Sheetlines

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

"Contour accuracy"

Rob Wheeler

Sheetlines, 100 (August 2014), pp40-41

Stable URL:
http://www.charlesclosesociety.org/files/Issue100page40.pdf

Published by
THE CHARLES CLOSE SOCIETY
for the Study of Ordnance Survey Maps
www.CharlesCloseSociety.org

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

The Society publishes a wide range of books and booklets on historic OS map series and its journal, *Sheetlines*, is recognised internationally for its specialist articles on Ordnance Survey-related topics.

Contour accuracy – some observations

Rob Wheeler

> "Contours surveyed on the ground, 300', 400', 500', 600', 700', 800', 900', 1000', 1250', 1500', 1750', 2000', 2500'. Other contours interpolated and only approximately correct."[1]

Most of us are familiar with this caveat on the older maps of the northern part of Great Britain and most of us quietly ignore it. After all, we know that the interpolation took hill sketches and spot heights into account and, between 1860 and 1862, water-levelling was used;[2] in other words, the intermediate contours were actually surveyed but to a lower standard. If challenged for our complacency, we can always cite Winterbotham:

> "The surveyed contours are plotted on hill sketches, and the shape given by the latter makes it easy to interpolate fairly well. ... The rambler, or holidaymaker generally, is not so particular about the exact height. He wants to see the country on the map without having to search and analyse. ..." [3]

So, suppose our hypothetical rambler proposes to ascend Cairn Hill (NT365387) by the eastern ridge, starting from Pyat Hill. Having read Winterbotham's words from the 1947 printing of his book, and equipping himself with the almost contemporary Provisional Edition 1:25,000 (*see figure 1*) he expects a drop of less than 85ft from Pyat Hill followed by a steady climb thereafter. Early Knowe rises ahead of him but he is confident that none of his effort will be wasted: the drop between Early Knowe and Cairn Hill, if any, cannot be more than 25ft (or perhaps, if he has been reading Winterbotham carefully, he might be prepared for a 35 or even 40ft drop, since these contours are interpolated). He has a shock in store. On reaching Early Knowe, he finds that the descent to the saddle is actually 120ft. Figure 2 was contoured by stereographic methods, so can be assumed correct.

This case does seem a particularly bad one: perhaps there was some mist hanging around when the hill-sketchers were at work.

The fine wiggles on the contours in figure 2 I have always regarded as typical of stereographic contours. They can be seen again on figure 3, showing another part of the same sheet. Figure 4 shows the same area on the Pathfinder. Presumably the metric contours were interpolated between Imperial ones, and this will necessarily smooth out some of the wiggles. However, the 700m contour ought to correspond almost exactly to the 2300ft one; nevertheless, a lot of the fine detail has been lost. Some form of smoothing has been applied.

One reason for selecting this extract was the mirror-writing of the heights – both ground height and trig. It's an odd error, and I cannot conceive of how it came about. None of the other heights on the sheet are affected.[4]

---

1 Note on OS Popular Edition of Scotland, Sheet 80 (2500/26).
2 WA Seymour (ed), *A History of the Ordnance Survey*, 1980, 172.
3 HSL Winterbotham, *A key to maps*, 1939, 101.
4 but Pathfinder 384(A1) has a mirrored 'Dismtd Rly' at NT 063936.

The moral: beware old interpolated contours; for the greatest accuracy use Second Series rather than metricated maps. And, so far as I know, all *their* heights are the right way round!

Figure 1: Early Knowe on Provisional Edition NT33 (B)

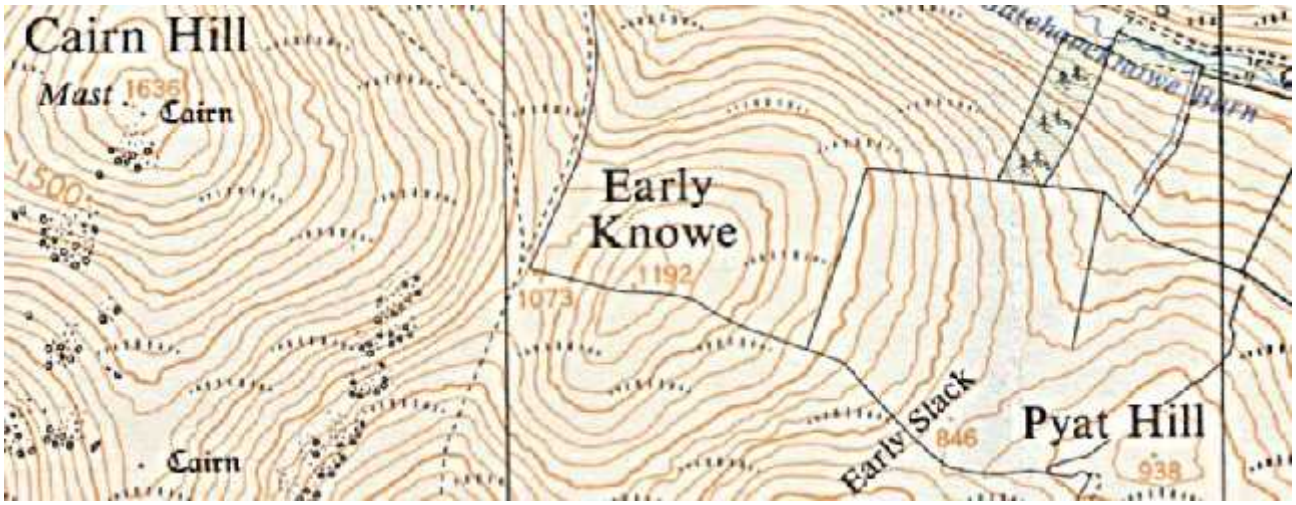

Figure 2: Early Knowe on Second Series NT23/33 (A)

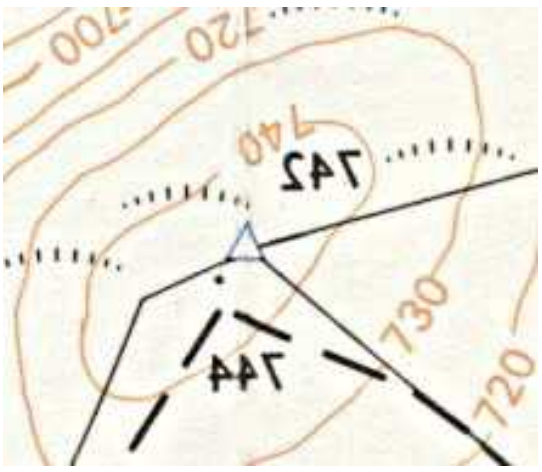

Figure 3 (left): Highest point on Second Series NT23/33 (A)
Figure 4: Same point on Pathfinder 460 (A1)