



# *Sheetlines*

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

“Luftwaffe air photos”

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*Sheetlines*, 117 (April 2020), pp3-8

Stable URL: <https://s3.eu-west-2.amazonaws.com/sheetlines-articles/Issue117page3.pdf>

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Published by  
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for the Study of Ordnance Survey Maps  
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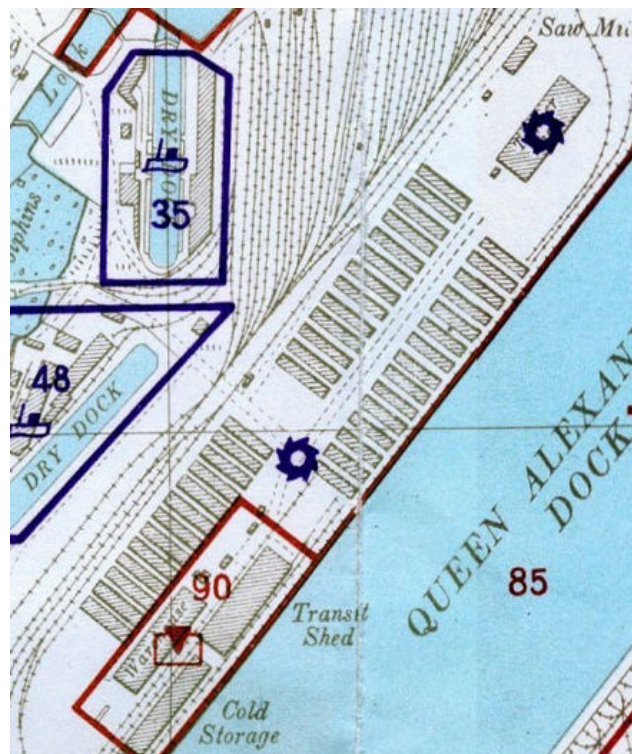
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## ***Luftwaffe air photos and the OS Special Emergency Edition***

### ***Rob Wheeler***

Chris Higley's stimulating article in August's *Sheetlines*<sup>1</sup> drew attention to the updating of German reproductions of OS six-inch plans, based on Luftwaffe air photographs. These air photographs were in many cases later than the programme of ARP revision. Accordingly, the German maps might offer a better depiction of British towns at the beginning of the Second World War than the Ordnance Survey's own product. I shall argue here that they do at least *complement* the Special Emergency Edition (SEE). For avoidance of confusion, it is worth stating that both the German product and the SEE were normally based on what the OS termed the *sales edition*, the last pre-War edition of the six-inch placed on public sale.

In the case of Cardiff (Sheet BB32c = Glamorgan 47NE) reproduced by Chris, the German depiction of Queen Alexandra Dock (*figure 1*) is rather more instructive than the housing development shown in the August issue. Here, on the northern side, are shown a large number of identical buildings placed transversely. They look as though they might be a barracks. This is completely wrong. The SEE (at least in its post-war manifestation as a Provisional) shows three massive transit sheds. One of these survives and can be viewed on Google satellite images. It has transverse roof-lights running almost all the way across the shed. The Germans must have mistaken these roof-lights for separate buildings.



*Fig 1: Queen Alexandra Dock from German 1:10,000*

<sup>1</sup> Chris Higley, 'Cardiff: revision for defence - and attack'. *Sheetlines* 115, 23. I am most grateful to Chris for his assistance with this article.

One deduction we can draw is that the images used must have been of poor quality. This is not a matter of cloud or reaction to hostile fire. The photographs must have been taken from a much greater height than the camera was designed for; perhaps they were even high-altitude obliques. This perhaps explains why there seem to be no other updates to the sheet apart from some landfill east of Roath Dock and the housing development shown in August, and why the depiction of that housing development was so poor.

The revision note on the Cardiff sheet is *Berichtigt nach Luftbildauswertungen vom Januar 1941* and this seems to be the standard form (with variable date, of course). My understanding of the expression is that the cartographers were working from interpreted air photos, that is to say the Luftwaffe photo-interpreters had annotated the photos with whatever they regarded as of significance, and supplied prints with these annotations. A few streets of new housing were probably of no interest to them, but Queen Alexandra Dock was something to which they really ought to have paid attention. Britain's imports across the Atlantic were being diverted to west-coast ports to save shipping and avoid the dangers of a Channel passage. Here at Cardiff, what had been a timber dock (with a small transit shed) had been converted so that it was wholly devoted to general imports. It was a prime economic target, and the photo-interpreters failed to spot it.

