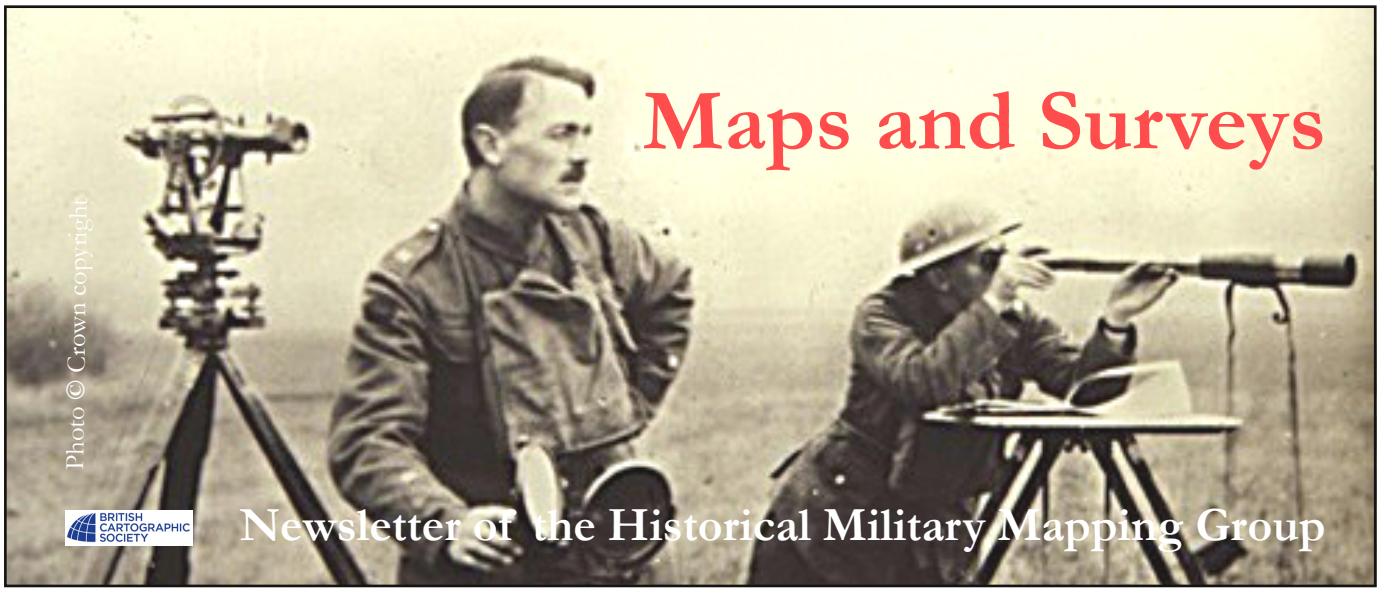


Maps and Surveys appears in autumn, spring and summer. The Newsletter welcomes contributions - please contact Liz Bourne, BCS Administration (*admin@cartography.org.uk*) for information. Editor: Paul Hesp (*Paul.Hesp@drei.at*).

