specially commissioned zincographic printing press manufactured by Furnival was
installed in 1886. Good impressions from zinc required about twenty tons pressure, twice that needed for printing from stones. The massive machine, some eighteen feet long and with the cylinder alone weighing one and three-quarter tons, was driven by steam power. Although capable of up to 1000 impressions an hour, with only about fifty copies required from each plate, a speed of about 650 imp/hr coupled with an improved method for the quick change of plates resulted in an effective output of 300 an hour, a very great improvement on the manual presses. But the availability of the press meant that long runs in two or three colours for the War Office and other departments provided experience in colour. The acquisition of an improved camera lens which could cover very large negatives also meant that duffed photographic intermediates could provide plates for each colour to be printed. The higher printing pressures also meant less absorbent and drier paper could be used with less resultant distortion, and the possibility of closer registration of several colours which also did not squash and spread in the drier process. Manufacturers were also taking more interest in providing the quality of coloured inks that finer litho printing required. However, what above all was lacking was a demand for the large numbers of copies of individual sheets which would justify printing in colours. Tentative experiments at printing a coloured one-inch map from zinc were mentioned in the Annual Report for 1888, but more importance seems to have been attached to the more direct use of the basic copper engraved plates, and in 1889 a new power-driven copper plate printing press working at the increased pressure which allowed almost undistorted double printing was used to show that an additional colour, brown, was possible for showing the hills on the one-inch. At the same time, improved methods of transferring images to zinc underlined the possibility of using the capabilities of the new zincographic press. Unfortunately, the Army was not successful in getting the Treasury in 1888 to finance a new military one-inch map in colour based on the New Series civil map, and so had to be content with trying to influence the outcome of the various inquiries into the national mapping in the early 1890s. Almost simultaneously with the Dorington Committee in 1892 a War Office Committee considered the requirements for a military map. It received some confusing opinions from the officers it questioned. The Professor of Military Topography at the Staff College did not advocate the use of colour on maps, apart from some shade of brown for contours, except under special circumstances. A Col Walford wanted railways in red and hillshading in a neutral tint – as long as the colours did not run when wet! The Committee’s recommendations were for a one-inch map in black, though perhaps with coloured contours, which individuals could colour as they wished, and one in colour for military purposes, both being on sale to the public. It said about colour printing ‘This must at first be experimental, and the Committee would propose that the OS Department be requested to prepare some specimen sheets on the lines suggested … with a view of judging as to the relative advantages of more or less colour’. They proposed the use of six colours to distinguish the various features.

The Dorington Committee on the OS which reported with voluminous evidence in 1892 dealt with the questions of colour on its maps at considerable length. The circumstances in which the large scale plans could apparently not be got in sets which were either all hand coloured or not, or all with buildings hatched or not highlighted the fact that handcolouring, not being regarded as part of the costs up to the end of printing, fell on the customer, but only after the Agent’s one third commission and the Survey’s element for Colouring Department activities had been added. The result, in the example of Birmingham sheets at 1/2500, was that of the selling price of 20/6, 17/6 represented the cost to the purchaser of colouring, of
which one third went to the Agent. If the Agent sold an uncoloured impression he only got a shilling!

On the other hand, with sheets only averaging 45 impressions the number was too small to make colour printing pay. In fact, if OS maps were to be printed in colour the whole increased cost would have to be borne on the Survey Vote unless their price was raised.

At various stages in the proceedings samples of sheets at the one-inch and six-inch scales printed in colours, usually with only the contours or hill plates in red or brown, were produced for consideration. One of the results of the discussion was that the Committee recommended that further experiments be carried out, and they got the Treasury to authorise £500 for work on a coloured one-inch map. Needless to say, the trade expressed a strong opinion that they should be left free to use the basic maps of the Survey to provide for the public if it wanted coloured maps – the job should be left to the trade as had been laid down by Sir Charles Trevelyan in his memorandum many decades before!

As a result of enquiries, steps were ordered to reduce the amount of hand colouring on large scale plans by the use of hatching for building fill, and as a result, the colouring department seems to have shrunk. When it was revived a few years later to meet the demand for colouring geological maps, the very intricate printing of which the OS had not yet completely mastered, scores of women were taken on to do the job on piece rates. This first intake of women into the Survey just after the turn of the century emphasises the facts that Henry James had reacted to – low demand and imperfect technology could be offset by cheap labour.

In the last decade of the century the demands from all quarters for zinc printing meant that the original machine wore out and lost the mechanical tolerances required for colour printing. Advantage resulted as it was replaced by several new and improved machines. As the new style one-inch maps in colour began to appear from 1897 the tempo increased until the Annual Report for 1900 showed that the number of impressions had exceeded one million for the first time, including the large numbers required for the war in South Africa. Speaking early in 1900, Farquharson illustrated his lecture with examples of OS and foreign mapping, and his portfolio of OS specimens was donated to the Map Room. These examples provide a very interesting reflection of the position of colour in the civil mapping programme at the end of the century. Sir John considered that much improvement had been made in colour printing since Dörington, and the period up to the Great War largely confirms his optimism. By 1900 the southern part of England and Wales, including the areas required for the new military map, was virtually completed in the new coloured one-inch map. For the Board of Agriculture a new half-inch county map series in colour had been done. Perhaps a little surprisingly, it had been found after some experiment that for many jobs in colour stone was in fact preferable to zinc in giving a clearer black. But as we can see, in the case of the one-inch Parish Indexes to the larger scale plans, the three primary colours for areas plus black plates for detail and sheet lines were very adequately printed from zinc. Even the Annual Report progress indexes benefited from being printed in colour from 1893.

Despite great progress in printing coming to colourful fruition at the end of the century, for many years to come the Ordnance Survey would still be providing geological maps hand coloured – how slow-moving stock of them might be I illustrate with this spectacular one-inch Balmoral sheet, hand coloured, I like to think by one of those first ladies, in 1905, which I bought from the OS Agent in Glasgow in 1943, at its awesome 1905 price of 25 shillings.
and 3 pence, the manager not increasing the price to a contemporary level seeing that as a young Gunner even that sum was more than a week’s pay!

Source Notes

The principal published sources on the OS are fully identified in A History of the Ordnance Survey, edited by W A Seymour, published in 1980. Additional information has been taken from the following items.

1823  Certificat de demande d’un Brevet d’Invention delivré au Sr Didot (firmin) Paris 25 Sept 1823. No 2216. (His application was dated 8 Aug 1923.)

1825 circa  Versuche über die Anwendung der Lithographie für die Situations-zeichnung ... durch Oberlieutnant Hauslab des k.k. Ingenieur-Corps und gedrükt bey J Trensensky in Wien. (Hauslab was made Captain in 1826.)

1834  Brevet d’invention de Quinze ans en date du 4 juin 1834, au sieur Breugnot (Joseph-Cloude), à Paris (followed by) 22 novembre 1834 Brevet d’addition et de perfectionnement au sieur Carcenac.


I am grateful to Dr Elizabeth Harris of the Smithsonian Institution for showing me their copy of the Firmin Didot map, and to Dr Claire Lemoine-Isabeau of the Musée Royal de l’Armée, Bruxelles, for locating Noizet’s map.

Professor Michael Twyman has for many years planted fertile seeds in my mind about nineteenth century lithographic printing - the weeds are all mine!

Difficulties with Land–Line data

R C Wheeler

Since 1998, the OS has been depositing annual dumps of its Land-Line data in copyright libraries. The software to view it is moderately convenient so it will undoubtedly provide a very useful source for future historical geographers. It will also provide copious employment for future cartographic historians in explaining to those geographers just what deductions can be made from the data.

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1 I would question the presenting of spot height points as screened crosses, with screening so coarse that they appear as a blotch.
The instances I shall describe relate to my own village of Harmston. However, I am told by regular users that the problems to be described are encountered in many other places.

The biggest problem is that OS now relies on information from local authorities in order to know what changes it needs to go and survey. This system has been running for some time but if the last full revision predates its introduction (as at Harmston, last revised in August 1970) then developments made before notification was introduced may not have been caught, even though later developments are recorded perfectly.

These new developments at Harmston are almost entirely of housing. The houses appear with thick lines, their garages with thin ones, so the user might imagine there is some logic behind line-width. However, for the older part of the village, houses again have thick lines but farm buildings are treated erratically: open wagon sheds – thick; chaise house with granary over – thin; modern stable of wood – thick; old stable of stone – thin. Internal divisions of buildings have been updated erratically; in one case, where a terrace of houses was reconstructed without any changes to the footprints of the individual properties, the divisions have been re-drawn far less accurately than before. One of these properties is sometimes claimed to be the smallest house in Lincolnshire (or possibly in England); the new map amalgamates it with its neighbour.

Perhaps the biggest problem is with names. The map of 1970 was unduly verbose, allowing such monstrosities as *Harmston (C of E controlled) Primary School* where *Sch* would have sufficed and *Harmston Methodist Church* where *Methodist Chapel* should have served. These have been subjected to pruning by someone seemingly lacking understanding of the subtleties of rural English usage. Thus, *Harmston Methodist Church* has become *Church* and *Village Hall* has been shortened to *Hall*, notwithstanding the potential confusion with *Harmston Hall*, a rather grander establishment. Updating of names has been erratic, so the map still shows a *Vicarage* even though the last Vicar left in 1995 and the aforesaid school still appears long-windedly on the map even though the last pupil left in 1989.

