Living on the edge

Chris Higley

I was brought up in a marginal extrusion on one of my father’s old one-inch Popular Edition sheets. When, as a schoolboy, I bought my first OS map, Seventh Series sheet 144, it came as a pleasant surprise to realise that one did not always have to live on the edge of a map!

The sheet line layout of the pre-war one-inch and smaller scale Ordnance Survey maps of England and Wales on the Cassini projection with Delamere origin is now well understood:

1. The northern sheets of the one-inch Old Series were constructed so as to require the smallest overlap with previously published mapping.¹
2. The one-inch New Series was then laid out by extending these sheet lines southward as a rectangular array of 18 × 12 mile sheets.
3. Each standard 36 × 24 mile sheet in the half-inch small sheet series was designed to cover the same area as four one-inch sheets.
4. The one-inch small sheet series was replaced by the Third Edition Large Sheet Series, in which every four standard 27 × 18 mile sheets covered the same area as nine sheets in the small sheet series.
5. Similarly, the half-inch Large Sheet Series was introduced with every four standard 54 × 36 mile sheets covering the same area as nine sheets of the previous half-inch series.
6. Finally, the one-inch Popular Edition sheet lines were constructed, still using 27 × 18 mile sheets, so that, as far as possible, four Popular Edition maps would exactly fill one half-inch sheet.²

As a consequence of this inter-relationship, many sheet lines were common to maps of the different series and, since all the standard sheets covered an exact multiple of three miles in both width and height, it follows that the sheet lines of the standard sheets of all these series fall on a regular grid of three mile squares. For convenience, we may take this grid as having a false origin in the south-west corner of one-inch small sheet 360. Figure 1 demonstrates the regular sheet pattern of the two small sheet series with the co-ordinates of each sheet line shown measured in miles from our false origin.

A disadvantage of the regular sheet layout was that many coastal sheets consisted largely of sea and, in practice, these began to be combined on publication. A compromise was reached with the Third Edition, Large Sheet Series of England and Wales in which, as Brian Adams has demonstrated and as is shown in Figure 2, the standard sheets were laid out in four regular blocks to provide a reasonable fit to the coastline. The co-ordinates in miles from our false origin, as shown in the figure, are calculated from, and correspond exactly to, the co-ordinates in feet from the origin of Delamere published by Brian.³ A number of non-standard sheets were still required to complete the layout and I have again followed Brian’s lead in not attempting to deduce exact co-ordinates for these.

One-inch New Series and half-inch small sheet series

Italic numerals give sheet numbers of the half-inch sheets, each of which covers the same area as four one-inch sheets

Figure 1
As is shown by Figure 3, a neater layout was achieved with the one-inch Popular Edition. Here we do know the exact co-ordinates of even the non-standard sheets and these are shown in the figure, again converted from the Cassini co-ordinates in feet given by Y Hodson to miles relative to our false origin. This makes for a rather crowded diagram on the A5 page but, hopefully, having the values as a small number of miles, rather than as a six-figure measurement in feet, will compensate for this. It must be emphasised that there is no loss of accuracy in this conversion. The figures in feet given in Popular Maps convert precisely to integral numbers of miles from our false origin, with the exception of five Popular Edition coastal sheets which have either one or two edges falling exactly half way between mile grid lines.

A large number of special, district or tourist sheets were also based on one-inch Popular Edition mapping. It turns out that most, if not all, of these have sheet lines again aligned to our mile grid. The table below shows that, for an example edition of a representative cross-section of these maps, all four sheet lines are an exact number of miles north or east of our false origin.

<table>
<thead>
<tr>
<th>Sheet</th>
<th>date</th>
<th>neat line:</th>
<th>west miles E of origin</th>
<th>east</th>
<th>south miles N of origin</th>
<th>north</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map of the Aldershot Command</td>
<td>1920</td>
<td>241</td>
<td>265</td>
<td>84</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>Cheltenham and District</td>
<td>1922</td>
<td>183</td>
<td>214</td>
<td>134</td>
<td>156</td>
<td></td>
</tr>
<tr>
<td>The Chilterns</td>
<td>1932</td>
<td>239</td>
<td>268</td>
<td>120</td>
<td>146</td>
<td></td>
</tr>
<tr>
<td>Exmoor Forest</td>
<td>1921</td>
<td>108</td>
<td>142</td>
<td>78</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>The Middle Thames</td>
<td>1923</td>
<td>237</td>
<td>275</td>
<td>106</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td>New Forest</td>
<td>1921</td>
<td>205</td>
<td>231</td>
<td>62</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>North East Wales</td>
<td>1931</td>
<td>131</td>
<td>160</td>
<td>218</td>
<td>246</td>
<td></td>
</tr>
<tr>
<td>Salisbury Plain</td>
<td>1920</td>
<td>192</td>
<td>225</td>
<td>84</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>Snowdon District</td>
<td>1925</td>
<td>109</td>
<td>131</td>
<td>216</td>
<td>246</td>
<td></td>
</tr>
<tr>
<td>Weston super Mare</td>
<td>1918</td>
<td>156</td>
<td>175</td>
<td>90</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>Wye Valley</td>
<td>1929</td>
<td>165</td>
<td>183</td>
<td>126</td>
<td>156</td>
<td></td>
</tr>
</tbody>
</table>

Some Popular Edition special, district and tourist sheets

*The date shown is as printed or first published at the Ordnance Survey Office, Southampton.*

*Print codes (where dated differently): * 4000/30; † 5036; ‡ 5050/32; § 6036; ¶ 2000/29.

