



Sheetlines

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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.

[SH47-RIV]

The rivals: notes on some intermediate-scale commercial topographic map series of
Britain and Ireland since 1868

by Richard Oliver, B.A., D.Phil, F.R.G.S., F.B.Cart.S.

A very generalised history of topographic mapping in Britain and Ireland between its advent in the sixteenth century and the present day might draw a contrast between the first half of the period, when published mapping was left entirely to private enterprise, and the second half, when it came to be increasingly dominated by the Ordnance Survey. The second period has been largely characterised by such commercial mapping being derived from OS mapping, and having a somewhat transitory existence as compared with the permanency of the OS.

This paper is intended purely as an introduction to the subject, in the hope that it will stimulate the thorough research which it needs.¹ Its writing has been prompted by its author's continued dissatisfaction with the lack of a proper modern map in the scale range 1:100,000-1:126,720 suitable for cycle-touring purposes (i.e. with a contour interval of 20 to 30 metres, complete cover of at least England and Wales, up-to-date, and carrying the National Grid), and a desire to investigate the historical background to this state of things. It is also intended to draw attention to the potential of some of these maps as primary sources for historians of roads.

This paper does not claim to be comprehensive, nor does it claim the standards of accuracy and completeness to which the subject is entitled, and it may be that several important series have been overlooked.² It is concerned only with national map series at scales smaller than 1:63,360 (one inch to one mile) and at or larger than 1:253,440 (one inch to four miles): it excludes larger-scale mapping published only as independent district sheets, such as the Bartholomew 1:63,360 mapping of the Lake District, the same firm's 1:50,688 map of Edinburgh and district, and a number of interesting 1:63,360 and larger scale maps of the Isle of Wight, smaller scale series of maps restricted to tourist areas, such as the splendidly executed series, mostly at 1:126,720, published in the past few years by Goldeneye of Cheltenham, and several series at scales of around 1:200,000 produced over the past quarter-century or so, and aimed avowedly at motorists, such as that published by Geographers A-Z.³ To date, only one such commercial map series, the Michelin 1:200,000, has been studied in

¹ The field is not completely unexplored: the most notable contribution is T.R. Nicholson, *Wheels on the road: road maps of Britain 1870-1940*, Norwich, Geo Books, 1983: but compared with OS studies it is a backwater.

² Indeed, the writer will be pleased rather than otherwise if more substantial research renders it the most inaccurate piece ever published in *Sheetlines*, (as well as the one with the most tenuous connection with matters OS). It is based mostly on maps in his own collection, supplemented by limited examination of British Library Map Library and Royal Geographical Society holdings, and the British Library catalogue. Whatever one might say about the OS's past practice as regards copyright deposit of their publications, carps fade away when faced with the gaps in some important commercial series.

³ It also largely excludes map covers, and the repackaging of one publisher's maps for issue by another, for example the issue of Bartholomew maps by Edward Stanford.

any depth,⁴ and until the Bartholomew half-inch and two or three others have been treated similarly, the concentration of work on OS topographic mapping (of which the present writer is as guilty as anyone) must result in a one-sided knowledge of the development of British cartographic history over the past century and a quarter. It is also to be hoped that some one will make a thorough study of official policy over the years as to the use of copyright OS information by commercial mapmakers: I venture to predict that officialdom will emerge from such a study in a less favourable light than will the unofficial side.

The date 1868 has been taken as a starting point, as it is the date of the first issue of Bartholomew's 1:253,440 *Imperial Map* of England and Wales, which this writer believes to be the first commercially-published topographic mapping of England and Wales to be based wholly on OS material. The various map series are grouped by publisher rather than by scale, as in several instances the same cartographic drawing has been used at more than one scale. Greater attention has been paid to the Bartholomew Half-inch (1:126,720) than to other series, partly because of its longevity and the sheer number of surviving examples, and partly because something is known of its post-publication revision.

It should be noted that, in what follows, assertions of apparently greater or lesser sales or greater or lesser popularity of pre-1970 mapping are based on the pattern of copies which this writer has seen offered for sale second-hand over the past twenty years or so.

G.W. Bacon & Co.

This celebrated or (to collectors) notorious firm of map-publishers was founded in 1863. Its topographic mainstay was a series of hachured county maps at various scales which had originally been prepared between 1856 and 1862 for issue by the *Weekly Dispatch*. These presumably derived mostly from OS 1:63,360 Old Series material, though north of the Preston Hull line other material would have had to be used: probably county mapping by Christopher Greenwood, which would be surveyed contemporary with or later than the OS mapping of much of southern England, but which after 1868 would have been superseded by the OS 1:63,360. The maps were engraved on copper but the copies for sale were invariably printed by transferring the engraved image to lithographic stone; this was the usual procedure (sometimes with the added complication that the scale was changed by photographic enlargement or reduction) for most of the map series discussed here, at any rate up to 1914. In the 1890s and 1900s the series was titled *County map and guide* and the maps proper were supplemented by letterpress, including an introduction to the county by G.W. Bacon, F.R.G.S.,⁵ and a gazetteer, as well as paid advertising, which no doubt both benefitted the advertisers (Dr J. Collis Browne's Chlorodyne was a stalwart) and helped keep the cover-prices down. The ertwhile *Weekly Dispatch* mapping was kept in print until the early 1930s: later issues are surreal, with post-grouping railway names, and Ministry of Transport roads and numbers in red.

The firm also reissued OS mapping, photographically copied, and with some cosmetic alterations, notably added emphasis to railways and stations, rewriting of town names (often in bold lower case rather than the OS's capitals) and colouring of

⁴ By Cyril Everard: as yet the work is unpublished.

⁵ Fellow of the Royal Geographical Society; had the British Cartographic Society been in existence and electing fellows at this time he would no doubt have sought to add F.B. Cart. S. as well.

main roads. Examples include some 1:63,360 district maps in southern England,⁶ a cycling map of Kent at 1:190,080 of c.1903 taken on the first OS 1:253,440 series (which had been strongly criticised on its belated publication in 1891 for its outdatedness), and a 1:253,440 series covering most of Ireland in five sheets.⁷ Perhaps the firm were enabled to 'get away with it' because they invariably used superseded OS mapping.

The most distinguished topographic mapping issued by the firm was its version of the Bartholomew half-inch, discussed below under that company.

John Bartholomew and Sons Ltd

The Edinburgh firm of John Bartholomew was founded in 1826.⁸ In its earlier years it tended to act more as a map producer than as a map publisher: the development of the Half-inch map in the last quarter of the nineteenth century coincides with the transformation. It was a family-run business until 1968; subsequently it passed first to Readers Digest, and then to Harper-Collins. Extensive company archives are held by the National Library of Scotland, and the potential carto-bibliographer is far better served than for most Ordnance Survey mapping. It has a strong claim to be considered the most important of the British commercial map publishing houses; though it called its premises in Duncan Street the Edinburgh Geographical Institute, the family seem to have felt that their products were good enough to get by without having to flaunt F.R.G.S. status so blatantly; though when they did they trumped lesser publishing fry with F.R.S.E. as well.⁹

The Quarter-inch and fifth-inch family

In 1868-71 Bartholomew drew and engraved the plates for *The Imperial Map of England and Wales*, which was published by A. Fullarton of London and Edinburgh. This coincided with the completion in 1868 of the publication in outline of the OS One-inch Old Series. Although the original was engraved on copper, publication was by lithographic transfer, a procedure which continued to be used for all the map series discussed here until the introduction of photo-lithographic methods in the twentieth century. The map was characterised by all essential detail being on the copper, so that whilst colour could be used to highlight certain features, it was not absolutely necessary. (On the initial issue, the blue sea-tint was litho-printed, whereas the vignettted county-tint was added by hand.) Relief was by hachures, and railways were shown by a single thick line bounded by two thin lines, with stations shown by black circular solid symbols. A more delicate version of this convention was used for railways 'in progress': this not only included lines which were in due course completed and opened to traffic, such as the Settle and Carlisle line shown on early states of Sheet 5, but also lines which were abandoned part-built, such as the Ouse Valley line from Balcombe to Uckfield and Hailsham on Sheet 13, and lines which

⁶ Including *Southampton* and *Portsmouth*, both c.1910, but both taken from New Series mapping of the 1880s: see the shaded-block parish names. The roughly contemporary *Isle of Wight* map is wholly redrawn, rather surprisingly. (Copies of these in the writer's collection.)

⁷ According to the index much of County Clare was omitted.

⁸ A popular history is Leslie Gardiner, *Bartholomew 150 years*, (Edinburgh, 1976): very extensive cartographic and documentary archives relating to the firm are held by the National Library of Scotland.