To make matters worse, the writers of modern software do not understand what was drummed into every nineteenth century surveyor’s clerk, that when reproducing a map it is essential to show names exactly where they were before. Instead, names have a tendency to drift off in a generally southwesterly direction. Thus my neighbour on one side finds that his house is labelled *Church* because my neighbour on the other side lives in the former Harmston Methodist Church, which was converted to a house in 1975-6. Our parish clerk’s house (or rather its name) has drifted over to the pub, while the thirsty traveller armed with a Land-Line printout is liable to venture into a decaying barn in search of a beer.

It is too easy to poke fun. I understand that OS is doing what it can to address these problems and it is far, far better to have imperfect updates every year or so than to wait 64 years for a thorough one (that being the interval between our last previous revision and the revision of 1970). Most regular users of Land-Line data will be aware of the problems I have mentioned. But there is still a moral for archivists - cherish that Millennium Map produced by the Mothers’ Union in felt and crochet work: it may be better in some respects than the Land-Line data dump! And for future geographers, working at a time when all these problems have been sorted out: use the early snapshots with extreme caution!

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2 Tile SK9762, amended to 22/01/2001.
1:25,000 First Series, Regular Edition – further notes

John Cole

These maps were first mentioned in *Sheetlines* by Richard Oliver.\(^1\) This essay with some update now appears in Roger Hellyer’s guide.\(^2\)

In *Sheetlines* 47 I gave a brief account of the eleven Regulars, regarding in particular survey dates, and attempted to outline some of the differences apparent in the very early B editions. But having only recently collected all the A editions it is now clear that this list can be considerably augmented even though in the cases of SX45 (part 44) and SX55 the revised editions seen were the B/*/ and B//* respectively.

Common to many if not all eleven maps were the following changes between the A and B editions:

- housing additions to built up areas,
- road and road surface alterations,
- alterations to edge place names and/or mileages,
- name alterations and additions including archaeological names or descriptions,
- industrial security – deletion of product: mines, works, mills etc.,
- alterations of tracks to footpaths and vice versa,
- additions of tracks and footpaths (mainly the former),
- vegetation changes.

The 1957 revision leading to the B edition was primarily directed towards revision of Seventh Series one-inch sheet 187, about three quarters of which was covered by the eleven larger scale maps. In view of some of the changes it is conjectured that revisers were instructed to collect information applicable to the two and a half inch map but falling well short of a complete revision. In the following mistakes as well as changes are noted as some were not corrected in print until the advent of 1:10,000 scale maps published 1982.

**SX45 (part 44)**\(^3\)

Bracketed descriptions of naval establishments removed.

Unusual boundary remark applying to Plymouth Breakwater not repeated.

Numerous battery and fort names were left as per the A edition with the exception of Woodland Fort, 4759, which was deleted (see also SX55). In addition two barracks names, Plumer and Seaton, were deleted and a third, Raglan, retained. In the case of three other barracks identified by annotation and black colouration of buildings, two were retained and one deleted (with buildings reverting to grey infill). The Royal Naval Barracks (north east corner of 4456) was not named or annotated on either edition.

Although the B edition for this sheet was not seen, the B/*/ shows numerous buildings not shown on the A for security reasons, notably (i) Devonport Dockyard, (ii) on Drake’s or St Nicholas Island and (iii) the continuation of a road and buildings at 48/4951.

Naval fuel tanks added at 5556. It is not known whether the dense black squares are a crude obliteration; *Pathfinder* 1356 (revised to 1983) shows tanks in this position.

Buildings altered, Whitesand Bay Battery, 4051.

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1. ‘Episodes in the history of the Ordnance Survey 1:25,000 map family’, *Sheetlines* 36, 15.
3. Parts of the A and B versions appear as plates 4 and 5 in Roger Hellyer’s guide.
A trig point symbol has been removed at Agaton Fort, 4559.
Buildings and annotation ‘Battery’ added 42/4349.
‘Signal Sta’ and feature removed, 4248.
Antony ferry removed, 4157, and ‘(V)’ added to Torpoint ferry, 4454.
Railways alterations are: ‘Track of old railway’ added, 4057; Admiralty siding at 4457 converted (believed wrongly) to multiple track; railway complex within dockyard mostly shown but two tunnels (660 and 150 yard) not indicated; errors at 4754 corrected (level crossing shown as bridge and annotation ‘Sta’ – closed 1941 – removed). But in 4458 ‘Sta’ has been wrongly deleted from the former Southern Railway St Budeaux Station whilst on the other side of the road bridge ‘Halt’ has been rightly added to the former Great Western St Budeaux Platform. However Dockyard Halt, 4555, had still not been added to the B edition. Curiously it is shown on the one-inch sheet but as disused, when in fact it was used at the time.
There are low watermark alterations (not significant on the one-inch) at 4453, 4654, 4854 and 4948, and a tidal depiction error on the A edition at 4952.
The county boundary on the A edition has been removed on the B south of the level of the sea at low water in 4359.
Hyphens have been inserted in the parish name ‘Maker-with-Rame’.

**SX46**
Carkeel Camp name and buildings deleted, 4160.
Foot ferry deleted, 4469.
Group of large buildings deleted, 4566.
Annotation ‘mill’ removed, 4363.
Tidal limit removed, 4563.
Parish name ‘Botus Fleming’, 4061, moved to map edge.
Village name ‘Bere Alston’ altered to lower case lettering, 4566.

**SX47**
New school appears at 4773.
The position of the air shaft (4570) on the alignment of the canal tunnel which is not shown on any modern OS map, appears to have shifted from one field to another. The B edition position is confirmed on the 1987 Pathfinder.
Halt (Whitchurch Down Platform) added, 4377. This was in existence at time of A edition.

**SX54**
Low water mark alterations, 5047, 5048, 5148 and 5246.
Buildings removed at Wembury Point, 5058, and added at RAF Collaton Cross, 5649.

**SX55**
One battery name and two fort names appearing on the A edition have all been removed, 5057, 5058 and 5156. Additionally buildings have been removed at Forder Battery and altered at Austin Fort.
Annotation ‘aerial cable’ removed, 5658.
The Gables Hotel altered to Hospital, 5355.
Quarry extensions 5054, 5253, 5552 and 5954.
The position of two of the branch railway lines was as follows: Turnchapel closed to passengers 9/51, goods 10/61. Yealmpton closed to passengers 10/47, goods 2/60. On the A edition Oreston station was shown on the former; Plymstock (both lines), Elburton, Brixton Road (named in full), Steer Point and Yealmpton on the latter. Billacombe, 5253, was not shown. All stations were shown as disused on one-inch sheet 187 published 1961.

Plym Bridge Platform, 5258, not shown (appearing as a halt on one-inch sheet 187).
Marsh Mills Station 5256 should have been named in full as Marsh Mills does not appear on map.⁴
Even though the railway had been dismantled by the time of the B/*/, ‘Sta’ and a black square remained on the map.

Village name ‘Plympton’ altered to lower case lettering, 5456.

**SX56**
The name ‘Heddon Down’ has been added, 5860. However this was an obsolete spelling (Headon Cottage will be noted in the same square). It was corrected to ‘Headon Down’ on OLM 28.

‘Sta’ (Bickleigh) added 5262; was in existence at time of A edition.

Alterations to water areas, 5564, 5663 and 5662.

Administrative name ‘Plym Forest’ added 5460.

‘In ruins’ added to five farm names, 5668, 5669, 5769 and 5868.

Princetown branch railway line removed and altered to track of old railway.

‘Mine (disused)’, missed on A edition, added at 5968. This was the locally well-known Eylesbarrow tin mine, which should have been named in full as it eventually was on OLM 28.

**SX57**
A wall extending from approx 592783 to 600782 (and appearing on SX67) was missed on both A and B editions, subsequently appearing on OLM 28.

The provisional marsh symbol (at odds with the legend) appears on both the A and B editions.

The annotation ‘Field Firing Range’ has been added to the B edition. It appears as ‘Field Firing Area’ on one inch sheet 187 and ‘Merrivale Field Firing Area’ on OLM 28.

The detail of Princetown Prison has been removed from the B edition.

The Princetown branch railway has been treated as per SX56. However some cuttings not shown on the A edition appear on the B.

Parish and village name ‘Petertavy’ altered to ‘Peter Tavy’, 5177 and 5749.

A trig point at 5971 has been given a value: 1461 feet.

The unfortunate ‘BROCK’ at 5375 on the A edition is converted to ‘B Rock’ (Boundary Rock).

Pitts Cleave Quarry (5076) is extended. A quite remarkable addition is to be noted in this square at 502767 on the B edition. This is a small enclosure of less than ten metres square which was hardly a significant change to the large scale map. However it was added to the 1:2500 in 1980, subsequently appearing on the derived 1:10,000 SX57HW and eventually OLM 28!

Television Sta at North Hessary Tor added 5774.

The name ‘Holming Beam’, shown correctly at 5976, is also shown incorrectly on both A and B editions inside the wood known as Long Plantation, 5975. This was corrected on an OS name form at a fairly early date but did not appear in print until the publication of 1:10,000 map

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⁴ For the same reason it was not necessary to name Bere Ferrers, 4563, on SX46 whilst Tamerton Foliot Station, 4460, was justified as it was a mile from the village.
SX57NE in 1982. Many other name corrections, alterations and additions appeared at this time on all the other relevant 1:10,000 maps.

SX64 (part 63)

On the B edition, but not the A for some reason as yet unexplained, the vegetation symbol for both coniferous and non-coniferous trees is that of the provisional 1:25,000. This is only to be found in the woods either side of the Erme estuary and in some cases the symbol is mixed with the correct ones,

Low water mark alterations appear at both the Erme and Avon estuaries. There are also foreshore alterations at 6739 and 6838.

The name ‘Denton’s Rock’ at 6838 has been shifted northward on the B edition and the rock itself, removed.