If Cardiff was typical, then these German 1:10,000 sheets might tell us something about German intelligence; but they can tell us almost nothing about UK urban topography. However, inspection of one of the Birmingham sheets (BB23e = Staffs 72NW, covering Oldbury) shows a sheet largely redrawn - the sales edition dated from before WW1 - and with certain advantages over the SEE as well as disadvantages. The whole area had benefited from full revision at 1:2500 in 1937, but these sheets were only published after the war. That revision of course eased the job of compiling the SEE; it also provides a useful expansion of what the SEE was attempting to show.

### ***Weaknesses of 1:10,000***

1 Being compiled from air photos alone, the additions to the German maps have no names of streets or buildings, nor even any descriptions.

2 Things can be missed. *Figure 2* shows a brickworks south of Rowley Regis station. At least, it was a brick works in 1913; it had vanished by 1937. As an *Objekt* of military significance, it can scarcely have been overlooked: this may be an example of cloud denying coverage.

3 *Generic drawing*, as I shall term it, is detail which is not to be taken literally - like field boundaries on the Mudge map of Kent. Whereas generalisation omits detail and simplifies linework in the interest of legibility, generic drawing provides fictional detail to show the 'sort of thing' that is present. The last OS use of this was garden ornament on mid-19th-century six-inch sheets; in the twentieth century, OS mapping had a clear distinction between surveyed linework and ornament. *Figure 3* shows an example to the south of Thimblemill Road, an area now occupied by Thimblemill Cemetery. Here, the small size of the fields and the

way they are drawn, with the north-south lines slightly stepped, suggest they are generic rather than plotted boundaries. Checking against the 1937 1:2500 shows that the area in fact consisted of allotments. It is not a bad way of showing allotments, but the user does need to recognise it as generic drawing. There is a similar area north of Thimbledown Road, where Hales Crescent was later built.



Fig 2: Blackheath Brick Works on German 1:10,000

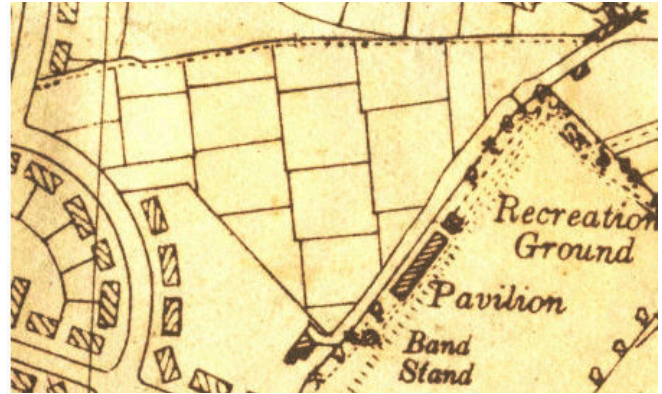


Fig 3: Little Fields on German 1:10,000

4 *Regularity* is perhaps to be expected from cartographers working with imperfect images. If a straight road disappears behind cloud and then reappears on the same line, it is reasonable to assume it continues under the cloud. If the road is flanked by semi-detached houses, then it is reasonable - but riskier - to assume that they continue likewise. It is certainly better for the intended user (as opposed to the historian) to do that rather than leave a gap. If there is something a little different but the cartographer can't make out quite what it is, it might have been better for the user to admit as much, but I have not seen such annotations and I suspect that regularity was allowed to take its course unless there was strong evidence against it. This is particularly apparent on the new estates. For example, Central Avenue in Blackheath (excluding the corners) had been laid out on each side as 2 2 4 2 4 2 2, where '2' indicates a pair of semis, '4' a terrace of four, and underlining indicates houses set back further from the road.<sup>2</sup> The German cartographer renders this as 2 2 2 2 2 2 on the north side, and 2 2 2 2 2 2 on the south. This liking for semis, and a tendency to fit in slightly fewer houses than there really were, are found across the whole map. A more straightforward example of regularity is on Abbey Road, just north of Warley Woods, where a line of semis continues to the edge of the map, despite Rounds Green Methodist Church having already been there in 1937. Regularity could work in the opposite direction too. Opposite the church in St Alban's Road Smethwick, was a yard - possibly a builder's yard being used for the development of the suburb but permanent enough for the OS to map it in 1913. By that date, houses had reached within a few yards of it; by 1937 they had extended across where it had been. The German cartographers left the yard in place showing houses right up to it but