Autumn 2021

Editorial - *A New Start*

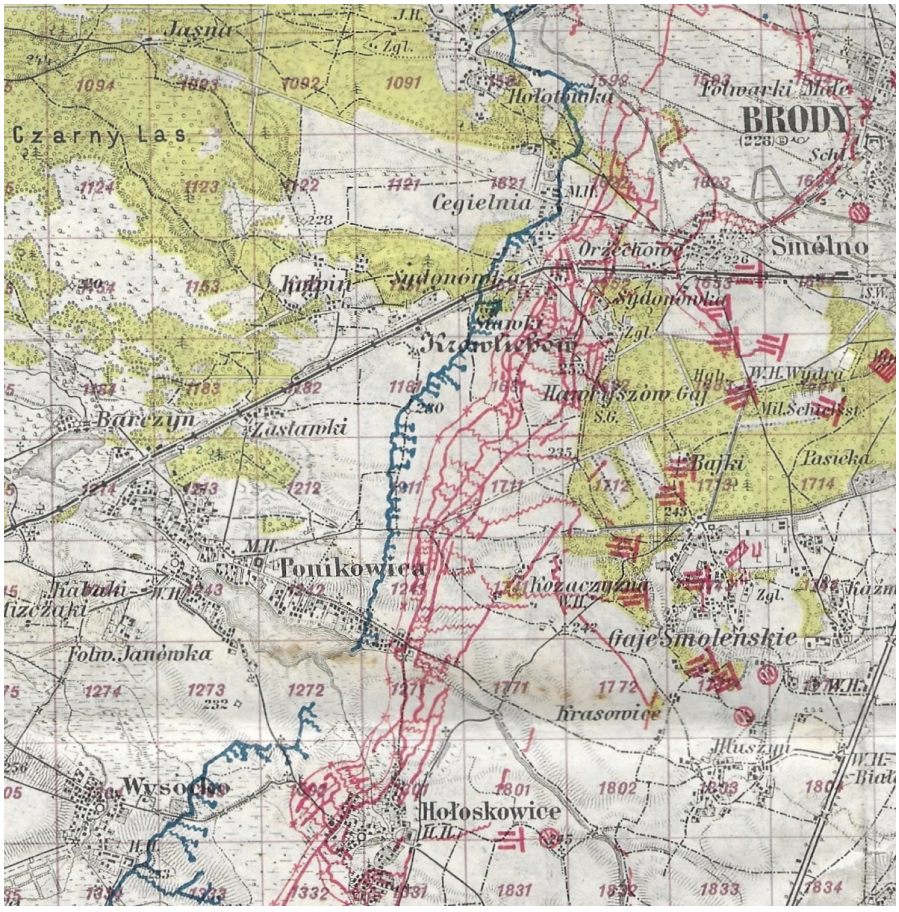
Maps and Surveys is back! We start with an article by Working Group Convenor John Peaty on the maps used in the run up to and during the Battle of Waterloo, with examples of the confusion caused by inadequate mapping.

The contribution by myself focuses on a minor action in the southern Netherlands in 1944 which can be followed step-by-step on the map.

The Notice Board is for questions you may have on the subject of historical military mapping, references to relevant websites, books, and so on. The (flexible format) space on the right is for fragments of interesting maps - yours can be on the front page.

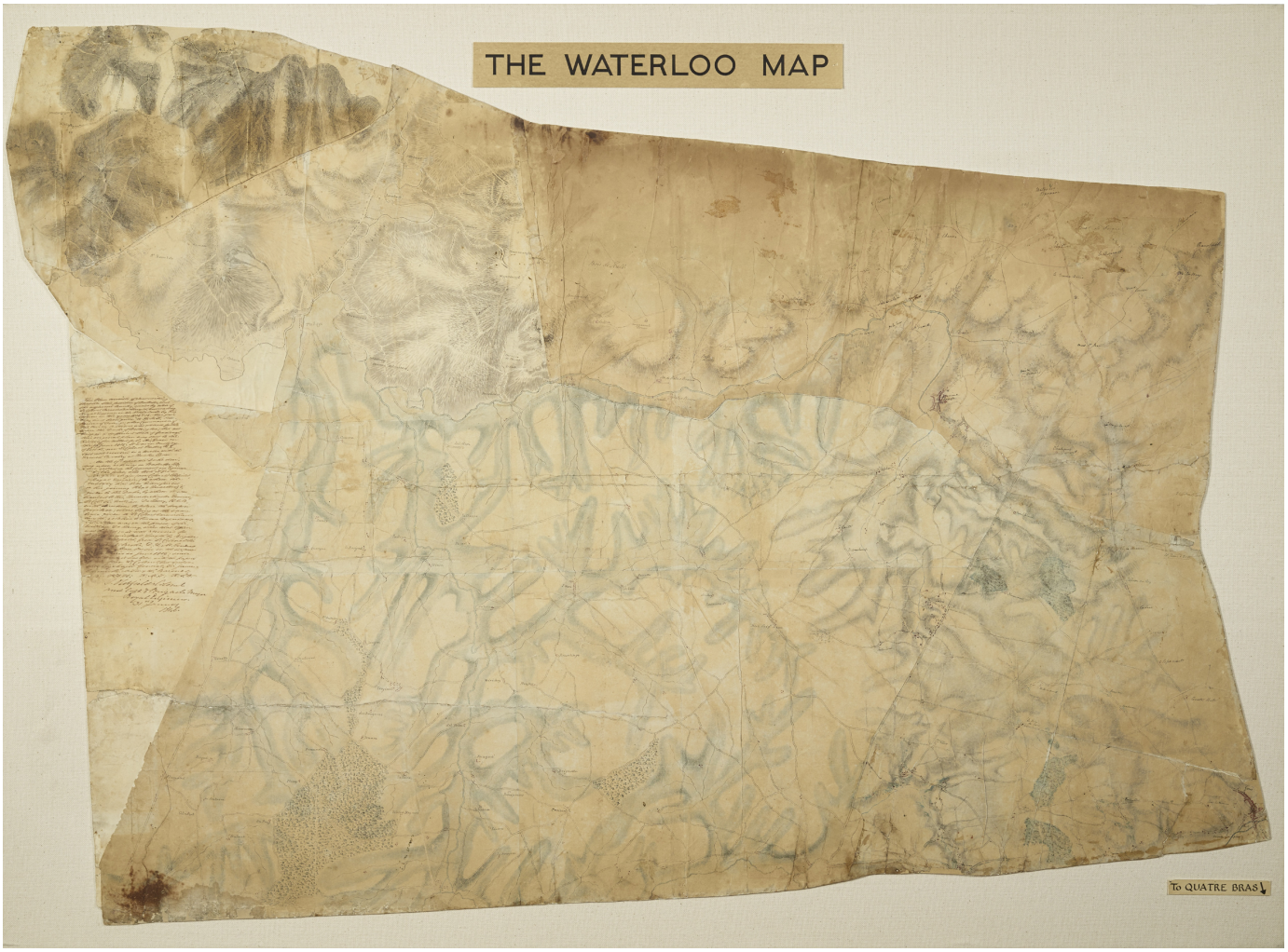
Due to limited editorial capacity we prefer shortish pieces - but we look forward to everyone's contributions!