⁹ J.G. Bartholomew was Fellow of the Royal Society of Edinburgh.

appear never to have been begun, such as Llangurig to Strata Florida on Sheet 10, Bishop's Castle to Montgomery on Sheet 11, and Midhurst to Haslemere on Sheet 13. The map was designed so that it could be mounted as a single wall-map: Sheet 1 was wholly given over to a suitably refulgent title, and what would be the outer borders mounted as a wall map were also distinctly ornate, whereas the inner borders were plain. From the early 1870s onwards the engraved were used to produce a series of fully colour-printed district maps (the joins between plates are sometimes very obvious), which were published as 'Reduced Ordnance Maps' by W.H. Smith (distinguished by red cloth covers with light yellow labels), and no doubt enjoyed a good sale through that company's railway station bookstalls. By about 1890 the mapping was being issued in 16 butt-jointed sheets, corresponding to the 16 plates of the parent atlas (and thus still with 'Title Sheet'), with a standard sheet size of 26 inches west-east by 18 inches south-north (about 66 by 45.5 cm) within the neat line: cyclists appear to have been envisaged as an important market, to judge from quotations from press reviews on the back covers. In about 1896 the maps were republished as a 'new series' in twelve sheets, of similar size (27.25 by 19.25 inches, about 69 by 49 centimetres) and in a similar layout to the OS Quarter-inch Third Edition of 1919-21. Although by now the OS One-inch New Series was nearly complete, the Old Series-based *Imperial Map* material continued to be used: how far it was updated is a subject for investigation. Main roads were coloured sienna, built-up areas highlighted in carmine, woods tinted green, open water areas tinted light blue and the whole ground-tinted a very light green. In about 1910 the outer bounding lines of the railways were removed; by 1921 the ground-tint had been dropped, roads were distinctly orange, and larger town names had been rewritten in sans-serif. What was not modernised was the depiction of relief, which was still by hachures rather than by contours.

Bartholomew had previously (in c.1856-62) prepared a 1:253,440 map of Scotland, derived of necessity largely from non-OS sources. The mapping was published by A. and C. Black of Edinburgh and seems to have been kept in print until the 1:126,720 was complete for Scotland. National cover of Scotland derived wholly from OS material was only practicable on completion of the OS 1:63,360 in its outline-and-contours style in 1887. In the event Bartholomew waited another quarter-century before embarking on new 1:253,440 mapping of Scotland. It was issued in seven sheets in 1911, and, though still engraved on copper, was distinguished by the use for all names of sans-serif 'Egyptian' lettering on the map face. Relief was shown by layer tinting, and the road classification was similar to that employed on the 1:126,720. As such it was a distinct advance on the contemporary OS Quarter-inch, which had a much less elaborate road classification, and showed relief by shading only. Between 1919 and 1923 the OS republished its 1:253,440 mapping as a redrawn 'Third Edition', with layer colouring, and this may have prompted Bartholomew to replace the 'Imperial' mapping of England and Wales. In 1929 the firm published a 23-sheet sheet series covering the mainland of Great Britain, with England and Wales in the basic same style as the Scottish mapping, and now with Ministry of Transport road numbers. The sheets were Michelin-folded, and continued on sale until at least the 1950s. In 1969 the mapping was republished in 10 sheets as the 'GT' series, with relief shown by grey hill-shading against a light yellow ground-tint. Two notable innovations, later much imitated, were yellow for sandy beaches, and the showing of youth hostels; as at this time the latter were still officially only available to pedestrians and cyclists, one must suppose that the publishers were hopeful of sales to cyclists who did not mind a map which gave no indication of road

gradients, apart from occasional spot-heights on roads.¹⁰ (As an exercise in modernisation it was aesthetically conspicuously more successful than that undertaken in converting the 1:126,720 to 1:100,000 a few years later.) The mapping was used from *circa* 1943 as a basis for a fifth-inch (1:316,800) road atlas of Great Britain (the islands being supplied at a smaller scale from other Bartholomew mapping): this was probably the first road atlas of Britain to be really successful, and was still being published in the 1980s, now at 1:300,000.

In about 1904-5 a seven-sheet 1:253,440 map of Ireland was published. Except for the scale and the contour interval (250 feet), it was generally similar in size, design and 'feel' to contemporary Bartholomew 1:126,720 mapping of Britain, with road information supplied by the Cyclist's Touring Club: presumably the smaller scale was chosen because of lower expectations as to sales, but this disadvantage was offset by the very liberal supply of minor place-names, which showed the firm's engravers at their most skilled. In the late 1920s road numbers were added to the Northern Ireland portions. In about 1948 the mapping was recast in five sheets with officially classified roads in red and yellow. In this form it remained in print until quite recently.

The half-inch (1:126,720) family

The official date for the start of Bartholomew 1:126,720 mapping is 1875, when the firm began producing district maps at this scale, aimed at the tourist market, and published by A. & C. Black, who were also publishers of the first Bartholomew 1:253,440 mapping of Scotland. As with the 1:253,440, the mapping was engraved on copper, and published by lithographic transfer, with colour added: open water by light blue tint, railways highlighted in red, and various tints, vignettted, for counties. The only indications of relief on the earlier were some hilltop spot-heights, and contours at 500 feet (152 metre) interval; from about 1882-3 onwards some sheets were published 'Coloured to show altitudes', i.e. hypsometric tints or 'layer-colouring'. Railways were shown by a 'ladder' symbol, similar to that on contemporary OS 1:63,360 mapping; mineral lines were included, shown by a similar but narrower symbol. (See Fig.1.) The standard sheet size was about 26 inches west-east by 19 inches south-north (about 66 by 48 cm). Complete cover of Scotland, in 30 sheets and involving considerable overlapping, seems to have been completed in 1889, two years after the OS 1:63,360 of the country had been completed in its outline format. In its original form, then, the Bartholomew mapping is a straight reduction of the first edition of the OS 1:63,360.

In 1891-6 this mapping of Scotland was republished in Bartholomew's own name in a numbered 'New Series' of 29 sheets, with most sheets originally 24 inches west-east by 18 inches south-north (about 61 by 45.5 cm), and with a new colour scheme: altitudes by layer tints; main roads in sienna; county boundaries highlighted in red; open water in blue. From about 1900 the contour interval was augmented to 250 feet (76 metres). (At first the English portion on cross-border sheets was left blank.) On the earlier sheets railways continued to be shown by the 'ladder' symbol, tinted red, but by the mid 1890s they were being shown by adding solid black over the engraved 'ladder' symbol. At about the same time parish names and boundaries were added. After 1900 it developed in the same way as the mapping of England and

¹⁰ One has heard all manner of stories of motorised hostellers who simply parked their vehicle a few hundred yards away, out of sight... Hostels *were* officially available to motor-borne school parties at this period.

Wales, and sheets were republished in slightly larger format, with a standard size within the neat line of 27.5 inches west-east by 19.5 inches south-north (about 70 by 49.5 cm).

As in Scotland, Bartholomew 1:126,720 mapping of England and Wales began as a family of district sheets, though there was much less overlapping. They were initially published through W.H. Smith, no doubt as a logical extension of the 1:253,440 series. By the time that the series map of Scotland was completed in 1896 there were three groups of half-inch maps in England and Wales: three covering most of Kent, Surrey and Sussex, two covering Devon, and isolated sheets covering the Thames (in strip-map form), north Wales and the Peak District. The specification varied from sheet to sheet: the Peak, Thames and north Wales sheets were hachured; the Sussex sheet was ground-tinted with only the 500 foot contour shown; the Surrey sheet had a variable contour interval (including the 50 foot contour); the Peak sheet had 'ladder' railways (most of the others seem to have had 'solid' railways from the start); the Sussex and Peak sheets highlighted settlements in carmine.

Publication of a series map of England in Wales in 37 sheets, *Bartholomew's Reduced Ordnance Survey*, seems to have got under way in 1896 as the map of Scotland approached completion. The early sheets were rather similar to the contemporary Scottish sheets, with only 'Main Driving Roads' coloured, and only latitude and longitude values shown in the borders; a couple of early sheets in the far north showed parishes, but these were quickly removed. They were also more selective in showing non-passenger railways. As the work progressed some of the earlier district mapping was reengraved, and otherwise revised to bring it in line with the current specification, which included contours at 100 feet (30 metre) intervals to 1000 feet, and thence at 250 feet intervals, and a much greater density of minor placenames than on the earlier 'district' sheets. As publication progressed, so the design was altered: in 1900 the road infill colour was changed from burnt sienna to red and separate scale bars were abandoned in favour of a redesigned a border graduated at first in quarter-miles and then in half-miles, and the final group of sheets to be published, in 1902, had a much more elaborate road classification, supplied by the Cyclists' Touring Club, and arrows for steep hills. These last were omitted after about 1905, but the 'C.T.C.' classification was used into the 1930s, though the acknowledgement to the C.T.C. was omitted after about 1923, when Ministry of Transport road numbers were added, sometimes by overprinting existing stock.¹¹ The 'C.T.C.' classification relied on a mixture of solid, pecked and dotted red infill to show the surface of the road, and the black casing its width, thereby anticipating by over a decade the method used on the OS's 1:63,360 Popular Edition. It was subject to revision, and managed to include some routes which were not shown on the engraved black plate. This road information would appear to be a potentially useful source for the historian of roads in the early twentieth century, and is much more comprehensive in its cover than the other 'primary source' information on the Gall and Inglis and Michelin mapping described below. As on contemporary OS 1:63,360 mapping, youth hostels appeared from about 1932 onwards.