There is a considerable depiction of land alteration at 6846.

‘(P)’ for post office has been repositioned at 6947 and brackets removed; similarly at 6347.

There is a detail and vegetation alteration at Bolberry Down, 6838.

SX65

The village names ‘Ivybridge’ and ‘Modbury’ have been reduced to lower case status, 6356, 6651.

The name and buildings of Ivybridge Camp have been deleted, 6456.

‘Alluvium Beds’, 6355, has been deleted whilst the feature itself appears as overgrown.

Administrative, name ‘Erme Forest’ added, 6250.

Building additions at Moorhaven Hospital, 6657 and glasshouses, 6858.

SX66

Enclosures printed in the wrong colour (blue) on the A edition, have been altered to black at 6656, 6765 and 6766.

On the B edition at 63/6463 a feature has been added5 and the river apparently widened at this point. On OLM 28 the feature no longer appears; the archaeological annotation is altered to ‘Settlement’ and the river reverts to its original width.

At 6261 the depiction of a reservoir (covered) has been altered and it ceases to be annotated under security rules. Similarly the Avon Dam Reservoir is added to the B edition at 6765 but not named or annotated (although the actual dam is).

A name ‘Peathy’s Path’ is added at 6864 but no path is actually indicated.

The village name ‘South Brent’ has been reduced to lower case status, 6960.

The curious repetition of ‘Green Hill’, 6367, and in larger lettering at 6366 is repeated on the B edition. That at 6366 was removed on OLM 28.

SX67

The annotation ‘Ancient Trackway’ is added6 to the feature on the A edition at 6279.

‘Hotel’ is added at 6074; possibly a change rather than an omission.

The security alteration of removing ‘powder’ from ‘mills’ at 6277 is made to look ridiculous with the distinctive name ‘Powder Mills Farm’ appearing in 6276.

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5 Presumably that referred to by ‘Enclosure & Hut Circles’, annotated but not shown on the A edition.
6 Believed wrongly – it is disputed in informed quarters that this was ever a track.
Encouraged by the Muse of Kerry, I have located two out of nine local bench marks shown
on the 1916 OS 1:2500 plan. As the Muse predicted, I now check them on my weekly round
of the Portobello Market. The Muse has kindled my interest and I intend to search over a
much wider area of Notting Hill for more survivors. They provide an incentive for longer
walks, which must be a good thing.

Bench marks have had their ups and downs – mostly downs. The levelling record of
individual bench marks can be of considerable value to engineers and geologists. A static
bench mark confirms the stability of the underlying rock and soil. A bench mark that has
reduced in level over time indicates subsidence, usually over areas that have been mined.
Isolines plotting the difference between bench mark levels on two map editions of a mining
area can show a pattern of gradual subsidence relating to mine layout, amount extracted,
strength of overlying strata, faulting, or later robbing of supporting pillars. Excessive
pumping of oil, gas, water, or brine can also cause subsidence. Buildings on compressible
clays are likely to subside initially, tailing off over ten to fifteen years.

At one stage of my career I had to carry out repeated precise levelling in the basements
of several tall buildings during their construction and for several years afterward at
increasing intervals of time. I produced graphs of settlement curves to document the
consolidation of the London Clay under building loading and the gradual attenuation of this
settlement over time. Due to the possibility of the settlement affecting nearby OS bench
marks, DBMs – deep bench marks – were installed. The DBM was the top of a >30m invar
rod founded on the Thanet Sand and isolated within a lined borehole from the overlying
London Clay. The DBM was concealed under an anonymous valve cover in the pavement.

Bench mark ups? Well, compressible clays can also swell. On London Clay, this occurs
most frequently where substantial trees have been removed and the soil moisture content
begins to recover after decades of desiccation by the thirsty tree roots. Heave results, mainly
affecting buildings with shallow foundations. The effect usually is more localised and rarely
near a convenient bench mark for documentation. The heave usually is not structurally
serious and attenuates within ten years.

The use of bench mark histories is clearly of great utility and the only way to go back in
time to find comparable level information in order to document historic subsidence and to
determine whether it has stopped or is continuing. (Spot heights can flesh out a subsidence
study, but are less useful because they are not physically marked, are rarely in the same
location and, being along road centrelines, are vulnerable to level changes due to road
reconstruction and repaving). Since the beginning, bench marks have gradually been lost due
to building demolition. My local maps show that in the early years losses were replaced. In
the post-war period, even before GPS, there was a tendency not to replace most disappearing
bench marks. Now the prevailing use of GPS to achieve accurate levels means that no new
bench marks are being constructed. This fact is apparent whenever one searches in a
redeveloped area for bench marks, or even spot levels, in order to relate proposed or new
building levels to existing services levels on old plans. Engineers, geologists and surveyors
of the future will not have the benefit of bench mark histories covering the past decade or
present and succeeding ones.
Bench mark histories can be derived from the review of all dates of OS 1:2500 and 1:1250 plans. These are available to view at the British Library Map Library, other copyright libraries and many local history study centres. Inexpensive Godfrey Edition facsimile copies of the first three county series editions can be purchased for most urban areas. Extracts of all editions can be purchased from Landmark plc and full sheet copies of almost any edition can be purchased from the OS.

For a fee, the OS will locate surviving bench marks near to your point or area of interest and provide a computer printout of historic levels for each bench mark, corrected for the change between Liverpool and Newlyn datums.

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**Buying an Ordnance Map, 1825**

*R C Wheeler*

By 1825, distribution of OS maps was being done through the Gardner agency, and buying a map should have been as straightforward as buying any other item. Somehow, I doubt that Charles Hayward, the Town Clerk of Lincoln, saw it that way.

On 1 April, 1825, he would have seen an advertisement in the *Lincoln, Rutland & Stamford Mercury*.

**OFFICE OF ORDNANCE**

March 25, 1825

The public are hereby informed that the ORDNANCE MAP of LINCOLNSHIRE will be ready for delivery to those subscribers who have paid the advance of One Guinea and a Half per copy, on the 30th instant, according to a form which will be prescribed in a circular letter to be written to those subscribers; and they are therefore requested to send their addresses to the Secretary to the Board of Ordnance, addressed as follows:- “To the Secretary to the Board of Ordnance, Pall-Mall, London”.

By order of the Board, W GRIFFIN, Secretary

Perhaps he responded; perhaps the Secretary had sufficient initiative to work out how to address a circular letter to the Corporation of Lincoln. Either way, Hayward took action in less than a fortnight.

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1825, April 12- Writing to the Secretary of the Ordnance Office respecting the delivery of the Map of Lincolnshire for the use of the Corporation

(Same day – Paid Smith, Ellison & Co £3-3-0 on account of the Ordnance County Map.)

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1 Italic entries are taken from his yearly accounts with the corporation, preserved with the bundles of Mayors’ and Chamberlains’ Vouchers in Lincolnshire Archives. Entries in brackets relate to other vouchers in those bundles.
Smith, Ellison were the principal Lincoln bankers and on 21 December 1820 they had ‘opened a book ... to receive the subscriptions for the Ordnance Map of this County about to be published’. If this is the residue of the subscription, why is it on account? After this, nothing happens until the following year.

1826, Feb’ 18 – Attending at the Ordnance Office in Regent Street for the Map of Lincolnshire when I found the same too voluminous for my carriage, and conferring on frame or portable case for use and receiving prices accordingly. ........ 6s8d

Hayward was in town on other business. Only a lawyer would ‘confer’ with a shop assistant, but it makes the 6s8d charged for calling in seem less exorbitant. Why was it ‘too voluminous’? – was he asking for the whole of Lincolnshire mounted on a roller?

1826, May 1 – Letter to Agents to apply at the Ordnance Office for map of Lincolnshire. 5s

The ‘Agents’ here appears to be a reference to his legal agents in town. The delay since 18 February is curious.

1826, May 14 – Carriage of Box with Map of Lincolnshire 2s
Postage from Mr Gardner with account 10d
Paid him remainder of Corporation subscription for same and case. £4-5-6

This is of course before the introduction of the Penny Post so postage is paid by the recipient – a great boon for historians, who have a record both of incoming and of outgoing letters. The subscription price of 4½ gns was not exactly cheap but by the time the Corporation had paid Gardner for a handsome case and Hayward for his sundry letters and conferences, the map cost them just about 8 gns, if the payment on 12 April 1825 was the first made, or 9½ gns if the Corporation had paid its 1½ gns in advance as it was supposed to. That leaves out the charge from Hayward’s London agents.

Within two months of the arrival of the map, Hayward had submitted his resignation. He must have been approaching sixty and perhaps found the rising tide of public business more than he could cope with in addition to his private practice. But it is still interesting how rigidly his language reflects the notion that he is buying a County Map from a Government Office. Was he solely to blame for this? What exactly was the division of responsibility between the Board of Ordnance in the Tower, its Secretary’s office in Pall Mall, and Gardner in Regent Street, so far as subscribers were concerned?

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2 Margary, Vol V, xvi.
3 In that case, it is difficult to understand how Hayward could have paid Gardner the remainder of Corporation subscription.
4 There was a legal dispute with the Witham Navigation, a running battle over the Fossdyke navigation, and much acrimony over the radicals’ proposal that expiring Corporation leases should not automatically be re-granted to the sitting tenants at the customary (very nominal) rents. Nevertheless, Hayward was able to serve as Mayor in 1828-29.
At every AGM that I have attended there is a moment during the meeting when I avoid eye contact with the speaker. It happens when a member of the CCS committee says something like, “…and we are very grateful to the regular contributors to Sheetlines but would welcome articles from other members as well etc. etc. etc.” This is followed by a brief pause as he looks somehow both pleadingly and accusingly around the room. Suddenly Nick Krebs’s annual accounts seem absolutely fascinating, or I need to study the agenda again, or maybe even stare accusingly at one of my friends, who also has never put pen to paper.