Paul Hesp, Editor



THE GALICIAN FRONT. Sheet 3974 Brody of the Austrian Spezialkarte 1:75,000 with the front line in overprint, revised from air photos in April 1917. Russian lines (red) are shown in more detail than those of the Austro-Hungarian troops (blue). 'Tridents': artillery positions. Source: collection Paul Hesp.

John Peaty - WATERLOO & MAPS



Map 1: The Waterloo Map. Source: Royal Engineers Museum.

In this article I will discuss the contemporary maps available to Wellington - as well as his opponents and allies - during the campaign. In particular, I will look at their accuracy and how they either helped or hindered the commanders at the time.

A famous incident testifies to the fact that Wellington had a good understanding of that part of Belgium over which the campaign was fought. When definite news reached Wellington of the direction of Napoleon's march while he was at the Duchess of Richmond's ball, he beckoned to the Duke of Richmond and asked for a map. The two withdrew to an adjoining room. Wellington closed the door, and said, with an oath, "Napoleon has humbugged me." He then explained that he had ordered his army to concentrate at Quatre Bras, adding, "But we shall not stop him there; and if so, I must fight him here," marking Waterloo with his thumb-nail on the map as he spoke.

That is precisely what happened. After checking Ney at the crossroads of Quatre Bras and hearing that Blücher's Prussians had been defeated at Ligny to the east, Wellington withdrew northwards up the main road to the vicinity of the town of Waterloo in order to defend Brussels.

Wellington chose a good position to resist Napoleon. He deployed his troops along a low ridge just south of the village of Mont St Jean rising to 125 metres above sea level within gently undulating countryside, in which relief seldom varies by more than a few tens of metres. This gave him the advantage of relatively high ground, with its visibility over the battlefield, greater artillery range, and ease for infantry and cavalry of charging down slope rather than upslope - as well as the opportunity for sheltering on the reverse slope from direct cannon fire. Most of Wellington's troops were positioned along or behind the crest of the ridge. The ridge carried a track east north east towards the town of Wavre, from which direction he had been promised support by Blücher.

The Waterloo Map

How did Wellington know about the crossroads of Quatre Bras and the ridge of Mont St Jean? How was he able to deploy his forces to the first and then redeploy them to the second?

One answer that has been given is the Waterloo Map. This is a prized possession of the Royal Engineers and has pride of place in their Museum in Chatham. Does it live up to its reputation?

The map in the Royal Engineers Museum. Source: Royal Engineers Museum.

The map covers a large part of Belgium and shows the positions of towns and villages, roads, rivers, major areas of woodland, and most obviously when viewed from a distance, the relief—indicated artistically and not scientifically, by hill shading and not contour lines.

The Waterloo area is but a small part of the map and is not shown in detail. Undulations in the ground are poorly depicted. Named localities include the village of Mont-Saint-Jean, the farmhouse of La Haye Sainte (garrisoned by Wellington and stoutly held for most of the day) and the alehouse of La Belle Alliance (used by Napoleon as his HQ before the battle). These all lie along the main road. The Château of Goumont (also garrisoned by Wellington and stoutly held throughout the day) is also named, lying to the west of the road. (The spelling Hougomont is now more popular).