As with the Scottish mapping, the 1:126,720 of England and Wales was

¹¹ E.g. on a 1922 printing ('A22') of Sheet 22 in the writer's collection, where a hint of overprinting is suggested by the explanatory note being in red, outside the boxed-off legend: more to the point, the MoT numbering system was only published (via the OS 1:126,720 series, of which Bartholomew had a large collection, now in private hands) in about April 1923.

reduced from the OS 1:63,360. The earlier mapping used the New Series mapping so far as published, and otherwise the Old Series: the latter being hachured is sufficient to explain variously why this form of relief was used on two sheets which were later reengraved, and why Bartholomew seem to have preferred to concentrate otherwise on mapping areas for which OS contours were available. The later sheets to be published used the first revision (1893-8) of the New Series, which was also used to bring the earlier mapping 'up to specification'. It was supplemented on some sheets (e.g. Sheet 10, *Lincoln Wolds*) by hydrographic information, no doubt taken from Admiralty charts, and also occasionally by names which must surely have come from the OS One-inch Old Series.¹²

In about 1901 six district sheets were produced by Bartholomew for the War Office: a set of four covering the London area, and two covering Aldershot and Salisbury Plain. Experience in the Boer War had convinced the War Office of the utility of this scale and, as there was no OS publication, they turned to Bartholomew. At the same time the OS took exception to the description 'Reduced Ordnance Survey'. The upshot was that the OS was authorised to produce a national 1:126,720,¹³ and that henceforth Bartholomew relied mainly on non-OS sources for revision and called the mapping 'New Reduced Survey'. (Of the 37 sheets for England and Wales, the last four - 10, 16, 21, 22 - only appeared after the change of series title.) New railways were supplied by getting the railway companies to annotate OS mapping;¹⁴ these annotations sometimes included lines authorised but never built, which were shown on the published maps by the 'ladder' railway symbol. Railway updating was sometimes carried out by adding new lines to existing stock either by discreet addition in manuscript¹⁵ or by overprinting.¹⁶ All sheets carried a

¹² For example, 'Oldfleet Drain', about 2 inches (5 cm) north-west of Grimsby on the same Sheet 10: this name appears on the Old Series, but does not appear either on any subsequent OS 1:63,360 and 1:50,000 mapping or on any edition of Admiralty chart 109 (presumably the source of the hydrographic information) published prior to 1903.

¹³ See *Sheetlines* 9 (1984), 14-16.

¹⁴ See Public Record Office file OS 1/752. Some of these working sheets were disposed of by Bartholomew in the early 1980s, and whilst a few are known in institutional collections (e.g. University of London, Senate House) most probably found their way into private collections.

¹⁵ Examples in the writer's collection: Scotland Sheet 19 of c.1895, to which the line from Strome Ferry to Kyle of Lochalsh (opened November 1897) has been added, with slightly uneven line-weight; Scotland, Sheet 3, of c.1905, where in Ayr-Turnberry-Girvan line, opened 17 May 1906, has been added in black over the 'ladder' symbol, and Campbeltown-Macrihanish line, opened 18 August 1906, has been added 'freehand' in a different ink and line-weight; England Sheet 10, later 1900s, to which the Grimsby and Immingham line, opened in January 1910, has been added (partly by penning over a mineral line); England Sheet 14, printed 1912, to which the Kirkstead and Little Steeping Line (opened July 1913) has been added. (I am indebted to Roger Hellyer for some of the railway dates given here.) One symptom of these manuscript additions is that no stations are shown! Another is that the ink often 'shines' in a particular light in a way that the printed ink does not.

¹⁶ As was done to add the Kirkstead and Little Steeping line to another copy of the 1912 printing of Sheet 14 in the writer's collection.

note ‘Reduced by permission from the Ordnance Survey with special local revision to date of publication’: it could be a little cynical to suggest that some of this revision might have been the result of disgruntled map-purchasers complaining of errors! More seriously, the split between OS and Bartholomew, resulting as it did in two rival series which both eventually disappeared, is surely one of the great missed opportunities in British cartography: both national and commercial interests would surely have been better served by full co-operation between the two, with OS responsible for providing revision data, and Bartholomew responsible for the drawing, printing and publication. Such is the wisdom of hindsight; but it would have been out of character for the Edwardian Ordnance Survey to see things in such a light.

The method of production continued to be by transferring the black outline for lithographic reproduction with various colours added. The opportunity was taken to make various minor adjustments in the sheet lines, and (for the earlier sheets) an increase in the basic sheet size to 27.5 inches west-east by 19.5 inches south-north (about 70 by 48 cm), inclusive of a half-inch overlap onto adjoining sheets. The consistent excellence of the printing quality suggests that each printing was made from fresh transfers from copper to stone. The map as published between the mid 1890s and late 1960s must be a strong contender for the position of the most finely executed of all analogue commercial maps published in Britain. It was certainly much better executed than the OS rival, which suffered from typed names of rigid size; the greater flexibility of engraved writing enabled Bartholomew to fit in more minor placenames, whilst giving the impression of less crowding.¹⁷ (See Fig.8.) A further advantage of the Bartholomew map was its sheet lines, which were much more flexible than those of the OS map, constrained as they were by being made up of groups of 1:63,360 New Series small sheets: a good example is the mapping of Norfolk, where Bartholomew’s Sheet 15 included the whole of the west as well as the north and east coasts; the OS’s Sheet 19 omitted the west coast, and thus cut off Hunstanton and the villages to the south from their natural hinterland. Even an OS Director-General, Brigadier Winterbotham, once referred in print to the Bartholomew map as ‘very excellent’, and noted that the OS half-inch suffered from the haste with which it was produced.¹⁸ The Bartholomew Half-inch thus joins the select company of maps, such as the Swiss 1:100,000 *Carte Dufour*, for which OS words of praise can be found: and the OS has never been in commercial competition with the Swiss.

Bartholomew mapping is something of a praiseworthy exception to the general practice of commercial cartographers where domestic mapping is concerned, in that since 1911 onwards the mapping has usually been dated. From 1911 until about 1945 this was coded, in the style B12, A14, etc, ‘A’ denoting a printing in the first half of the year, and ‘B’ in the second half, so that B19 would indicate a printing between July and December 1919;¹⁹ this date-coding was initially placed bottom-centre, but by 1914 had moved to top left, outside the border. Magnetic variation diagrams (a very

¹⁷ The late Guy Messenger once told me in conversation that in his teens he preferred the Bartholomew to the OS half-inch because it had fewer names: he was somewhat surprised when I was able to demonstrate that in fact it had more!

¹⁸ H.S.L. Winterbotham, *A Key to Maps*, (London & Glasgow, Blackie, 2nd edition, 1939), 83.

¹⁹ Information from Ann Young via John Beer; the system continued in use into the 1950s on some Bartholomew mapping which was not otherwise explicitly dated. However, it does not appear to have been used on the half-inch maps prepared for Bacon, as described below.

unusual feature for commercial topographic mapping, then or later) were added to sheets printed from 1911 onwards, and from 1921 until about 1939-40 the magnetic variation diagrams were also dated: presumably this explicit information was suppressed during World War II as a patriotic gesture, in common with the removal of aerodrome and wireless station symbols. From 1946 onwards the maps were dated, in a variety of styles: since 1978 the firm has used dates in Roman numerals.

The Bartholomew Half-inch was published in a number of forms other than the standard layered series. Several district sheets were issued of the environs of large cities, usually with only the roads coloured: did Bartholomew take a leaf out of the OS's book? They covered a much larger area than did the standard numbered sheets, and sold at a much lower price.²⁰ The Birmingham district sheet was published both as a standard layered sheet and in a geological version, on behalf of Cornish Brothers, booksellers. Another thematic use was for botanical mapping in Yorkshire, with the railways shown by the ladder rather than the solid black symbol. In outline-and-water-tint style it was used as a basis for guide-book maps, particularly the Baddeley *Thorough Guides* and the Ward Lock series: having all the essential detail on the black plate enabled sections of the maps to be reproduced successfully and inexpensively. A surplus of the War Office mapping of 1901 was issued many years later on behalf of *The Motor* magazine.

Perhaps the most interesting use of the material, between about 1905 and 1914, was for a half-inch series issued by G.W. Bacon, in 33 sheets, covering all but a small part of northern England, and including a single Scottish sheet, centred on Glasgow. They were conceived primarily as district sheets, and the apparent advantage of a larger basic sheet size (about 40 by 26 inches) was negated (for those seeking extensive cover) by the considerable overlapping. 'Best Cycling Roads' were shown in red, as were steep hills and mileages between towns. Parkland was highlighted in green. Earlier sheets had a green land-tint. As the Lincolnshire sheet (not, one would have thought, the most saleable) is known in at least three states (and the Norfolk sheet in two, both including extraordinary speculative reclamation between the mouths of the Nene and the Ouse²¹) it seems reasonable to conclude that the mapping sold quite well.²² Did it sell rather too well for Bartholomew's liking?

In 1935 the mapping began to be republished as 'Bartholomew's Revised Half-Inch Map'. It was distinguished by a reformed road classification, whereby red showed 'Recommended Through Routes' and yellow 'Good Secondary Roads' (solid) and 'Serviceable Roads' (pecked). (It seems odd that such a classification should have been adopted at a time when the OS was assimilating its classification on its

²⁰ For example, the writer has a copy of *London North*, dateable to c.1902-3, price 1s 6d on cloth, and covering about 4105 square miles; the standard sheets covered 2145 square miles, price 2s 0d on cloth.

²¹ What appears to be the east end of this curiosity is indicated on two printings of the regular Bartholomew Sheet 15, dateable to 1903-6 and 1906-10, in the writer's collection, but the bulk of it does not appear on any state known to him of either Bart's regular Sheet 14 or any of the three states of the Bartholomew/Bacon map of Lincolnshire.