Well, the guilt thing finally hit home and hence my decision to make a token journalistic effort. To be quite honest I started penning this article as an avoidance strategy, in that my wife had asked me to help write the Christmas cards this evening, so even if the editor of Sheetlines in his unquestioned wisdom fails to publish this I have not totally wasted my time.

For many years I taught Geography at a large comprehensive school in Southampton and Ordnance Survey maps were an essential part of the schemes of work and the exam syllabuses. The maps usually had a short educational life expectancy – some were lost, some were borrowed and never returned (usually by other members of staff) and a wet day’s fieldwork could decimate the Geography Department’s map stock. Maps would be returned to me at the end of the day resembling soggy rectangles of papier mâché! OS maps were just another of the department’s consumables; not to be collected, cherished or saved, but tools of the trade, so to speak.

It was after I left full time teaching to develop my interest in buying and selling second hand books that I started to collect maps. Even now my collection is minimalist compared to those amassed by people such as Nicholson, Burden, Bull, Laming, Hellyer et al. But mine is very wife-friendly, being confined to a medium sized drawer in the back bedroom. On the other hand, perhaps I should mention the several framed maps in the hall and the dining room.

Semi-retirement has enabled me to extend my exhibiting at book fairs to include London and other venues, and very soon my stock of second hand books was joined by a few second hand maps and in the last five or six years the maps have become more important to me than the books. Several CCS members are regular customers either at the Book Fairs or by way of telephone and post. I enjoy this contact very much and get satisfaction from finding maps and OS ephemera which they are able to add to their collections.

So far, dear reader, you have persevered through my long, rambling and generally scatty introduction and as yet have no idea where this is all leading. In fact David Archer is to blame. In his regular feature, ‘Kerry Musings’ in Sheetlines 67 he suggests that collections should be justified and that collectors should share information about unique or unusual finds with others. He observes that if a collector dies then his knowledge dies with him, unless it has already been written up. My spin on this is not as a collector, but as a dealer. Most years I find rare or unusual OS maps and associated ephemera which is then sold on, mostly to CCS members. The idea is to keep a sort of dealer’s diary of when, where and how items are found and then offer it for publication in Sheetlines. I suspect that for the most part my successes are random but there may be patterns. Who knows?

Writing this article is a kind of win-win situation for me. Whether it ends up in the editor’s shredder or is published I can look him in eye at the next CCS AGM.
December 2003

Not many people would consider a village hall as a cultural oasis, but one exists in the wilds of north Hampshire. Book sales are organised on a fairly regular basis and, as the prices are very competitive, the sale attracts a motley collection of local dealers from their lairs and warrens. It is important to be as close to the front of the queue as possible because all the bargains will disappear in the first few minutes.

The organiser knows of my interest in maps and usually pushes any maps under my nose. Aside from some very cheap Seventh Series, the expensive item is a large folded cloth map in maroon boards, one of which has become detached. Selling large scale maps is not easy and opening large folded maps in what is almost a rugby scrum is even more difficult. It’s on the tip of my tongue to turn down the offer, but having just managed to turn a corner of the map, I notice that the inside layout of buildings is shown. I leave the scrum and find a quiet room to open the map out fully. This reveals a 1:500 map of central Oxford, including the High Street and several university buildings. There is a vast amount of information on the map. It includes street furniture and the rooms in all important buildings. The map was dated in the 1880s. At the next London Book Fair I sold the map almost within seconds of displaying it – even without having the boards repaired.

Unusual maps must be a bit like London buses. I have not had a Lower Strathspey art cover map in stock for two or three years and then I get offered two in a week. One of them has been scarred by some enthusiastic sellotape repairs years ago. It is by no means the rarest Scottish art cover but still on a few ‘wants lists’ and the scarred one was a benderfold which is a bit unusual.

January 2004

The first Book Fair of the year was in my home territory of Winchester. Most bookdealers will at different times find themselves with a few maps, maybe tucked into a box of books bought at auction or taken for sale into a bookshop. Generally at fairs at least one dealer will have something to show me. So, anyway, the lovely lady dealer says. “Oh Roly, I’ve a map for you to look at. I think it’s quite old”. My hopes rise – I see the map – my hopes fall. In all honesty the actual map was in fair condition but the Peak District art cover was, as might be described in the trade, ‘very distressed’. Which means that it was damaged beyond repair. I thanked her for showing me the map and started walking away. “There’s something in this bag you might find interesting”.

In the bag was a sixth edition of A Description of OS Large Scale Maps, in excellent condition, and inside the book were four items of OS marketing ephemera from the 1930s – all in pristine condition. We were both content with the sale.

Lunchtime at the fair is normally quiet so I take over the admission table to give the helpers a break. A CCS member pops in for a browse and a chat, then another, then another! All in the space of about five minutes, and totally by chance. This was possibly the largest gathering of CCS members outside of an organised meeting. Here’s something for you to consider in your armchair. What would be an appropriate collective noun for an ad hoc meeting of CCS members? A grid; a mudgery; a triangulation; a mapchat? Answers on a postcard etc. …

A sunny weekend in mid-January. There are no book or ephemera fairs close at hand so an antique fair safari seems like a good idea. Success at buying maps at such fairs is quite rare and although in recent years most dealers are aware of the approximate value of the
more common OS maps there is still a chance of a bargain. Sometimes the opposite is true. Two or three years ago I remember a small pile of one-inch New Popular maps tastefully displayed between the jewellery and the porcelain. The maps were priced at £12.00 each! I suppose if the dealer hangs on to them long enough the price might eventually catch up.

Meanwhile back to the safari. A round trip of just over fifty miles and two venues. The total haul was one one-inch Third Edition and one OS booklet. If I sell them both the profits should just about cover my expenses; but the weather was glorious, Hampshire scenery was very easy on the eye and inspired me to take the dog for a short walk along part of The South Downs Way in the afternoon.

One week later – another sunny weekend and the scenery came to my rescue once more. I am beginning to question the wisdom of keeping this rather detailed diary of my search for maps. Well over 100 miles in the car in order to visit one bookshop, one book fair and three antique fairs which produced five OS maps and one other; an early map of Sicily. The OS maps were all one-inch, two Thirds, one Fourth and two Fifth Editions. Using a rather bizarre logic the dealer had priced the maps in reverse order to their age, i.e. the older ones were cheaper and the newer ones more expensive.

Much of my journey on Sunday morning was on the A272. This road winds its way through mid-Hampshire and mid-Sussex and passes through some attractive villages and small market towns. A few years ago a Dutch gentleman who used to drive regularly along the A272 was so inspired by it that he wrote a book to publicise its charms. Compared to the roadside scenery in much of Holland I suspect that even the view from the M25 is easy on the eye!

February 2004

The first Sunday in February is the first Farnham Book Fair of 2004. For me, success when exhibiting at a book fair can be measured by three factors, how many books I sell, how many maps I sell and how many maps I buy. Rarely do all three happen on one day, but when they do, as on this occasion, a celebration is called for and my feeble efforts of the two previous weekends are swiftly erased from memory.

I have not had a six-inch town map in stock for about three or four years but Cambridge and Southend turned up together with some hiker covers, district maps, art cover maps and two Fifth relief maps, one of which has the large royal crest on the cover, plus an interesting selection of non-OS maps. Most of these are on various ‘wants’ lists so are unlikely to appear at the London Book Fair next Sunday. The maps were bought from fellow dealers, one of whom had made a special journey to offer the maps. My journey home took about an hour splashing slowly along the A31 in continuous torrential rainfall. I was possibly the happiest driver on the road!

The analysis of the last four weeks is that if the weather is fine and sunny buying maps will be a struggle, if the weather is foul there will be maps to buy. Lets hope it rains next weekend.

Exhibiting at the Bloomsbury Book Fair in central London involves a longish drive and a long working day. There are about 140 dealers present from all over the country, so it is very much a social occasion as well as the buying and selling. One might think that with so many dealers around that there would be a huge selection of maps to buy. Wrong! I bought just six maps, including just two OS, none of them caused the slightest increase in my pulse rate. However, it was very pleasant to meet up with one of my regular postal customers who made
the tedious journey down the M1 from the far north and I did manage to sell some maps. The day was dry, cold and sunny – hence so few maps to buy!

Contact with the general public as a map dealer has exposed me to the BOOMITA syndrome. This is not a psychological disorder, nor is it the title of Robert Ludlum’s latest novel. I will explain. There is a discreet notice on my stall informing all and sundry that I buy OS maps. Every once in a while a member of the book buying public studies the notice and then in a quiet aside informs me that he/she has a ‘Box Of Old Maps In The Attic’ or BOOMITA. A few years ago I would be rather excited with this information. Although not quite in the same category as a Ming vase or a previously unknown Constable, my imagination soon conjured up all sorts of rare OS finds. Sadly the truth is a bit of a let down because there are generally two outcomes to the BOOMITA. Firstly the person never contacts you or secondly the box, when eventually produced, consists of some newish Bartholomews, together with a selection of 1950’s Esso road maps and one OS Fourth Edition, usually Sheet 125, Tunbridge Wells, with the rear cover missing.

It will be the month of March in a few days. March means Spring and Spring means spring-cleaning. Time to clear out the attic and find that phantom box full of OS collectables. We shall see.

