“German military maps of UK & Ireland of World War II”

J L Cruickshank

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German military maps of UK & Ireland of World War II

J L Cruickshank

Rob Wheeler’s short account of the German maps of England of World War II has (not before time) drawn this extensive group of Ordnance-Survey-derived series to notice. However, as he himself emphasises, there remains a need for more thorough reviews and cartobibliographies. Furthermore the English maps need to be considered in their context, which not only includes the Scots and Irish series but also necessarily includes the equivalent German maps of other European countries. This note is intended to provide further impetus to the study of these maps, but it too can only be considered preliminary.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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