²² All three copies of the Lincolnshire sheet in the writer's collection involve three publishers, as the cover refers only to W.K. Morton, printers, publishers etc of Lincoln, etc, with no reference to Bacon or Bartholomew, and the first state of the map proper has been overprinted for issue by Morton! No doubt similar examples could be found for other counties.

small-scale maps to that of the Ministry of Transport.) Golf courses, aerodromes and radio stations were shown in red. Some names of smaller towns were changed from italic to upright capitals. The border was redesigned with a 'keyboard' effect and diamonds marking one- and five-mile divisions, and an adjoining sheet diagram was added to the marginalia. The first such 'Revised' sheets retained the existing sheet lines and numbers, but from 1936 they were published on new sheet lines as part of a single series covering Great Britain in 62 sheets. At first the sheets were double-numbered, with a wholly numerical one corresponding to the old series (though with the change in sheet lines the correspondence was anything but exact) and an alpha-numeric national number in brackets. The alpha-numeric numbers were apparently based on regional groups: the rationale is puzzling. By 1942 the dual numbering had been abandoned, and the sheets numbered 1 to 62 south to north. By that time, too, red alpha-numeric referencing had appeared in the borders. By 1944 yellow road infill was confined to 'Other Good Roads', 'Serviceable Roads' being uncoloured.

From about 1946 onwards an interesting modification of the colour-scheme was tried on some sheets, by printing the 'yellow' roads in stippled or ruled red, thereby saving a printing, and giving an 'orange' effect. The result was presumably found unsatisfactory, as by 1950 separate red and yellow had been reverted to. As with the OS attempt to use orange to combine contours and second-class roads on the later 1:63,360 Popular Edition and earlier New Popular Edition, and its more sustained use from about 1975-6 of a mix of solid and screened orange for roads and contours on the 1:25,000 Second Series, success depended on a careful balance of shade, so what was fine in theory was often less so in practice.

The OS 1:126,720 authorised in 1902 was effectively finished off by enemy action in 1940, a long-contemplated replacement was abandoned in 1961 after only half-a-dozen sheets had been produced, and other rival half-inch series offered before 1914 had fallen by the wayside by 1939. Nonetheless, Bartholomew did not have the potential market to itself, as in 1950 W. and A.K. Johnston began issuing their 1:126,720 map, described below. From about 1962 onwards the Johnston map began to be offered Bender-folded: Bartholomew seem to have adopted Bender-folding in 1963 (most of the 1:126,720 sheets, being landscape-shaped, were cross-Bender-folded) and took advantage of the inside covers to provide some tourist information text. From 1969 onwards the typography of most town names was modified, using bold Times Roman: smaller towns were now in lower-case letters, which, given the scale of the map, was reasonable when applied to small or former market towns, but looked odd when applied to such places as East Grinstead.²³ The road classification continued to be based on 'recommended through routes' and 'other good roads', rather than on that of the Ministry of Transport. The source of this information has yet to be elucidated, as has the source of 'Works' (without buildings) at Aldermaston [SU 595635] and 'Ministry of Supply Defence Experi. Estab.' (also without buildings) at Porton Down [SU 216357], which appear on the 1965 and 1968 printings of Sheet 8.

As with this publisher's earlier 1:126,720 mapping, alternative forms are sometimes encountered, sometimes in unexpected contexts, for example a base map

²³ Of course, Bacon had done this 70 years earlier, as mentioned above. The author has to admit that Bart's use of lower case for quite substantial towns at this scale created a very strong prejudice in his mind, on grounds of both aesthetics and implied status, against this family of maps in this stage of their development.

of London covering the Metropolitan Water Board's area, overprinted in 1948 by Edward Stanford.²⁴ In the late 1970s the mapping was used for a series of postcode district maps, with outline, water and contours in black and the postcode information overprinted in red. This seems to be the nearest that Bartholomew or any of the other publishers discussed here got to issuing a single-colour alternative outline edition, of the sort familiar in OS small-scale practice.

The 'National' 1:100,000

In 1971 the OS announced the replacement of the 1:63,360 by the 1:50,000, and Bartholomew followed suit by converting the 1:126,720 into a 'National' 1:100,000, in the same sheet lines as its predecessor. Both relied heavily on photo-enlargement of the old mapping; however, whereas for the OS this was merely a makeshift pending complete redrawing, for Bartholomew it was an end in itself, and it was unfortunate that the Bartholomew engraved material took less kindly to enlargement than did the OS's pen-drawn material, and piecemeal replacement of engraved by typed names did not help matters. Additional symbols were introduced, including one for windmills (though not many were added to the maps).²⁵ Some of the old black-plate detail was cleared and replaced, so that instead of being shown by cased black symbols woods were now shown by uncased tint. Local government district names were added to the Scottish sheets, which retained parish names and boundaries. The spot heights were metricated, with an 'm' suffix (as proposed by the OS on its early specimen metric maps), and contours were at 50 metres (165 feet) interval, which was closer than the 250 feet (76 metres) of the Scottish 1:126,720 sheets, but wider than the 100 feet (30 metres) of those of England and Wales. There was very little OS metric contouring available at this time, and it is believed that Bartholomew obtained their metric contours by interpolation from those shown on OS 1:25,000 mapping. The road classification was at last brought into line with that of the Ministry of Transport, and followed the OS 1:50,000's style of blue, red, brown/orange, and yellow infills. Sundry other revision included the omission of the 'interesting' information at Aldermaston and Porton Down on Sheet 8.

The 62 sheets were published between 1975 and 1978. Most seem to have been reprinted, but after about 1987 the 1:100,000 ceased to be published as a national series: it is possible that sales were adversely affected by the continuing attempt to revise independently of the Ordnance Survey, but the increase in the contour interval of the sheets covering England and Wales can hardly have helped increase their appeal to cyclists. About a third of the sheets have been kept in print as district maps.²⁶

Which is how they started.

Gall and Inglis

The Gall element in this firm is probably best known to contemporary students

²⁴ Copy in writer's collection.

²⁵ For example, I can find none on either the 1976 or 1983 editions of Sheet 30, though this sheet includes at least four well-known preserved ones (Alford, Burgh le Marsh, Sibsey, Waltham), as well as numerous others in various states of disuse and decay.

²⁶ Sheets 1-23 were published in 1975, 24-37 and 37 in 1976, 35-6 and 38-50 in 1977 and 51-62 in 1978. In 1996 Sheets 2, 3, 5-7, 9-11, 13, 15-16, 20, 26-9, 32, 36, 41-2, 45-7, 54 and 61-2 were still on sale.

of cartography as James Gall, the inventor of the so-called ‘Peter’s Projection’.²⁷ Founded in 1810 as a religious publishing house, and perhaps best known as the publishers of a long series of road books, the firm became involved in topographic mapping when it acquired a set of copper plates of a half-inch map of England, Wales, and southern Scotland in the late nineteenth century.

These plates had already had a long history.²⁸ They had first been prepared in the early 1790s for John Cary’s *New map of England and Wales with part of Scotland*. Completely revised (and, where possible, drawing on published OS 1:63,360 material)²⁹ the mapping was republished on 65 sheets in 1832, as *Cary’s improved map....* The mapping was laid out in butt-jointed sheets, with a standard size of about 24 inches west-east by 19 inches south-north (about 61 by 48 cm) within the neat line, as a rectangle covering England and Wales (so that a number of plates were largely or wholly of sea areas), and the cover of Scotland was purely to ‘square the map’ (see Fig.2); this sort of thing must have fuelled the desire of the Scots for a proper topographic map of their country. The plates subsequently passed to G.F. Crutchley, who issued them both separately and, c.1868, as an atlas. The mapping was advertised as as ‘Half the scale and half the price of the Ordnance Map’; 0.5 x 0.5 equalled about 0.25 of the use of the OS offering.

After Crutchley’s death in 1880 the plates were acquired by Gall and Inglis, who continued to issue them both as a litho-printed butt-jointed national series (with some combined sheets around the coast, resulting in discontinuous sheet numbering) with roads coloured brown, and as a series of district maps on behalf of local booksellers and publishers. With the use of Baskerville numerals, and of the long ‘s’ on some sheets, the mapping must have looked archaic even in the 1890s, and the contrast was pointed when Gall and Inglis reengraved and extended the mapping of Scotland, in a style which was a careful compromise between Cary’s on the one hand and that of the OS 1:63,360 of Scotland on the other, and which followed the OS practice of naming hills in ‘Egyptian’ sans-serif.

The success of the Contour Road Books, which were in fact collections of gradient profiles of main roads with notes on road surfaces rather than contours in the conventionally accepted isoline sense, perhaps inspired the firm to produce their ‘Graded Road Maps’ series. In Scotland these drew upon the new engraved material; the Cary-derived material in England and Wales was evidently rejected as unsuitable, and complete re-engraving was embarked upon, in the same style as the Scottish mapping, with Egyptian hill-names. The new engraved work was of excellent quality, and in this respect the best of the sheets were a match for both Bartholomew and the Ordnance Survey. (See Fig.4.) (Unfortunately the litho-transfers were of very variable quality.) The Cary-derived sheet lines were retained, resulting in

²⁷ See e.g. John P. Snyder, *Flattening the earth*, Chicago & London, Chicago University Press, 1993, 108-110, 165, and Jeremy Crampton, ‘Cartography’s defining moment: the Peters Projection controversy, 1974-1990’, *Cartographica*, 31 (4), 1994, 16-32.

²⁸ This account is partly based on that in R.A. Carroll, *Printed maps of Lincolnshire 1576 - 1900*, Woodbridge, Boydell Press (for the Lincoln Record Society), 1996, 347-8. The apparent lack of secondary literature is rather surprising.