The tale of the Hagstrom gift-wrap

John Davies

Stanford’s splendidly refurbished shop in Covent Garden just before Christmas was just about as close to heaven as I am likely to get. Special late opening with free wine and mince
pies, 20% off everything and surrounded by maps of every description. And then I discovered the wrapping paper! Reprints of old map sheets offered as gift-wrap for a few pence each. These were too good to miss – and certainly too good to waste on wrapping presents, even for nearest and dearest.

One of the sheets was *Hagstrom’s House Number and Transit Guide Map of New York*. It was undated, but from the typography it looked very ‘forties’ and I started looking for clues. With my limited tourist knowledge of Manhattan and the aid of modern maps and some frantic googling I discovered a few pointers. It showed the Queens-Midtown Tunnel (opened 1940) but not the Port Authority Bus Terminal (opened 1950). It showed both the Third Avenue elevated railway and the Hoboken Eire Railroad station (closed 1955 and 1956 respectively). The Brooklyn-Battery Tunnel was marked as ‘under construction’ and that turns out to have been started in 1940 and completed in 1950. So far, so vague. Then after a little more googling I struck gold at [http://myrecollection.com/christianog/hagstromcode.html](http://myrecollection.com/christianog/hagstromcode.html) and here is what I learned:¹

For many years a code was used internally to identify the publication date for pocket maps. This was done for marketing and copyright security reasons. The practice has been abandoned since 1978. Anyone who has a Hagstrom map before that date will notice there is no date on the map anywhere to be found. Usually appearing in the lower right hand corner of a map are letters: e.g. HH-ST

The code is as follows:

<table>
<thead>
<tr>
<th>H</th>
<th>A</th>
<th>G</th>
<th>S</th>
<th>T</th>
<th>R</th>
<th>O</th>
<th>M</th>
<th>C</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>

To decipher simply refer to the chart above to locate the letters and corresponding numbers below each letter. In this instance HH is 11 and ST is 45.

The first letter or letters in the code refer to the month, the next two letters refer to the year, therefore HH-ST is 11-45 or the eleventh month, November, 1945.

My map does indeed have a code, but it is X-SR-R, which doesn’t quite seem to fit the rules. It appears to translate as 0-46-6, possibly suggesting a date of June 1946.

Intrigued, I consulted the oracle. I e-mailed the author of the website, Gregory Christiano. He agreed that the code is odd, but that I could determine the date by studying the content of the map. Which rather brings us back to where we started!

Has any member any further information? Or does anyone know the dates of construction of Manhattan features of the forties!

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**The ultimate novelty suit**

Under this headline *The Independent* of 29 January reported that designer Simon Carter had teamed up with Ordnance Survey to produce shirts and suits decorated with OS mapping of the North Norfolk coast ‘with the addition of a few cheekily placed “Carter” locations’. He also offers a bespoke service tailoring clothes with maps of the wearer’s choice.

The garments are apparently available from House of Fraser and, although £400 for a suit is beyond his own pocket, the Editor eagerly awaits the fashion parade at the AGM! – *CJH*

¹ Information from the website reproduced by kind permission of the author.
Short queries

Authentic Map Directories

The query from David Higgins in Sheetlines 68 has generated several very helpful replies:

The book to which David Higgins refers is actually entitled *The Authentic Map Directory of South West Yorkshire*. On the frontispiece, this is expanded by the subtitle ‘including the whole of the industrial area of the West Riding’. I too own a copy of this fine work, but on mine no publication date is evident anywhere. The only clue, apart from looking at railway station closures, is an advertisement on page 196 for the Leeds Provincial Building Society, which contains the words (referring to interest rates) ‘3% plus a bonus of ¼% for 1938’ – this suggests a rather later publication date, so were there perhaps two editions?

The ‘Introduction’ page opens with the sentence ‘In response to many inquiries from users of the Authentic Map Directories of London and Suburbs and South Lancashire, and from many large business houses in the West Riding … ’, therefore confirming the existence of two others, and I imagine that these three titles were the only ones ever produced.

I am also lucky enough to own a copy of the London and Suburbs edition, a very worn copy which I rescued from a rubbish skip at work about thirty years ago! As suggested by David Higgins, this makes far more use of colour (two shades of green for woodland and parkland, red for stations, two shades of blue for rivers, canals, docks and reservoirs), but more importantly it is laid out differently in that the maps themselves only occupy the left-hand pages. The right-hand pages comprise a trade directory for businesses in the area covered by the map opposite.

Finally, I echo David Higgins’s comment that they are ‘ripe for reproduction’, but cannot help feeling that if they are done to the same standard the cover price of 50/- will now be something approaching £100!

Derek Persson

David Higgins will be interested to know that there was indeed an *Authentic Map Directory of South Lancashire*, edited by James Bain FRGS and published by Geographia – I have a copy, picked up for a song at a charity shop a few years ago. It is in full colour and its 187 sheets extend as far north as Preston, Blackburn and Burnley. They also cover the northern fringes of what was then Cheshire (including the Wirral), though the title does not indicate this. Railway, administrative and parliamentary maps are included, together with a (fairly brief) trade directory and a street index. The publication is undated, but the content suggests the late 1920s. Should Mr Higgins wish to peruse it, he is very welcome to do so.

I have also had sight of a companion volume for the London area. Sadly, as the asking price was very much more realistic, it failed to join my collection!

Graham Bird
I can confirm that Geographia did indeed produce *The Authentic Map Directory of South Lancashire* in the early thirties, on a scale of four inches to the mile. The copy I have is a weighty tome in dark green hardback covers priced at 50 shillings, with 192 pages of maps, a 16 page Classified Business Directory and around 80 pages of street index. It measured 10.25 by 14 inches and was printed in four colours.

The street mapping was in Geographia’s normal house style for that period with road casing and text in black, bus and tram routes highlighted in yellow, woods in light green, parks and cemeteries in dark green and water features in blue. Red was not used. Mapping extended to Preston, Burnley, Colne, Bacup, Rochdale, Oldham, Stalybridge, Stockport, Altrincham, Warrington and Birkenhead and, of course, included the major centres of Manchester and Liverpool.

There is no date at all in the atlas, not even Geographia’s own coding. This was a series of letter codes based on the word ‘CUMBERLAND’ and worked by allocating the numbers from 1 to 9 then 0 to the letters in order. For example C=1, U=2, M=3 etc to N=9 then D=0. A code on a map reading ‘U.MB’ would, for example, translate into 2.34 or February 1934. This however was not always perfect as early maps were uncoded and some codes were ambiguous!

The atlas covered over 1000 square miles of the industrial area of South Lancashire, then one of the major workshops of Britain, and probably the main reason why Geographia embarked on this epic mapping project. There were plenty of industrial and commercial businesses, cotton being king at that time, and there must have been a perceived demand for an atlas to incorporate these areas into one book. I don’t know of any subsequent editions, but according to the editorial this was the first edition.

Up to that point street mapping was not as prolific as it is today and there were few companies, excepting Geographia, that regularly produced a series of street plans in this area. Bartholomew’s had produced coloured street atlases for Liverpool and Manchester from 1928 and 1927 respectively, but these only covered the immediate boroughs and would not have extended beyond about four miles or so from the city centres. Geographers’ A to Z series was still to be born and most other commercial street plans were either available in local guide books or, for example, the series of borough street maps produced by Burrow’s of Cheltenham. Interestingly the founder of Geographia, a Hungarian by the name of Alexander Gross was the father of Phyllis Pearsall, future founder of Geographers’ the A to Z company. The Ordnance Survey also produced a six-inch street map of Blackburn in this area that I know of, and there may have been others.

I also have a copy of *The Authentic Directory for London and Suburbs*, again undated and I would guess from the early thirties. This is slightly smaller, measuring 10.25 by 13.6 inches and is similar in cartographic style to the South Lancashire atlas, except that railway stations have black casing with red infill. The page layout in the London atlas differs in that all maps were printed on the right hand side of the open book with the left hand pages taken up with advertising relevant to that particular map. Its appearance may have coincided with the demise of G W Bacon’s *Atlas of London and the Suburbs*, an even larger series of atlases first published in the late nineteenth century; a cartobibliography for which would fill a small volume.

This may have been an early attempt, as some pages had large white spaces where perhaps the advertising take up was low, or the map area contained few commercial businesses able to advertise. With 132 pages on a scale of 4.5 inches to the mile and three
pages at 11 inches to the mile there were also eighteen pages of special maps of the London area showing transport, utility and administrative areas, etc. Whilst the street atlas totalled 135 pages there were in fact 270 pages as each map doubled up with its advert page. So, including a 54 page street index with over 30,000 entries this was another hefty volume. I don’t know how many editions of the London atlas were published, but a colleague who worked at Geographia in the 1960s said that in 1969 the reps were selling an earlier edition printed around 1963 and still in dark green hardbacked covers.

Phil Tyler

Please Sir, I swapped it

This New Series sheet has, perhaps illicitly, come into the possession of Peter Warburton who points out that the inclusion of Denny Island was covered in Sheetlines 27, 27. While not wishing to reopen the correspondence on gibbets, keen-eyed readers may notice the inscription Gibbet Pole on Dumball Island.
Only recently have I come to appreciate just how useful, yet underused the National Grid is. I have often used it to pinpoint a place, but had never considered how difficult life was before it existed. In an Ordnance Survey report of 1921, the location of a building was described as being shown on a particular 1:2500 sheet, 180 yards south west of a bridge. Not a great help to the map-owning public, who favoured the smaller scales. After 120 years of highly mathematical and scientifically advanced map making, Colonel C F Close resorted to a description similar to that used to find Long John Silver’s treasure: X marks the spot. But then, it had always been thus. In the early days, OS staff were told that buried triangulation stations could be found by consulting Mr Bloggs who lives in the cottage nearby.