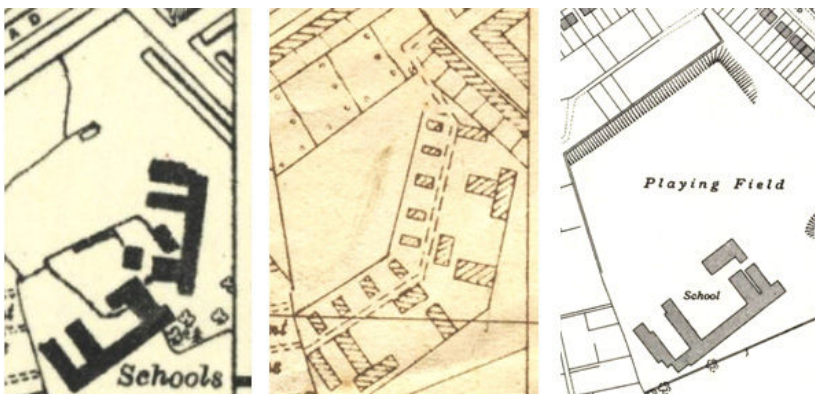
<sup>2</sup> This description ignores the corner blocks. Each of these seems to have consisted of a house fronting one road linked to a house fronting the other - a challenge for any generalised depiction.

stopping at its fence. The principle seems to have been: if in doubt, leave existing detail.

### ***Strengths of 1:10,000***

1 German revision continued to a later date than the ARP exercise. The revision date for this sheet is September 1940. It would be dangerous to assume that photographic coverage of that month was available for the entire sheet, but one can certainly find housing development (eg Sandford Avenue, Brook Road) not recorded by the OS, along with roads laid out where building had not started (St Matthews Road, adjoining Brook Road).<sup>3</sup>

2 The 1:10,000 offers an alternative depiction of large complexes. It may not be better, but the date is different and the errors are different, so the two sources together sometimes tell us more than either does alone. *Figures 4 to 6* show what are now the Devonshire Academies, from the SEE (actually the 1944 Provisional), the German 1:10,000 and the 1937 1:2500. On the SEE, one reads each school as a spine with three wings coming off it, though the picture is confused by field boundaries and a narrow building associated with the demolished Smethwick Hall remaining on the map;<sup>4</sup> the 1937 map confirms that the German cartographers were correct in removing these. That one school is a mirror-image of the other is not clear from the SEE alone, but one might well take this view looking at both SEE and the German map. The German map suggests a mix of double-height buildings and lower structures; one of the wings carries on into the 'spine', having a separate transverse double-height structure at its end; the 'spine' consists of a double-height building (an assembly hall?) adjoining the middle wing, the rest being lower (and omitted by the Germans). The German map definitely shows the site entrance to be from the north (confirmed by the 1937 map) and shows nine additional buildings (temporary classrooms?) built on the playing field. The explanation of the German depiction of a broken 'spine' as being caused by their picking out higher structures is rather speculative, but it is striking that mirror-symmetry seems to emerge from the German map rather than being something imposed by the cartographer.

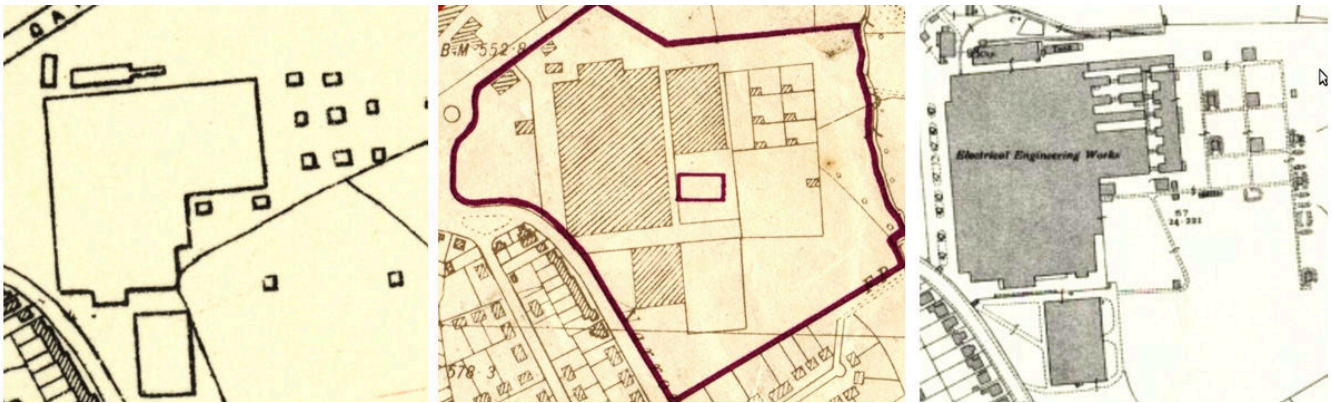


*Figs 4, 5, 6  
Devonshire schools on (L to R)  
Special Emergency Edition  
German 1:10,000  
1937 1:2500*

<sup>3</sup> Of course these names do not appear on the German map, nor are they on the 6-inch: I have relied on Google maps for naming.

<sup>4</sup> I have observed in a Lincolnshire context that features deleted from the SEE sometimes reappear on the post-war Provisional, so this might be an unfair criticism of the SEE proper.