²⁹ This is very evident from the way in which the density of the hachures reduces drastically at the junctions between the OS-derived and the other parts, for example on sheet 32 where the effect of the south and west edges of OS Old Series sheet 64 is very evident!

discontinuities in numbering, so that, for example, Sheet 48 was adjoined to the east by Sheet 50. (See Fig.3.) The only indications of relief were large triangular arrows for 'Steep Hills' and 'Bad Hills' and summit heights. Roads were classified as 'Superior Roads' (yellow), 'Good Roads' ('brown', red overprinted on yellow), 'Inferior Roads' (red) and 'Bad Roads' (blue), the same colours as those adopted some sixty years later by the OS for its 1:50,000, but used in reverse order. Blue was also used for water-tint, and on some sheets³⁰ what appear at first to be 'bad roads' turn out on closer inspection to be watercourses. Woods were shown by black tree-symbols and green tint.³¹ Some sheets also used roads carrying urban tramways, in 'purple' (double-printed red and blue).

By 1916 about eighteen sheets had been published, covering almost all Scotland south-east of the Great Glen, and England north of a line running slightly to the south of Preston and Hull.³² Further development seems to have been hampered by World War I, when the Cary plates were apparently sold for scrap,³³ and very few, if any, new 'graded' sheets seem to have been published thereafter: later issues dropped the 'graded' road classification in favour of filling all roads orange-sienna or red.³⁴ The paucity of copies encountered by the writer suggests to him that the maps did not sell very well. The road information in both the road books and for the 'graded' maps was presumably obtained by investigation on the spot, and, as such, the books and maps are potentially a primary source for the historian of roads.

The 'graded road maps' are an 'interesting failure'. Part of this failure may have been attributable to publication being affected by the outbreak of World War I, and to the map's relying on the dying art of engraving, but as there was apparently some attempt to keep the series going after 1918, and as Bartholomew continued to use engraving, this can hardly be a complete explanation. It is possible that part of the difficulty was the lack of explicit information as to heights along roads: there were no contours, which put the mapping at an immediate disadvantage vis-a-vis the Bartholomew competitor, and the invitation 'For Elevation Plans and Descriptions of the roads, see the 'Contour' Road Book' can hardly have helped matters: Bartholomew, consciously or otherwise, saw to it that the *x*, *y* and *z* axes were all represented on one sheet of paper. The other difficulty may have been in the 'road grading' colours, particularly once the OS started issuing its 1:63,360 Popular Edition and 1:126,720 with main roads in red, lesser ones in yellow and minor ones uncoloured; the Gall and Inglis scheme was handicapped by not employing such an obvious hierarchy of colour, quite apart from the confusion of 'bad roads' with

³⁰ For example, Sheet 52, *The Lake District*.

³¹ The colour scheme varies between sheets, but at present it is unclear to the writer whether it was simplified or elaborated in the later sheets. His copy of Sheet 69, *Oban*, has red gradient arrows, pale yellow land-tint and some red infill of district names, whereas Sheet 52, which seems (on map-cover advertising evidence) to have been one of the last sheets issued, has black arrows, and no land tint or red name-infill.

³² The OS's Preston-Hull line ran to the *north* of those two places, at any rate as far as they had been built up *circa* 1840. The latest sheet in the British Library Map Library set (Maps 1205 (29)) is Sheet 48, received in May 1916.

³³ Carroll (1996), 347.

³⁴ The British Library's copy of Sheet 50 has a receipt date 15 Jan. 1924, and has the steep hill arrows in red rather than black. It is possible that it represents a post-war attempt to revive the enterprise.

streams. Cover extending into southern England and Wales might also have helped sales.

The moral is that an attractive combination of colours and good execution does not necessarily result in a useful or saleable map.

Geographia

Geographia was originally founded by a Hungarian immigrant to Britain and refugee from conscription, Alexander Gross (anglicised from Sandor Grosz), in about 1906; like G.W. Bacon, Gross made no secret of his Fellowship of the Royal Geographical Society.³⁵ In about 1914 the firm began to produce a 1:126,720 map of the whole of England and Wales, in 19 large sheets, of about 38 by 28 inches (about 97 by 71 cm) within the neat lines: the ‘31" by 40"‘ mentioned on the covers presumably referred to the mapping in its paper-flat state, before trimming and covering for sale. It was characterised by large, boldly written names, and bold red main roads, so that one had the impression of roads placed on a bed of names. There was a blue sea-tint, a yellow ground-tint, and green ruling for woods (and later green for second-class roads). The detail of the map was presumably derived from the OS 1:63,360 Third Edition. Though optimistically described on the back-cover indexes as ‘This beautifully coloured series of Road Maps’, visually it could not really compare with either the Bartholomew or OS mapping at this scale. Nonetheless, the sheets sold well enough to be reprinted into the 1930s,³⁶ and some district sheets (with the ground-tint omitted) were on sale into the 1950s. Presumably some of the map-buying public liked its rather gross appearance. The greatest interest of this mapping is in the mixture of serif and sans-serif lettering, anticipating the principle of the mature design of the OS 1:63,360 Seventh Series, though anything much more different in execution would be hard to imagine.

Following Gross’s bankruptcy, in 1923 the firm was reformed as Geographia (1923) Ltd, and shortly afterwards the drawings for the 1:126,720 were used for a Three-mile (1:190,080) map of England and Wales in ten sheets, followed later by similar mapping of Scotland in six sheets. Little if anything seems to have been done to adapt the drawings for the smaller scale, and it continued to be dominated by numerous minor placenames, to such an extent as to overwhelm the layer-colouring (contours at 250 foot (76 metres) intervals) and make the description ‘Contour Road Map’ somewhat misleading.

In the late 1960s Geographia produced a wholly redrawn 1:190,080 ‘new super detailed motorists map’, in 27 sheets, numbered south to north, and carrying the National Grid at 10 kilometre intervals. Rarely can a map have put the past so firmly behind it.³⁷ It was wholly recompiled, presumably from the latest available OS 1:63,360 Seventh Series mapping, and was generally admirable; considering it as a geographical rather than as a motoring map, its main fault was that the only indication of relief was by spot heights, and road gradient arrows.³⁸ Motorways were shown in

³⁵ And was no doubt another frustrated F.B.Cart.S. His private life was apparently as lurid as his maps: see the obituaries of his daughter, Phyllis Pearsall, in *The Times*, 29 August 1996, p.17, and *The Guardian*, 30 August 1996, p.14. He would appear not to have been a nice man to know.

³⁶ Evidence for this is both the changing of railway names following ‘grouping’ in 1923, and the addition of new by-passes and ‘arterial roads’.

³⁷ An unusual similar example is the Irish digital 1:50,000 map in its original form.

³⁸ The historian might - and this one does - also complain of the lack of dating on

blue, primary routes in green, other 'A' roads in red and 'B' roads in yellow; lesser roads were uncoloured. All lettering was sans-serif, and, by use of small point sizes, it was possible to include a considerable number of minor names without any feeling of overcrowding. An eccentricity, considering the scale, was the showing of churches with towers and spires, with, in addition, notable ones annotated 'Church' in red. The mapping subsequently appeared in road atlas form, and as a 27-sheet series of England and Wales as the 'AA Touring Map'.

W. & A.K. Johnston

The Edinburgh firm of W. & A.K. Johnston was founded in 1811. From about 1875 onwards it issued OS 1:63,360 mapping of Scotland, with added hand-colour, (open water blue, parks and woods green, railways red and county boundaries in various colours) and sectioned and mounted in *ad hoc* red covers with a gold crown-and-thistle design on the front. (As such, it has some claim to be the first map cover designed for an OS series, even though it was not designed by the OS.) In about 1886 or 1887 the firm announced its series of 'Reduced Ordnance Maps of Scotland'. This was an accurate description of the product: each portrait-shaped sheet was comprised of two standard OS 1:63,360 sheets (see Fig. 5), photo-reduced to 1:84,480 (three-quarters of an inch to one mile), with the addition of a decorative border, railways redrawn in red, and colour otherwise similar to the OS 1:63,360 mapping issued by the firm. (See Fig.6.) An interesting minor point was the inclusion of a legend inside the cover rather than on the map proper. As sheets were sold at 1s paper folded or 2s mounted, as compared with 3s 6d paper-flat for the corresponding OS mapping, they were a good buy for the purchaser. It is unsurprising that the OS thought otherwise, and seems to have forced the withdrawal of the series. It is unclear whether publication was ever completed. For the next few years Johnston reverted to acting as retailers of OS 1:63,360 mapping, hand-coloured and mounted and covered as before.³⁹

The Johnston three-mile (1:190,080) family

Johnston's topographic mapping activity then took a different direction, with the publication between 1896 and 1898 of their 'New 'Three miles to inch' map of Scotland' in 16 sheets, and then issued also as an atlas. It was distinguished by town and village names being in sans-serif Egyptian, and other names in italic. This was followed between 1900 and 1902 by the publication of a similar 'New Three miles to an inch map of England and Wales' in 25 sheets, which used more orthodox serified lettering for towns and villages. Both series were prepared by engraving on copper followed by printing from stone, and both were unusual in that the standard sheet shape was portrait rather than landscape, (was this a relic of the 'Reduced Ordnance Map'?): the maps in both series measured about 18.5 inches west-east by 24 inches south-north (about 47 by 61 cm) inside the neat lines. It was presumably derived initially from the latest available OS 1:63,360 mapping, though it was only some years after first publication that OS provenance was acknowledged: at least some of the Scottish sheets must have been derived from first edition OS coverage. It managed to pack in a considerable number of minor placenames and detail (including

these maps.