The beauty of the National Grid is that it is now so well established, even if little used, that it can be found in most households, whether in a road atlas or on a sheet map. And a lot of people know how to use it (after a fashion), without an expensive electronic gadget, but with sufficient accuracy for everyday purposes. Quoting grid reference SO 155891 allows anyone to look it up and see what is there. To some individuals, just the letters SO will indicate the general area. With decreasing precision, a six-figure grid reference can be used on ever-smaller-scale maps, and still show the location to be nearer Clun than Aberdeen. On the down side, the National Grid is perceived as being ‘difficult’. Many people remember being instructed in its use whilst at school, and deep in their brain, they remember there to be a major catch somewhere. You need your wits about you or you make a tremendous blunder and mess up the whole reference. Better not to use it. So most people don’t. Not that this sort of person is given much encouragement, or has an example set by those who should know better. Few large organisations, public or private, give a grid reference for an address. Postcodes are used at the end of an address. Why not a National Grid reference as well?

I learnt how to give a grid reference and, on leaving school, promptly forgot. When I renewed my interest in maps, I remembered that one quoted one way and then the next and estimated tenths. But which way first? Up and down or left and right? I always find it easiest to think of a capital L for the Location being described. Go down the L and across to the right, just as when writing it. Look on the map at either end of the vertical line and quote the digit and then either end of the lower horizontal line and give that digit. Get the two letters from the margin or cover. Alas, I still have to draw imaginary L’s one above the other or side by side, in order to work out adjacent sheet numbers for 1:25,000 maps. That columns of these sheets run 21, 22, 23 upwards and rows run 21, 31, 41 across, is not second nature to me.

I no longer attempt to explain over the telephone how to give a six-figure grid reference, though I do sometimes tell how to quote a 1:25,000 First Series sheet. Find a good road atlas with an Introduction stating that it shows the National Grid (and is therefore a clear and detailed index to this series). Every small square on a page is a sheet of the First Series. Look for the big double letters somewhere in the body of the page and write them down. Follow the line that forms the left edge of the square under consideration to the edge of the page and note the digit shown. Repeat this for the bottom edge of the square. The two letters and two digits are the 1:25,000 sheet number, SO 18.
I am certain that reading the official explanation is what causes all the confusion and puts people off. And it is likely that this method is at least touched upon in schools (as it was, forty five years ago). The false origin of the National Grid is where one starts when giving a grid reference, we were told. This is marked by a big black X floating on the waves some miles to the south and west of the Isles of Scilly, behind your left shoulder when reading a map. Thus, the left hand vertical line, on the extreme west of any Ordnance Survey sheet, is referred to as an easting, being so much east of the false origin. Similarly, the bottom neat line, the south of the map, is known as a northing. In fact, any vertical line is an easting, giving rise to the instruction “Drive three miles west to easting SO 155”. No wonder confusion reigns. Left and right, top and bottom for me every time.

Whenever somebody offers to give a grid reference, I always ask for the location as well. So often the two sets of figures are transposed. Even the Ordnance Survey 1:50,000 gazetteer has this sort of mistake. More intriguing, a friend has noted that the OS 2003 Xmas card, showing part of Holly Green has the note: National grid reference for Holly Green—3861 2409, which I leave you to ponder. However, easily the most common failing seen in print, is the substitution of a sheet number for the letters, e.g. /G2F/G44/G51/G47/G55/G44/G51/G4A/G48/G55

sheet 196 387 148, or NG 387 148 on map 196. This is the sort of thing that I mean when I say people only half understand the National Grid. They do not appreciate that if the letters are given, one can look the reference up on a variety of map series and scales.

Currently, there appears to be no widespread use of the National Grid amongst the general public, only amongst scattered groups. Large map databases use it to bring up a County Series site when a National Grid reference is specified, and others move between the National and Cassini Grids using a computer program. Our local fire service recently gave every household a piece of paper showing their grid reference, and asked that it be kept by the telephone and quoted in emergencies, showing a belief in its usefulness. The outdoor fraternity still use it, as do many guidebooks. Carriers in rural areas could find it cheaper to provide maps rather than mobile phones and have grid references rather than telephone numbers on parcels.

The police use postcodes and are constantly urging us to etch them onto valuables. The Royal Mail uses postcodes, as do insurance companies and any electronic database that provides addresses. One is always being asked for a postcode, never for a National Grid reference. It has been suggested that the Royal Mail should have used the grid as a basis for postcodes, or even as a substitute. Maybe this could still occur, especially if the double letters were changed to reflect an area, as do the first two letters of a postcode. Instead of SW, we could have CW for Cornwall. I see no reason why the letters should be structured and follow on, one pair from another. How many people know the two letters to the north of SO?

Given that so many use or nearly use the National Grid, I suggest that the Ordnance Survey re-launch it. Free maps are being given to schoolchildren, so why not tie it in with a massive promotion of the grid? A lot of the groundwork has been done in preparing the public for it, so why not ram it home? As with the current campaign to eat more fruit and vegetables, many people are well on the way already. With the National Grid, most people have access to it at home, and many almost know how to use it. A clear explanation and encouragement are all that is needed.
Letters

Size matters

Apropos Peter Warburton’s feature,¹ Leith Hill in Surrey is the highest point in SE England at 965ft (a mere 294m, or more precisely, 294.13m).

I have always understood that the tower on the highest point was built so that the magic 1000ft could be achieved, though not recognised by the OS. Can anyone confirm that this was the reason the tower is as high as it is?

Walter Paterson

As one who has for many years studied mountain statistics, I was interested in Peter Warburton’s article. I have always understood that the so-called ‘maximum error’ of heights such as spot heights and contour lines is about 3.3m (for trig points and bench marks it is about 0.6m): this is based on the values quoted in Harley’s 1975 Ordnance Survey Maps – a descriptive manual, but I doubt that the current values would be significantly different. ‘Maximum error’ is not literally correct: one value in every thousand may be in error by more than that, but most of us can live with that level of uncertainty. What it does mean is that half the values are within one-third of the maximum error quoted and the other half are outside them – but one does not know which is which! (So half the heights on contour lines will be within 1.1m of the correct height, and half the trig point and bench mark values within 0.2m.)

Thus it is not only those hills with spot heights of 914m that are potential Munros. Hills of 913m and 912m are too (though with decreasing probability): at 911m it becomes most unlikely and by 910m virtually impossible. Chris Crocker, in an article in The Angry Corrie no. 36, showed that if a Munroist has not climbed any of these 911m - 914m hills, there is only a 21% chance that he has, in fact, reached all significant 3000ft summits. Adding the most likely candidate for promotion, the fine hill Foinaven in Sutherland, would boost the chance to 61% but he would need to climb three more hills to achieve virtual certainty. (Once while visiting that part of Scotland I overheard one visitor comment to her companion, “Isn’t it strange how so many of the mountains here are named after racehorses?”)

In a follow-up article I suggested that for the Corbetts, which have a drop as well as a height criterion, you need to visit not only those with heights within 3m of the lower limit (762m), but also those with drops estimated to be as little as 145m. The larger margin (7½m) here is of course because the error in the drop, being the difference between two heights, is likely to be larger. This would add about sixteen hills to the current Corbett total of 219. But that does not mean that there are 235 Corbetts, merely that you must visit 235 summits to be sure you have bagged all that actually do meet the Corbett criteria.

A further problem arises because, even if there is a spot height (which is not invariably so), one cannot be certain that it is at the very highest point. (On some hills, even when you are at the top it is hard to identify the highest point!) It is difficult to quantify the effect of this but the conclusion must be that you need to visit some even lower hills to achieve

¹ Sheetlines 68, 33.
certainty. At a col, of course, the spot height could be at a point either below or above the true saddle, rather than exactly there; yet another reason why the errors in drops are larger.

One conclusion that I draw from all this is that the OS are quite correct to refuse to publish summit spot heights (in the absence of a trig point) to any part of a metre. This would imply a wholly spurious accuracy; indeed the old values to the nearer foot did just that. It would however sometimes be useful to know the height of the trig point bench mark, when there is one at or near the summit, to the nearer 0.1m. Firstly this would enable the serious visitor to estimate the actual summit height if that is greater (as it often is). And secondly it would be of great value in determining whether a hill does or does not qualify for a list on height grounds. For example, there is still an unnecessary debate on whether Calf Top (609m trig point at SD 664856) actually reaches 2000ft. How about it, OS?

The topic of hill lists leads me into a fine example of nominative determinism, a topic which has featured in your pages before. We all know of the Munros, the hills in Scotland over 3000ft high and named after Sir Hugh Munro who first listed them in 1891. The other eponymous Scottish lists, the Corbetts, Donalds, Grahams, and Yeamans are less well known, but Scotland (though it may have the best hills) is of no interest in our context.

In the rest of the British Isles, however, things are very different. Corbett himself compiled the first, 2500ft list for England and Wales as long ago as 1911, but after him and in chronological order lists were compiled by Moss, Bridge, Wall (for Ireland), Marsh, and Dewey, among others. (Mostly these were lists of 2000ft or 600m hills in England and Wales.) What a splendid set of topographical names! But it is hardly surprising that no one talks about climbing the Walls or the Bridges, though in my experience the Marshes would be a most suitable name for many hills above 600m.

Although there have been various proposals, some by the compilers, my own feeling is that it would be unfortunate if a modern name were attached to these lists at the expense of the pioneers. (The very first list for England to go down to 2000ft was either by Elmslie or, just possibly, Walsh: for Wales it was Moss or again, possibly, Walsh.) Nor, despite its suitability, will Terry Marsh’s name go down to posterity in this way. The most recent (and accurate) set of lists were compiled by Alan Dawson or E D Clements and published by Dave Hewitt of The Angry Corrie fame. And so we now have the ‘Hills in England, Wales and Ireland over Two Thousand feet high’ – the Hewitts!