A different example, where the value added by the German map is more doubtful, is given in *Figures 7 to 9*. Here, on the SEE, the regularly-spaced square buildings to the east look as though they might be explosives stores. The German photo-interpreters seem not to have thought so: the *objekt* symbol indicates ‘factory of unknown type’. The German cartographers have added fences so that each little building sits in the SW corner of its own tiny field: are they for livestock? The 1937 map tells us the factory is an electrical engineering works; the ‘fences’ are actually roads, and the little buildings are not all identical. What purposes they served remains a mystery.



*Figs 7, 8, 9: Cakemoor factory on (L to R) SEE, German 1:10,000, and 1:2500*

3 Whereas ARP revision was supposed to be limited to roads and buildings, the German cartographers appear to have had time for all categories of revision. In practice, the benefits of this are modest.

*Railways* The cartographers have had time to remove redundant railways. For example, in *Figure 1*, the tracks that went through the area now occupied by the new buildings have been carefully deleted, while leaving unchanged those tracks that passed around them. Given that the photographs did not allow the sheds themselves to be seen properly, we can be fairly confident that the cartographers could not see whether railway tracks had been taken up: they are just making the map tidy. Likewise, on Staffs 72NW, the railway serving the Cakemoor Colliery and Brickworks has been deleted: the colliery had gone, and the line had been cut by a new road, so it was an easy call. (Interestingly the words TRAMWAY and Incline were left; presumably there was some doubt as to whether they might refer to something other than the industrial railway.) On the other hand, *Figure 9* shows a rail connection to the new factory, whereas *Figure 8* omits it. If the cartographers could not spot a railway serving an ‘object of interest’, it seems probable that even their Staffs imagery was too poor to show railway tracks.

*Field Boundaries* Depiction of allotments has already been mentioned. By 1940, none of the area of Staffs 72NW was occupied by normal farms (though there may still have been active smallholdings). The largest area of green space was around Brand Hall, which by 1937 was a golf course. In this area a number of field boundaries have been correctly deleted by the German cartographers; others remain, even though they had gone by 1937. Hence the German map is

useful as an indicator that changes were taking place but does not by any means capture all of the changes.

*Water and Earthworks* The landfill at Cardiff has already been mentioned. This extended to about 30 hectares. Its outline was shown in a very generalised manner. The German map is nevertheless the only depiction known prior to 1947. Turning now to the Staffs sheet, the large clay pit that had served the Cakemoor brickworks had filled with water by 1937, an area of about 2.3 ha. This is duly shown by the German cartographers. Smaller changes are generally disregarded: for example, the pond south of Brand Hall had become marsh by 1937 but is still shown as water on the 1:10,000. Generally, earthworks remain as on the sales edition, but at the top of the map, NW of Ivyhouse Farm, single lines of hachures attempt to show what were new spoil heaps. Thus the maps do often show large changes, even though their depiction may be weak.

### ***So what?***

Interpreted with care, German maps of the standard of BB23e can add usefully to our understanding of the topographical development of built-up areas in the later 1930s and early 1940s.

But is revision of this standard common, or is Cardiff more typical? As a test I looked at the extracts of city centres published by the Bodleian Library a few years ago.<sup>5</sup> Of 12 extracts (excluding London, which used a different base map) only one, of Bristol, appeared to have been updated. Here the only change was that the massive new Goods shed next to Temple Meads station had been added.<sup>6</sup> The cattle market east of the station was still shown as a military object even though it had closed, a multi-storey building had been erected on part of its site, and the 'through' part of Temple Meads station had expanded to take up the rest of its site. The Bristol revision seems more akin to that of Cardiff.

Evidently there is scope for further investigation looking at more of the original sheets. However, it is not something that can be done in the course of a quick library visit: it is necessary to investigate what was actually present on the ground, and that often takes time.

Those interested in using the German 1:10,000 as a source might do better to investigate the air photos directly rather than rely on the cartographers' interpretation of them.

I conclude with an exercise for the reader: use the air photo at [www.warhistoryonline.com/wp-content/uploads/2018/06/00-lonblitz.jpg](http://www.warhistoryonline.com/wp-content/uploads/2018/06/00-lonblitz.jpg) to update Surrey Commercial Docks (to the right of the aircraft's tail) on the 'sales edition' of London sheet K (revised 1913-14) available at <https://maps.nls.uk/view/102345864>. Don't look at the post-war Provisional - <https://maps.nls.uk/view/102345861> - until you've at least made an attempt. It may provide an insight into the challenges faced by the German cartographers.

- *All maps except German 1:10,000 courtesy of National Library of Scotland*

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<sup>5</sup> *German Invasion Plans for the British Isles*, 2007.

<sup>6</sup> To see how very prominent it was from the air, see [www.britainfromabove.org.uk/image/epw060120](http://www.britainfromabove.org.uk/image/epw060120)