³⁹ The stock was obtained from John Menzies, the OS's Scottish agent, rather than direct from OS: see embossing on a copy of Sheet 57, printed May 1895, in the writer's collection.

some footpaths) without apparent strain. The cover design for the Scottish series included thistles, and for the English and Welsh sheets a rose. The Scottish sheets were laid out butt-jointed, an arrangement which may have facilitated mounting as a (rather large) wall-map or issue in atlas form;⁴⁰ the sheets of England and Wales were mostly in staggered rows, with no overlaps, as a result of which some sheets of both series contained a lot of sea and can hardly have been good sellers.

There were at least four phases of its cartographic development: (1) 1896-8: outline in black, water and water names in blue, contours, physical names and main roads in chocolate brown, woods in green, county boundaries vignettted in various colours; (2) 1900 onwards: counties now tinted as well as vignettted; wood tint omitted; (3) ? later 1900s onwards: contours, physical names and main roads in orange-sienna, woods green; county tinting omitted; (4) 1914: in 20 sheets, with wood tint dropped and layer tinting introduced. Around 1930 the map changed rather oddly: it was republished in slightly altered sheet lines, identified by letter (either single or double), and in only three colours, black, blue and red. The most extraordinary thing was the omitting of any hint of authorship from either the map proper or its cover: the series was simply described as 'Motoring and Touring Map'. If the quantity of surviving copies is any guide, the mapping sold much better in this form than it had hitherto. It was apparently still in print in the late 1940s.⁴¹

In 1940 the mapping was used for *Road Atlas 3 miles to 1 inch* which was successful enough to enter its fifth edition in 1963. It passed through various phases of development. The first edition coloured only 'A' roads, without giving their numbers, and had brown layering. This did not flatter the base mapping, but as it was reprinted ten times between 1941 and 1947 it evidently sold well, presumably more to cyclists than to petrol-rationed motorists. This is the atlas which features prominently in Alan Sillitoe's *Down from the hill*.⁴² The design was subsequently modified: by the third edition (1955), most town names were shown in sans-serif, road numbers had appeared, B-roads were shown in blue, and layering had been replaced by a land tint; by the fifth edition (1963), layering (green and brown) had reappeared, and B-

⁴⁰ The writer has a set of the Scottish sheets in the original issue of 1896-8 bound up as an atlas, with printed title page (which refers to the collection as 'Map of Scotland' rather than as an atlas), but with adjoining sheet numbers added to the maps in neat manuscript; had a large sale been expected, it would presumably have been worthwhile to overprint these numbers. Although Bartholomew 1:126,720 and 1:100,000 sheets were available paper-flat, this was exceptional, and as other commercial series were invariably issued in covers which carried an index for the whole country, there was no need for any adjoining sheet diagram on the map face. (This argument was used by OS in correspondence with the writer as justification for omitting the adjoining sheet diagram from the experimental version of 1:50,000 Sheet 124 issued in 1995!)

⁴¹ When the British Library Map Library acquired a set, wanting three Scottish sheets: Maps 1140 (18).

⁴² See *Sheetlines* 45 (April 1996), 36. The reprint information is from the title page verso of later editions: the wartime printings seen by the writer are all undated. It is possible that the frequency of reprinting could be at least partly due to the print-runs being shorter than they would have been in peacetime, on account of paper shortages and a disinclination on the part of those responsible for allocating it to allow large quantities of paper to be kept effectively out of use in warehouse stocks of the printed atlases.

roads were now shown in pecked red. The atlas was still on sale in the late 1960s, by which time its rather old-fashioned appearance must have appealed as much to those of us who were seeking out cartographic cealocanths as to those with more utilitarian motives.

The Johnston half-inch (1:126,720) map

In 1950 Johnston inaugurated their '2 Miles to 1 inch map'. The earliest sheets were announced as district sheets, but by about 1953 it was being promoted as a national series, to cover the mainland only of Britain in 43 sheets. Publication seems to have been completed in the early 1960s, by which time the firm had amalgamated with G.W. Bacon, and both Johnston and Bacon's names appear on the maps and on the covers. Some of the earlier sheets were reprinted at least once, but the late 1960s the remaining stock was being sold as a series of '30 Miles Around...' maps: it was district map to district map in three short generations. As one of the district maps was *Lincoln* (!) and the *Norwich and the Broads* sheet was the original printing of 1955-6 (and apparently derived from the OS New Popular Edition),⁴³ it seems a reasonable inference that the series did not fulfil the hopes of its progenitors, and so it went the way of all 1:126,720 series mapping in Britain: into history.

The mapping was completely redrawn, with quite bold main roads and mostly sans-serif lettering. The standard sheet size was about 34 x 21 inches (about 86 by 53 cm), landscape, but an unusually large number of the sheets (17 of the 43)⁴⁴ were of portrait shape. The style of drawing was susceptible to slight unevennesses and this, combined with the bold style, gives some sheets (particularly the later ones) something of a sketch map feel, and may have contributed to the evident lack of commercial success. At first only A and B roads were coloured (solid and pecked red); from about 1955 onwards 'Other roads, good' were infilled with red dots. The maps were layered, with contours usually at 300, 500, 800, 1000 and thence at 500 feet intervals, but closer-interval contouring was used on some sheets of lower-lying parts, for example Sheet 18, *Cambridgeshire*, which was contoured at 100 feet intervals. Although the wide contour interval was in keeping with the generally bold style of the map, it was a drawback for gradient-minded cyclists and armchair students of landforms when compared with the Bartholomew competitor, and the few published sheets of the OS 1:126,720 Second Series, and may have contributed to the mapping's demise.

The logical derivation of the map would have been from the latest OS 1:63,360 available at the time of drawing,⁴⁵ (variously the New Popular Edition, the

⁴³ These remarks are based on the author's copy of the Norwich sheet, which is in a cover which gives ISBN numbers for these maps and is priced 4/-, with a sticker altering this to 25p. (Just to confuse matters, the map inside does not bear any sheet number, but the spine of the cover has 'Sheet 19'!) Apparent derivation from the New Popular rather than the Seventh Series is suggested by the depiction of the suburbs of Lowestoft, Norwich and Yarmouth. The sheer improbability of a special Lincoln sheet from any publisher is a sure indication of 'destocking'.

⁴⁴ This compares with 7 portrait out of 62 for the Bartholomew Revised half-inch and 1:100,000, and four of those were for the Outer Hebrides, Orkney and Shetland, which were not covered by the Johnston map.

⁴⁵ This might explain, for example, why the Norwich sheet (of which the British Library Map Library copies carries a receipt date of 4 June 1956) appears to derive from the New Popular Edition, although Seventh Series cover for all but the

Popular Edition of Scotland with National Grid and the Seventh Series), but it is noticeable that the selection of names seems to follow that on the Johnston 1:190,080 mapping. A few of the earlier sheets carry discreet dates; later ones can be identified by the addition of a motorway symbol to the legend.

The front covers are of some interest in that they included a layer-tinted index map.⁴⁶

*Michelin*⁴⁷

By the time that Michelin came to issue the first edition of their *Guide to the British Isles* in 1911 they had published a 1:200,000 map of France, distinguished not least by the tall 'Michelin fold' which enabled any part of the map to be read like a book without opening the whole. The Guide was aimed at the motorist and motorcyclist rather than the pedal cyclist, as was the complementary series of maps at 1:200,000, first published between 1914 and 1916. They were notable on several counts: first, for being aimed primarily at motorists, rather than at road-users generally; second, for being laid out in a continuous number-series covering the whole of the British Isles (except for Shetland); third, it was the last new mapping of the British Isles to be created which relied mainly on hachuring to show relief; and fourth, it was the first - and for nearly sixty years the only - civil commercial small-scale map series to be issued of Britain using a 'natural' or 'metric' rather than an Imperial-unit-related scale. (Heights were given in feet: there was a limit to what could be imported!) Sheets 1-22 covered Britain, and Sheets 23-31 covered Ireland; the sheet size was subject to local variation, but the standard size was about 100 cm west-east by 40 cm south-north (about 39 inches by 16 inches). The earlier sheets (1914-15) were printed in five colours: outline and hachures in black, water tint in blue, 'through routes' in red, 'other good roads' in orange-pink, and woods and edging of 'picturesque routes' in green. The legend was provided inside the front cover rather than on the map proper. Sheets first published later had hachures in brown; other indications of relief were spot-heights along roads and gradient arrows (in three groups: 1 in 20 to 1 in 14; 1 in 14 to 1 in 10; 1 in 10 and steeper). Whilst the lack of contours was not peculiar to this series, the presence of hachuring strongly suggests French influence; at this time the standard topographic mapping of France was still the 1:80,000 *Carte de l'Etat major*, which was hachured in black, but uncountoured; by 1914 only limited areas had been published in the new countoured 1:50,000 series (the 'Type 1900'). Although possibly compiled and certainly engraved in France, at first the sheets were printed, lithographically, in England, by William Clowes and Son.