David Purchase

PS I am working on a history of hill lists in the British Isles, and I am in contact with two others doing similar work. I shall be happy to exchange information with any reader who is interested, and would be particularly keen to hear of any less well known lists (including unpublished ones) of which you may be aware.

The Far-Distant Oxus

Whilst on holiday on Lundy Island and staying in the outpost of Tibbetts Lookout I read an oldish book kindly provided for the property by the Landmark Trust who owns Lundy. The book was written by two young girls, a chapter each in turn (!) and had a foreword by Arthur Ransome.
Its strange title is *The Far-Distant Oxus* and the two young authors were K Hull and P Whitlock. The book was about an expedition by several teenagers, probably set in Exmoor, which followed the route of a river down to the sea. I had a brief look at possible locations on my return home but without the book in front of me I could not come to any conclusion. Has anyone out there read the book?

I would love to know if it was based on a real river or area.

*Philippa J Corrie*

_The fascinating story of the publication of The Far-Distant Oxus and Ransome’s continuing friendship with the authors is told in Hugh Brogan’s The Life of Arthur Ransome._² – CJH.

**The principal problem**

Very interesting article by K M Bromley re the stations on *Landranger* maps.³ It is many years since I lived in Surrey so I am not up to date with ‘Southern’ stations but I selected 24 ‘Major’ stations here in the North West and did a similar exercise. The first thing of interest is that five have been down rated between Seventh Series and *Landranger*, and one up rated. The latter is Blackpool North but this is clearly because Blackpool Central has been closed and it is now the main station on the Fylde.

I then looked at my 24 based on the following criteria:

1. do Intercity / long distance expresses stop there?
2. terminus and / or major junction station?
3. more than four platforms (including / excluding bays)?
4. overall roof and / or long platform verandas?
5. city or large town?

The one thing that can be said with 100% certainty is that no pattern is forthcoming. If anyone else comes up with a suggestion I will look again but I will be most interested if OS can establish an answer.

_Martin Lee_

Could it be that major outer termini are considered ‘principal’ stations? I do not have the resources to follow this up to any extent, but it is the difference between Weymouth and Torquay. Kingswear, however, where the Torbay line finishes, is not a ‘principal’.

_Keith Pendray_

_Sheetlines 52_ contains Jim Cooper’s article on one-inch revision in the mid 1960s with the most useful addition of the guidance given in the Green Book of those days. It is a reasonably safe assumption that a high percentage of the rules had altered little in the previous forty or

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² London: Jonathan Cape, 1984. See pages 351-5 of the 1992 Pimlico paperback edition, although an exact location for the story is not disclosed. This absorbing account of Ransome’s varied and adventurous life is highly recommended.

³ *Sheetlines 68*, 31.
so years and those for railways being no exception. It contains the key sentence ‘To assist the draughtsman, principal stations in towns will be so marked.’

The Landranger has seemingly inherited a ‘sin of the past’ in as much that some surveyors and/or draughtsmen took a somewhat wider view and as a consequence for example Popular sheet 138 (3300/31) shows not only the important stations Exeter St Davids, Central and Newton Abbot in rectangular form, but also Dawlish, Exmouth and Teignmouth in a similar state.

Even in Popular one-inch days a more or less built up area existed between Brighton and Arundel Junction where lines to Arundel and Littlehampton diverged. No less than fourteen stations and halts existed in this stretch and still did so (with just one disused) by the advent of the Seventh Series. Brighton Central, as befitted a major station (as in the case of all the London termini and junctions such as Clapham, Stratford and Willesden), was shown ‘plan size’ whilst Worthing and rather surprisingly Southwick were picked out as principal for rectangular depiction. This is a relatively straightforward situation – the London built up area was quite a different matter. Again on the Seventh Series, and away from the termini and junctions, the first principals to be encountered in a roughly clockwise direction are: Bedford, Hertford, Romford, Tilbury Docks, Gravesend (two stations), Crystal Palace (two), Maidstone (two), Royal Tunbridge Wells, Lewes, Brighton, Guildford, Aldershot, Basingstoke, Windsor (two), Staines, and Watford. There had been four notable casualties since New Popular (and presumably Popular) days: East Croydon, Eastbourne, Redhill and Slough.

Alan Young (Sheetlines 54) devotes a section to station importance on the Seventh Series and draws attention to disused principals: Crystal Palace High Level, Dalkeith, Gravesend West, Hull Cannon Street and Selkirk: four of these being at the ends of branch lines which is in effect the situation at Windsor. Also the surveyor could be confronted with the awkward situation of two or more major stations belonging to different companies in not particularly large towns (at least not in the 1920s). Examples are Wigan where the Great Central terminus was a dubious rectangle, and Great Yarmouth where the Midland/Great Northern Joint and two Great Eastern stations were of equal merit and none particularly large. Often a sizeable and important station was adjoined by a lesser one of a different company e.g. Leamington, Reading, Salisbury etc. and the latter enjoyed principal status as a result.

Why was it desirable to pick out the main station at all? Well, in the days when railway stations were of considerable importance to the map user on foot and so many stations and halts existed, all trains could be guaranteed to stop at the principal station and perhaps equally important there would be a refreshment room and other facilities.

Although the principal symbol appeared (with first black, later red infill) on the legend of the Popular map it was, as far as I know, not annotated until the days of the Fifth Edition and Scottish Popular. However the complete conventional signs of 1925 (1931 reprint) shown as plate 12 in Yolande Hodson’s Popular Maps displays the annotation.

And so to the Landranger. Intrigued by Mr Bromley’s disclosures I carried out an inspection at the local library (with bookshop checks on more recent sheets) finding other inconsistencies much as he describes. However, due to the loss of so many stations the number does not appear to be all that great. Most of the major stations are still in plan outline though sadly, Chester (formerly General), Leicester (formerly Midland), and Norwich (formerly Thorpe), etc. are all reduced to circle status. Where there is an adjoining or other station inside the built up area (apart from London) the principal is shown e.g. Bexhill,
Canterbury East, Colchester, Exeter St Davids, Folkestone, Grimsby, Guildford (due to the proximity of London Road Station), Hastings, Havant, Maidstone East (due to proximity of Barracks and West stations), Plymouth, Southend Central, Wakefield Westgate, Watford, Wigan North Western, Worcester Shrub Hill etc. Bexhill, Hastings and Havant are ‘gains’ since the earliest Seventh Series and Worthing remains whilst Southwick has quite rightly been demoted. Which leaves not a great deal to criticise: possibly Southport (formerly Chapel Street) and Blackburn together with Bognor Regis, Littlehampton, Weymouth and Windsor Royal. Moreover Blackburn and Littlehampton hardly merit plan outline.

A comparison was made with a 1986 British Railways map little altered in spite of privatisation, places (not stations) being shown as ‘principal’ or ‘other’ but the criteria not similar to Ordnance Survey’s. Gatwick Airport is shown as ‘principal’ (and its depiction on Landranger rather exalts its importance) whilst the last six (less Weymouth) in the previous paragraph are described as ‘other’.

As observed in Sheetlines 68 Windsor Royal (formerly Central and before that just Great Western) is a very strange choice and one can only conclude that the ‘royal’ description has a bearing. As per Windsor Riverside it is purely a branch line terminal of similar rank but more convenient to the castle.

And finally the London 1:50,000 sheets 176 and 177 were inspected. Nothing has changed amongst the termini except Broad Street and Holborn Viaduct have gone altogether, and of the main junctions Clapham remains in plan outline whilst Stratford and Willesden have given way to double circles.

John Cole

Whereabouts of OS Scottish 1:2500 ‘blues’

In his account of the CCS members visit to RCAHMW and NLW\(^4\) Chris Bartlett states vis-à-vis the Welsh ‘blues’ held in RCAHMW ‘… it only remains now to ascertain the whereabouts, if any, of their Scottish equivalents’.

These maps have been held in the Map Library of the National Library of Scotland since 1984, and are readily available for consultation. Rob Wheeler has already paid a brief visit to look at them.

From Map Library documentation dating from 1984, it seems that the history of English, Welsh and Scottish maps is closely linked. They were all originally deposited in the PRO, but put in store at Hayes, Middlesex, where their future seemed uncertain. On the initiative of Alan Aberg of RCAHME (a CCS member) the Scottish maps were transferred RCAHMS in Edinburgh (with the English ones going to RCAHME). I am not sure how these transfers relate to the Welsh rescue by Brian Malwas. Lack of suitable accommodation in their premises in Melville Street led to them being offered to NLS Map Library who readily accepted.

Peter Milne

Map Library Services Manager
National Library of Scotland

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\(^4\) Sheetlines 68, 7.
I read with great interest the account of the visit to the RCHAMW Aberystwyth. It was a pity, however, that only two OS archaeological six-inch sheets were displayed, considering that the three Commissions in England, Wales and Scotland have taken over the complete stock of record sheets and cards originally compiled by the Archaeological Division of the OS. It was unfortunate also, that the neatness of one of these sheets was questioned as it implied a lack of competence on the part of post-war OS Archaeology Division staff many of whom were skilled draughtsmen as well as highly competent archaeological field investigators and surveyors. Revision work was completed to a high standard and was carried out under the rules of the Archaeology Division which permitted minor detail (not normally shown under OS field survey rules) to be surveyed for a more accurate depiction of an antiquity. This called for a very high level of draughtsmanship and neatness. Record cards, record maps, air photographs and other necessary aids to archaeological interpretation were also taken into the field and in consequence suffered wear and tear at times. The old OS maxim ‘Get some mud on your boots’ applied quite literally in some rural areas and keeping such material neat and clean at all times was usually one of our main concerns.