Both regular and special Popular Edition sheets carried a two-mile square reference system, forming an embryonic unnumbered grid. Being anchored to the sheet lines of the map, these squares are closely related the ‘grid’ introduced in this article. It may be that a useful side-effect of the alignment of the special sheets was that the printed lines of the reference squares could frequently be used to disguise the joins between the regular sheet plates used to form composite sheets.

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4 Popular Maps, Appendix 7.
5 The sheets selected for the table are those in my own collection. The latitude and longitude of the NE and SW corners of each sheet were deduced from the printed marginal values. These were then converted into Cassini co-ordinates using Ed Fielden’s excellent program at http://www.fielden-productions.co.uk/maps/cconv/index.html.
6 Projections and Origins, 56-57; Popular Maps, 74-78.
The non-standard sheets of the half-inch Large Sheet Series are not always as well behaved. For example, although the column of half-inch sheets 11, 15, 21 and 26 is displaced vertically, the northern and southern edges of these sheets all coincide with sheet lines of the one-inch small sheet series, whereas the common edge of sheets 31 and 36 is surprisingly about 1.1 miles south of its expected position, which would correspond to the southern edge of Popular Edition sheets 127 and 128. What seems to have happened is that sheet 31 was laid out as a standard size sheet, with northern edge just clear of Foreland Point, and then sheet 36 was constructed to abut it, but extended south by about 1 ¾ miles to clear Prawle Point. Whoever designed this was obviously not thinking about alignment to any sort of mile grid. The half-inch sheets for which I am not yet confident about one or more co-ordinates are shown as dashed lines in Figure 3.

My grid did not, of course, exist in practice, although it would be only too easy, from a study of the maps alone, to deduce that it did. However, the grid can be used to calculate the Cassini co-ordinates of each standard map sheet.\textsuperscript{7} We know, from Brian Adams’s work, that our false origin is 906,570 feet west and 1,249,940 feet south of Delamere.\textsuperscript{8} Figure 3 shows that the western edge of Popular Edition sheet 75 is 279 miles = 1,473,120 feet east of our false origin. Hence the sheet edge is 1,473,120 \( - \) 906,570 = 566,550 feet east of Delamere.

Similarly, the northern edge of sheet 75 is 192 miles = 1,013,760 feet north of our origin, i.e. 1,249,940 \( - \) 1,013,760 = 236,180 feet south of Delamere.\textsuperscript{9}

\textbf{The sad case of Uppingham}

Because many sheet lines were common to maps of the different series, if you lived in the corner of one map it was quite likely that you would also find yourself in the corner of other maps. If you chose the wrong corner of the wrong sheet, the effect could be disastrous.

Consider Uppingham. Nicely positioned on sheet 64 of the one-inch old series, Uppingham found itself in the SW corner of New Series sheet 157. Not a good position, as this also formed the corner of half-inch sheet 46.

At least with the advent of the one-inch Large Sheet Series, Uppingham was only on the edge of two sheets, rather than in the corner of four. However, it still lurked in the corner of half-inch large sheet 18 and, when the one-inch Popular Edition came out, there it was, back in the corner of sheet 64.\textsuperscript{10}

Things were no better with the quarter-inch Map of England and Wales. The small sheet series was laid out with each 90 \( \times \) 60 mile sheet covering the same area as 25 one-inch sheets.\textsuperscript{11} The boundary between sheets 11 and 12 was the southern edge of one-inch small sheet 157, 192 miles north of our false origin and just two miles south of Uppingham! The quarter-inch Third Edition used a sheet size of 108 \( \times \) 72 miles, the area covered by sixteen one-inch Popular Edition sheets. The result was predictable; the SW corner of sheet 6 was ‘Uppingham corner’.

\textsuperscript{7} Measured in feet from Delamere.

\textsuperscript{8} A guide to the Ordnance Survey one-inch Third Edition maps in colour, Appendix 7. Brian would have wished me to point out that the foot referred to is 1 foot of the Ordnance Survey standard ten-foot bar \( O_{10} \), 0.304,800,749,1 international metres. The foot was redefined in 1963 as exactly 0.3048 metres. Neglect of the difference results in an error of approximately 1 metre in the position of the false origin. This may not be regarded as being significant.

\textsuperscript{9} Compare with Projections and Origins, page 55.

\textsuperscript{10} Richard Oliver comments that Uppingham is also near to an edge of the half-inch Popular-style Leicester district sheet of 1936 and would have fallen quite close to the west of the unpublished half-inch Second Series sheet 38.