The main source for the maps was presumably the recently completed OS 1:63,360 Third Edition mapping of Britain and (so far as complete) of Ireland; the mapping of Britain thus has an unusual homogeneity of compilation from OS sources, although such homogeneity becomes less important as the scale of the derived map reduces and there is less scope for showing minor detail. Unusually, evidence of OS derivation is provided by changes in the pattern of generalisation. A peculiarity of the mapping was that it omitted a great many minor roads (though it showed their

southern fifth or so of the sheet was available by December 1954.

⁴⁶ The '30 Miles Around...' covers had plain index maps.

⁴⁷ This section draws on unpublished work by Cyril Everard, but discrepancies between that and what I have written, and any consequent mistakes and misattributions, are entirely due to me.

junctions with those roads which were completely depicted), and on Sheet 11 there is a notable change in practice at the junction between OS New Series small sheets 80 and 81/2 on the one hand and sheets 89, 90 and 91 on the other: in the area of the southern group far more minor roads are shown than in the area of the northern group. This deficiency apart, the road information is another potential primary source for highway historians, including as it does not only information on road quality but also on gates, 'bad bump or gully', and 'dangerous points', and includes occasional extra information such as 'Liable to floods (3 ft)' where the future A1077 crosses the River Ancholme on Sheet 11. (See Fig.7.) All this can only have been provided by investigation on the ground, whereas the occasional indications of airfields, in red and annotated 'Aero' in black, perhaps says more about the compilation of the map than the map says about the landscape.⁴⁸

The maps were tied to the Michelin *Guide* both by indications of those places with entries in the guide and by roman numerals listing exits from towns, which tied up with the town plans in the guide. Taken together, maps and guide can be seen as an embryonic geographic information system, if one is prepared to look at the spirit of the idea rather than its mechanics.⁴⁹

Be that as it may, in 1921-22 the mapping was recast in larger sheet lines, with a standard sheet size of about 118 by 46 cm (about 46 by 18 inches). At first the sheets were numbered in separate series for Britain (17 sheets) and Ireland (6 sheets), but they were very quickly renumbered in a continuous sequence from 101 to 123; the numbers are assumed to have begun at 101 as part of an international numbering system.⁵⁰ Although index diagrams were issued showing the complete layout, they noted that seven of the sheets (three covering northern and western Scotland and four covering the Irish Free State) were 'not yet published', and indeed they never would be: by the late 1920s the three unpublished sheets of Scotland were being omitted from the indexes on the front covers of what was now styled 'Michelin map of Great Britain', and the Irish Free State sheets were being allowed to go out of print.

The early printings (to c.1924-5) of the *de facto* 'large sheet series' were similar in style to the 'small sheet series', but thereafter the hachures were omitted, which may have clarified the maps in areas of dense detail, but left them looking rather bare in such areas as the Scottish highlands. (It must be admitted that it was a far clearer map than the Philip 1:190,080, discussed below, and it was also less crowded than the Johnston mapping at the same scale.) Updating included not only revision of road classifications and the addition of Ministry of Transport numbers, but also the all-important addition to Sheet 109 (on both the map proper and on the location diagram on the front cover) of the newly opened (1927) Michelin factory at Stoke-on-Trent.⁵¹ Whereas the earlier maps had usually been printed by William Clowes in Britain, the 'large sheets' were usually printed by various firms in France.

⁴⁸ The writer has in mind particularly the 'aeros' at Cranwell, Frieston and Scopwick on his copy of Sheet 13. No other 'aeros' appear on the map in this part of Lincolnshire, although several others were established during World War I.

⁴⁹ My goodness, we cartographic historians must counter the computer whizz-kids SOMEHOW! This looking at the spirit rather than the mechanics is, of course, the basis of the recent OS investigation of the national interest in mapping described in *Sheetlines* 46, pp 5-8.

⁵⁰ This is Mr Everard's inference.

⁵¹ Otherwise, this is not a series of maps of any great importance for the industrial archaeologist.

The Michelin 1:200,000 of Britain came to an end in 1937,⁵² presumably it was withdrawn because of declining sales. It is not easy to say why this should be, as this was a time when motoring was growing fast, and certainly faster than the number of new motoring map series. Although the lack of contouring might not have helped sales to cyclists, it was not conceived as a cycling map, and it was far more enterprising and risky to launch a map aimed specifically at motorists in 1914 than it would have been twenty years later. It is possible that the omission of many minor roads may have contributed to its demise, particularly once road tarring, and hence relative uniformity of surface, became widespread (so that there was less justification for omitting some minor roads), but this could have been remedied without difficulty. It is possible that it was a long-term victim of the Ordnance Survey's improved Quarter-inch mapping, which began with the introduction of layer-tinting in 1919 and culminated in the Fourth Edition, published in 1935-7, which used the Michelin fold. It may be no coincidence that the Michelin 1:200,000 faded away as the OS 1:253,440 Fourth Edition was completed.

As with other Michelin publications, the maps featured Bibendum (the 'Michelin man'), usually on the covers (outside and inside), but also sometimes (after about 1920) disporting himself in the sea areas of the maps. It is possible that this was inspired by the ships and aquatic creatures characteristic of sea areas on sixteenth and seventeenth century mapping, and that the thinking was that this was a useful way of combining filling otherwise boring space with something that was both ornament and a reminder (for those who had forgotten since last looking at the covers of the map) of the all-pervasive benevolent presence of Michelin; but this writer believes that, if so, this was a misinterpretation of the function of the ships and creatures on the earlier maps: they were surely as much practical, functional symbols as were the church-dominated symbols for settlements, groups of trees for parks, and 'molehills' for relief. After all, one might expect to see ships and fish upon the sea: but a portly bloke made of tyres...?

George Philip

George Philip and Son can trace its history back to 1834, initially as a book- and map-selling rather than map-creating business:⁵³ this could include creating a 1:63,360 district map of Liverpool by joining together four OS Old Series quarter-sheets and pasting on a title, as well as straightforward mounting and sectioning.⁵⁴ In the early 1860s it prepared a set of county maps at varying scales, engraved by Edward Weller, and derived directly (except, perforce, in the north of England) from the OS 1-inch Old Series. By 1885 these were being sold as a series of cycling maps of England and Wales, with relief indicated by black hachures, main roads highlighted in sienna, and cycling information in red, including hotels recommended by cyclists, cycle repairers, towns with a Cyclists' Touring Club Consul, and steep hills; these last were shown by arrows (culminating in 'Dangerous - Dismount'), and were viewed from the point of view of gravity and weak spoon brakes rather than that of exertion in ascending. The maps were also used to illustrate the well-known Murray's

⁵² Information from Mr Everard.

⁵³ Carroll (1996), 312, citing G. Philip, *The story of the last hundred years* (London, 1934).

⁵⁴ I am indebted to Tim Nicholson for drawing my attention to this. Sectioned OS 1:63,360 New Series engraved small sheets were still being sold by the firm as late as *circa* 1910.

Travellers' Handbooks.⁵⁵

The 'Ravenstein' half-inch and its three-mile derivative

In 1893-99 Philip published a half-inch series of England and Wales, which was the brainchild of Ernest George Ravenstein. The original intention was that the topography would serve as a base for an ambitious series of thematic maps,⁵⁶ but in the event only the topographic form seems to have been published. As 'Phillips' clear-print half-inch cycling map of England and Wales' it was laid out in 31 sheets, with the east and west sheet lines parallel to lines of longitude, so that the sheet size was reduced slightly as one went north; the average size of the southern sheets was about 29 inches west-east by 22.5 inches south-north (about 74 by 57 cm) inside the neat line. The map was engraved, but printed lithographically, with layer-colouring, contours in brown at 100 feet intervals below 1000 feet, and red roads. The lettering was rather large and ungainly for the scale, and in looks it compared unfavourably with contemporary Bartholomew mapping at the same scale and with a superficially similar colour scheme. (See Figs 8 and 9.) The source was presumably the latest available OS 1:63,360 New Series mapping, supplemented by hydrographic information from Admiralty charts; the only 'original' information seems to be steep hills and quite comprehensive distances between towns and villages along 'cycling routes'. As a cycling map issue seems to have begun in c.1902-3.

At the same time, the mapping, aided by a photographic scale-change, also seems to have been used for 'Phillips' Three Mile Cycling Map of England & Wales'.⁵⁷ With a reduction in scale one might have expected a reduction in the number of sheets, instead of an increase of two to 33: the sheet lines were mostly the same as for the half-inch version, except that butt-jointing was more rigidly adhered to. By about 1920 the mapping had been recast as a 10-sheet map of England and Wales at 1:190,080, with larger town names rewritten in sans-serif (the effect was as discordant as it was on other maps where this was tried: one must be thankful that the tendency did not touch the Ordnance Survey), main roads in red and blue water tint (but no contours): later, Ministry of Transport road numbering was added, with A-roads in red and B-roads in blue. Sheet lines continued to be laid out parallel to the graticule, as they were for an alternative layout of the map, also in 10 sheets, published in the late 1920s in conjunction with the Royal Automobile Club. This mapping seems to have gone out of print by 1939 (by which time it would have compared very unfavourably in looks with the Bartholomew 1:253,440 of Great Britain, completed in 1929, and the OS 1:253,440 Fourth Edition), and had no immediate successor.

The Philip 1:100,000

In 1973 or 1974 Philip reentered the intermediate-scale topographic market with a 1:100,000 series produced by a subsidiary, Map Productions Ltd, and published on behalf of the R.A.C., which covered England and Wales in 38 sheets.⁵⁸

⁵⁵ Where they were placed loose in a pouch, and hence are frequently missing.