Another pressing need was the OS emphasis on progress and programming. With an average of 21 OS archaeological field investigators to cover the whole of the British Isles and attempting to keep up with the post-war programme of resurvey and revision, it was inevitable that the need to complete the task before the surveyor moved in became a matter of urgency. Neatness, however, was paramount in the completed work submitted to HQ and one can only assume that the six-inch sheet SN67SE shown to members on their visit was a field document rather than a record sheet from OS archives.

As for the Romans using a road numbering system, any number shown alongside a Roman road on an OS record map would probably be the reference number formally used by OS. These numbers were first applied to Roman roads by Mr I D Margary as a means of identification in his book *Roman Roads in Britain* and were subsequently adopted by OS for easy reference.

E C Waight

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*A more puzzling trig point*

Does the answer to question 8 (‘Puzzle corner’, *Sheetlines* 67, 37; 68, 47) about the sub-sea level trig. point on the Little Ouse prompt a more puzzling question than the original one?

The *Explorer* map appears to show the trig. point on the river bank. These fen rivers are flanked by man-made flood banks, which are often very substantial earthworks and tend to be quite a lot higher than the normal water level – and even higher than the adjoining land. I am not familiar with that particular stretch of the river, but only 3-4 miles upstream of there the bank tops must be at least three metres higher than the normal level of the water in the river. If the height (or should it be depth?) of the ground at the base of the trig. point is really one metre below sea-level, then the contents of this river – starting from an even lower level than that – face a long uphill struggle before they arrive in the Wash.
However, since the several nearest spot heights scattered across that area also show -1 metre, this does suggest that we have not, after all, happened upon some anti-gravitational miracle.

That’s all very well, but in that case the trig. point must be at the foot of the bank – from where at least 50% of the surrounding countryside is totally invisible. Is that the most logical place to find a trig. point?

John Andrews

This letter was originally posted to the ordnancemaps Internet discussion group, from where it has been lifted by the Editor. – CJH

1:1250 survey methods – corrections

John Cole

These update the lists in Sheetlines 67, 29 and Sheetlines 68, 48:

1950 chain survey: add Billingham, Redcar, Stockton
1954 air graphic: add Slough, Windsor
1955 air graphic: Reading, alter to air machine
1956 air machine: Kirkintilloch, alter to chain survey
1958 air graphic: Aldershot, Farnborough, Farnham, alter to tachy
1959 tachy: add Staveley

Although not specifically mentioned in Seymour\(^2\), there is verbal evidence that Reading was also the subject of the air machine experiment at the same time as Oxford. Examination of sample maps tends to support this.

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1 A status report of about 1962 clearly indicates tachy to have been the main method (tachy 163 maps, air graphic 19, air machine 14, chain survey 5). The survey appears to have commenced at Farnham, probably in 1957, but the method here is uncertain. Ten revision points were noted on the map of Farnham Castle but none at all on the other three examples seen. The only other revision points observed (on a total of nineteen 1:1250 maps) were at Cove, north of Farnborough, and the distribution of these suggests the air graphic method.

Notes for authors

“Contributions, long or short, profound or trivial (but related to Ordnance Survey matters, however tenuously) are always welcome.” These notes are provided to ensure that your copy has a particularly warm welcome.

We aim to publish a rich mixture of ‘amateur’ and ‘professional’ articles. There are no explicit guidelines as to length. Some articles, for example those with complex cartobibliographies, must of necessity be long; most others will benefit from re-reading to see if the ideas can be expressed more succinctly. As a general rule, the more tenuous the link to Ordnance Survey, the shorter the article should be. The Editor may prune articles if space is short, or to contrive that *Sheetlines* fills an exact multiple of four pages. Titles of articles should also be short enough to be suitable for the table of contents on the cover.

*Sheetlines* is prepared on a PC, using Microsoft WORD. Copy is welcome by e-mail or on a PC format disc and should, ideally, be in ‘rich text format’, RTF, or in plain text. Many word processors can generate RTF; this format also guards against viruses. Do not attempt to mimic the published font size or layout. All contributions are formatted using a standard ‘template’. Including your own formatting hinders rather than helps this process.

Contributions typed, or clearly printed, on A4 paper are equally welcome. These are scanned using optical character recognition software. Avoid exotic typefaces and, with a manual typewriter, please clean the keys and use a good black ribbon.

Short handwritten pieces cause no problem, but any longer handwritten article should be submitted in very good time to allow for the Editor’s one-fingered typing.

The final copy date for each issue is the seventeenth of the month before publication, but articles are welcome at any time and the earlier that you submit your copy the more likely it is to be published in the next issue.

Illustrations

Map extracts, diagrams and photographs add greatly to the interest of the publication. Illustrations should be clear; photocopies, in particular, need a high level of contrast. ‘Grey on grey’ photocopies, particularly of early engraved maps, rarely reproduce successfully. If you are not able to obtain a clear black and white photocopy from a coloured original, please send a full colour copy. Illustrations are scanned into the computer. This allows for colour separation, conversion to monochrome and limited picture editing. Minor imperfections can be corrected and contrast adjusted, but any detail that has been lost in the original photocopying cannot be magically restored!

Illustrations are normally printed in black and white, although spot colour may be available for particularly complex diagrams. This, of course, costs extra. Colour photographs, which are normally returned to the author after publication, should be sharp and have plenty of contrast to look well when reproduced in monochrome.

*Sheetlines* is prepared on A4 sheets, which are reduced to A5 by the printers. The size of scanned illustrations can easily be altered, but best results are obtained if the original artwork is prepared, or photocopy made, at a magnification of at least 40% larger than final size. Please indicate the magnification used when submitting copy.

Illustrations may be submitted electronically in any of the common graphics formats, but should be separate files from the text and have a resolution of around 600dpi.

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1 Hence, occasionally, some apparently pointless tinkering with copy to avoid a paragraph spilling over to a new page.
Style

We have no wish to force a uniform style on authors, though Gowers’s dictum² ‘Be short, be simple, be human’ is always good advice. There are, however, a few points on which we aim to achieve consistency (except, of course, in direct quotation).

Numbers: single word numbers in the text are usually spelt out, ‘sixty’, not ‘60’; numbers larger than 9999 are comma separated as ‘1,000,000’.

Dates: as ‘8 November 1980’.

Scales: given as a representative fraction, ‘1:2500’ or ‘1:10,560’. Scales related to imperial units may be written, without capital letters, ‘one-inch’. Capitals are only to be used where the scale forms part of the formal title of a series of maps, thus “general publication of one-inch mapping came to an end and the One-inch Seventh Series was replaced by the 1:50,000 First Series”. Which brings us to the vexed question of ...

Series or edition: current practice is to use ‘edition’ to denote the particular revision of a sheet within a ‘series’, thus ‘1:50,000 First Series, sheet 193, edition A/*/ */’. However, use ‘Edition’ in preference to ‘Series’ if this word occurs on the map, or otherwise, as part of the title of the series, e.g. ‘Popular Edition, price 2/6’.

Footnotes and references

Footnotes usefully convey supplementary information, but do interrupt the reader’s smooth digestion of the text. Use them with discretion, other than for their essential purpose in providing references.

References follow a conventional academic format. It is particularly important to provide a full reference, including page number, whenever a direct quotation is used. As shown by the example on this page, a book is referenced in the form

Author, Title, edition, Place of publication: Publisher, year, page(s).

The author’s name is given as it appears on the title page of the publication, with first name or initials before surname. The place of publication may be omitted for the Ordnance Survey, HMSO and the Charles Close Society itself.

A reference to a journal article, however disreputable the example chosen³, has the form

Author, ‘Title of article’, Title of journal, volume number (year), page(s).

References to articles in Sheetlines, such as this one⁴, may be given in the simple format

Sheetlines issue, page.

Those distinguished experts with one or two digit CCS membership numbers will consider these few notes a gross over-simplification! The Editor hopes to publish an extended glossary of technical terms and their usage in a future issue.

⁴ Sheetlines 63, 60.


New maps

Jon Risby

This list covers small scale maps published between 27 October 2003 and 16 March 2004. They are listed by series, and in sheet number order. The columns are as follows: Sheet No. / Title / Edition / Copyright date / Full revision date / Latest revision date / Date of publication. There is also a list of those maps due for publication by OS up to 31 May 2004 (in order of their proposed publication).

After the list of OS maps is a résumé of maps published by Alan Godfrey between October 2003 and March 2004.

OSGB

Landranger – new editions

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Explorer – new editions

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1 This is a renamed sheet, which has had minor changes made.
Erratum: In Sheetlines 68 I gave the new edition for Explorer 103 The Lizard as ‘B’, when it should in fact be ‘A’.

**Tour Map series – new publication**

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**Irish maps**

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2 Shown as ‘Revised for significant change 2003’.
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### Tour Map series

- Kent & SE London B 31/03/04
- Surrey, East & West Sussex and SW London B 31/03/04

### Forthcoming Irish maps

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### Alan Godfrey Maps

Details of Alan Godfrey’s reprints of old OS maps are available from Alan Godfrey Maps, Prospect Business Park, Leadgate, Consett, DH8 7PW, tel. 01207 583388, fax 01207 583399, or from their website at [http://www.alangodfreymaps.co.uk/](http://www.alangodfreymaps.co.uk/). Maps may now be ordered directly from the website.

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**England and Wales one-inch**

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