⁵⁶ Information in conversation from Peter Clark.

⁵⁷ The writer has not seen any specimens of this, and bases his statements here on the advertisement on the back of his copy of Sheet 27 of the half-inch map.

⁵⁸ The maps are undated, and the chronology is uncertain; the writer, whilst priding himself on his comparatively wide reading, comparative erudition, and consequently comparatively wide vocabulary, is at a loss to find an adequate

The standard sheet size was about 96.5 cm west - east by about 61 cm south-north (about 38 inches by 24 inches). It was wholly recompiled and redrawn, presumably from the latest editions of the OS 1:63,360 Seventh Series or the earliest of the 1:50,000,⁵⁹ and was the first non-OS series at so large a scale to carry the National Grid, though the grid lines were unnumbered and were intended to be used only for alpha-numeric referencing in conjunction with text printed on the reverse. It was radically 'modern' in appearance, with all lettering sans-serif, and a colour-scheme very different from anything the Ordnance Survey or Bartholomew had offered their customers, almost the only points of contact being water, grid and motorways in blue, B-roads in brown and woodland (uncased) in green; otherwise, road casings, railways and some other details were brown, A-roads were yellow, unclassified tarred roads were indicated by solid casing and lesser roads by pecked casing; primary route numbering and destinations were in green; National Trust areas and some unexpected features such as preserved railways were in blue (presumably being classified as tourist attractions); national parks and areas of outstanding national beauty were tinted yellow; buildings and built-up areas were in uncased purple-grey; and place-names were in black, thereby standing out against the predominant brown of the road casings. Printed on the back was a gazetteer of towns, larger villages, castles, notable gardens, etc, and town plans. The map was Bender-folded, in such a way that most of the information on the back could be read without opening the map right out.

Whatever one might think of the result, it was a striking map, and it might have been expected to be to the 1970s and 1980s what the Bartholomew 1:126,720 had been to the 1900s and 1910s. Unfortunately, it does not seem to have sold very well, and by the mid-1980s copies were being remaindered. The map was evidently not selling fast enough to justify updated reprints. It was then reissued as a series of five soft-cover 'Navigator atlases', covering most of England and Wales, but by the late 1980s these, too, were evidently proving less successful than anticipated, and in 1990 or 1991 three very large soft-cover atlases, covering the whole of England and Wales and including new 1:100,000 cover of southern Scotland were issued. By 1994, these, too, had been discontinued.⁶⁰

In 1996 there appeared *Philip's Navigator Road Atlas*, described, wholly correctly, on the cover as 'Britain's most detailed road atlas'; the somewhat less accurate statement on the cover that the scales are 1.5 and 3 miles to 1 inch (*sic*) (it should, of course, be 1.58 and 3.16 respectively; 1:100,000 and 1:200,000 would be better still) is a testimony to the extreme technical conservatism, or ignorance, of

adjective to describe this state of things. For what it is worth, the back cover indexes on the writer's copies of Sheets 6 and 7 indicate that Sheets 6, 7, 10, 15 and 16 were 'now ready', Sheets 18, 19, 23, 24, 28 and 29 would be 'ready late summer 1974' and the rest were 'in preparation 1975/6'.

⁵⁹ Preparation time would have dictated using the Seventh Series for the earliest sheets, whereas the writer's copy of Sheet 30 betrays its derivation from OS 1:50,000 First Series Sheet 113 by showing both the 'Electric Tramway' between Grimsby and Immingham (closed in 1961) and the [Lindsey] Oil Refinery at Killingholme [TA 1517] (begun about 1968), but omitting any of the Willows Estate development between Great Coates and Little Coates [TA 2409], which had been begun in about 1966, but which only first appeared on the 1:50,000 with the publication of Sheet 113 in the Second Series in October 1977.

⁶⁰ The writer apologises for possible imprecision as to dates, which is compounded by writing from memory.

the mass of the British public. It is a 'floppy atlas' of 364 pages (including town plans and gazetteer), with all of Britain south of Stirling, except Galloway, at 1:100,000, Orkney and Shetland at 1:250,000 and the rest of Scotland at 1:200,000. It sells for £19:99, which in terms of price per square kilometre is extremely cheap, though the sheer volume of paper means that this is £4 or £5 more than some hardback atlases to be had, at a much smaller scale. It remains to be seen whether this extraordinary production will enjoy the relative permanency which has been denied to this mapping in its previous offerings. One suspects that it will stand or fall by its sheer bulk and comprehensiveness, rather than by consideration of the minutiae of its revision.⁶¹

Why was this mapping not more successful? Obviously it was far from a total failure, as it was republished from time to time in various forms, but the very fact of these changing forms indicates difficulty in finding the right sales formula. I suggest that one problem may have been the association with the R.A.C., which led to the mapping being conceived exclusively as a motoring map, without thought to the possibility of other sales. Had the map been contoured, at at least 30 metre and ideally 20 metre interval, then it might have appealed to cyclists, and it would have had a good claim to be treated as a general topographic map. It is known that contouring was considered, and at least one of those involved felt that the decision to omit this information was a mistake,⁶² being uncountoured it would have been at an initial disadvantage in competition both with the Bartholomew 1:126,720 and 1:100,000, and with the OS 1:50,000. As far as the motoring market was concerned, the mapping may have been disadvantaged by containing a good deal of minor detail which one would expect to find on 1:63,360 or 1:50,000 mapping but which is of questionable utility for 'on-road' users, such as the names of farms and the inclusion of some drives and tracks, and the contrast in gauge between the A- and B-roads on the one hand and the minor roads on the other makes the latter not easy to read, particularly in a moving vehicle. The colour scheme, whilst imaginative, may also have militated against the map's success: the brown B-roads tend to stand out more than the yellow A-roads, and a 'conventional' road-colour scheme, as used on the OS 1:50,000 and Bartholomew 1:100,000, might have helped sales.⁶³

Conclusion: history is NOT bunk!

The point which emerges mostly strongly for the writer from this survey of apparently rather heterogeneous maps is that, whilst attempts at providing national sheet map series at a scale of 1:100,000 or 1:126,720 all appear to have 'failed' in

⁶¹ For example, comparison of page 201 with successive editions of OS 1:50,000 Sheet 113 shows that whilst housing development at TA 252038 and TA 299068, which first appeared on the 1:50,000 in 1987 (edition A/*/*/*), has been included, there is no sign of the industrial development at TA 210140 and TA 248105 (see the 1992 edition, B); and one might draw attention to 'Pye's Hall' at TA 408006, which was omitted from the 1992 edition, and to the apparently complete omission of the North Sea gas terminal at Easington (TA 400190, etc).

⁶² Private correspondence in the writer's possession.

⁶³ The balance of shade between the brown and the yellow was changed after the earliest sheets were printed, which assisted legibility, but left the fundamental concept unaffected. In the interests of research, the writer once recoloured an A4-sized section of the Philip map in 'OS' colours, and with brown 20-metre contours and layering, and thinks that this is the 'answer' for colouring this mapping.

commercial terms, a common feature of most of the failures (the main exception is the early Philip ‘Ravenstein’ 1:126,720) is the treatment of relief. The most satisfactory mapping in this respect was the Bartholomew Half-inch; in the writer’s opinion, the increase in contour interval when this mapping was republished at 1:100,000 was a fatal error. Had the Philip 1:100,000 been adequately contoured, it might have supplemented the Bartholomew map: in the event, both publishers missed a great opportunity.

Whilst a superficial impression might be that ‘history teaches that’ a national 1:100,000, 1:125,000 or 1:126,720 series of Britain in sheet map form is not a viable proposition, closer study suggests that mistakes were made which provide guidance for the future. Whether OS or anyone else will one day provide an satisfactory intermediate scale national topographic map remains to be seen; but until such a map appears, Britain’s claim to be ‘the best mapped country in the world’ must remain subject to qualification.

Captions to illustrations

Figure 1. Extract from *Loch Lomond and Trossachs*, n.d., ? mid-1880s; engraved and printed by Bartholomew, published by A. & C. Black.

Figure 2. Index to the Cary-Crutchley-Gall & Inglis half-inch map; from a copy of sheet 35, possibly late 1840s.

Figure 3. Inside cover material of Gall & Inglis Graded Road Map, Sheet 61, n.d. (c.1913). The sheet-line relationship of the Graded Road Map to the Cary half-inch is clearly apparent.

Figure 4. Extract from Gall & Inglis Graded Road Map, Sheet 61, n.d. (c.1913).

Figure 5. Explanation and index from cover of Johnston’s Reduced Ordnance Map of Scotland, Sheet 27, n.d., c.1887.

Figure 6. Extract from Johnston’s Reduced Ordnance Map of Scotland, Sheet 27, n.d., c.1887. The original is a reduction from OS One-inch Scotland Sheet 46, with railways redrawn in red, water tinted blue, and woods tinted green.

Figure 7. Extract from Michelin 1:200,000 Sheet 11, n.d., c.1920, with ‘Aero’ at Brough, ‘Liable to floods (3 ft)’, and junctions with otherwise unmapped roads.

Figure 8. Extract from Bartholomew Half-inch England & Wales Sheet 33, n.d., c.1900. Compare with Figure 9.

Figure 9. Extract from Philip's Half-inch Sheet 27, n.d., c.1902-3. Compare with Figure 8.