We know relatively little for certain about the Waterloo Map. Attached to the map is a note:

"This plan consists of reconnoitering sketches of the position of Waterloo, and the adjacent Country, made by order of Lt. Colonel Carmichael Smyth, Commanding Royal Engineer in the Netherlands, by his Officers in the years 1814 - 15. One fair copy had been given to the H.R.H. The Prince of Orange, when Commander of the Forces, A second was ordered for his Grace the Duke of Wellington; but not being in a sufficient state of forwardness this original plan was sent to the Field when called for by His Grace on 16th June 1815. It was in custody of Lieut. Waters, R.E., lost and recovered in a melee with the French Cavalry at Quatre Bras. On the 17th upon the Duke deciding upon retiring on Waterloo, His Grace called on the Commanding Engineer for the plan, who took it from Brigade Major Oldfield, Royal Engineers (to whom the custody had been transferred on his joining Head Quarters) and given to the Duke, by whom it was handed to His Quarter Master General, Lt. Col. Sir William De Lancey, K.C.B, with directions to place the troops in position; orders being at the same time given to Lt. Colonel Carmichael Smyth, relative to his own Department. This Plan was on the person of Sir William De Lancey, when that Officer was killed; it was recovered for Lt. Col. Carmichael Smyth by Brigade Major Oldfield, from Lt. Colonel Sir Charles V. Brooke, D.Q.M. General at Le Cateau Cambreesis on the advance upon Paris in June 1815; since which time it has been with the papers of Lt Colonel Sir James Carmichael Smyth, Baronet, C.B., K.C.H., K.M.J, K.S.N."

The note is signed: J. Oldfield, Colonel, Royal Engineers, 31st January 1846.

The map is a combination of ten different pieces of paper which were surveyed separately (as was usually done in the Peninsula) in the year which preceded the battle. The pieces of the map were drawn by a team of ten Royal Engineer officers, whose task was to survey areas and fortifications in the Netherlands and on the French borderlands. This task was a not a priority at the time and only became so after Napoleon's return to power.

The sections of the map were drawn using different qualities of paper and detail. The part of the map that is of the highest quality is the area west of Hal, in the northwest. This area has a greater level of detail, including more hill shading and tree lining. This area was revised at the request of Wellington by Captain Sperling in May 1815. The emphasis on this section of the map and Wellington's concern with the area of Hal (for which he has been criticised by some) is because a good paved road led from the French border through Hal to Brussels. The section of poorest quality (supposedly completed at the last moment) is the area in the centre of the north portion of the map. This was drawn on inferior brown paper and is less detailed.

Although it is an irregular shape, the map's overall dimensions are 135cm x 99cm. The shape is due to the fact that the ten different sketches were not redrawn onto a new rectangular sheet. The map

covers an area of 120 square miles. It embraces: Hal, in the north-west; Genappe, in the south-east corner; Nivelle, in the south centre; and the area where the battle was fought in the north-east. Its scale is approximately 4 inches to the mile (1:253,440).

Given its lack of detail and its scale, the map was obviously not suitable as a tactical map for fighting a battle. However, it was suitable as an operational map for fighting a campaign, depicting relief and roads. In particular, it showed clearly that most of the good roads radiated from Brussels, that there were few good lateral roads and that crossroads (such as Quatre Bras) were therefore of importance.

In the days that preceded the battle of Waterloo, the several pieces of the map were united in some haste, for use by Wellington. On 15th June Napoleon's forces were on the move and he had stolen a march on Wellington and Blucher. Wellington needed to decide how to counter Napoleon and on the 16th the map was called for. A fair copy of the map had previously been made but this had already been presented to the Prince of Orange. Wellington's copy was not yet finished. Due to time constraints, it was decided that the original sketches would be used.

Lieutenant Waters is believed to have received the individual sketches from the RE officers via Oldfield. The map was nearly lost during his possession of it, when he became involved in a melee at the Battle of Quatre Bras. Waters became unhorsed during an assault by French cavalry and then spent the rest of the battle trying to evade capture. His horse had bolted, but by some luck Waters was able to locate it shortly after. According to Oldfield: 'He was delighted to find his horse quietly destroying the vegetables in a garden near the farmhouse at Quatre Bras'.

Waters then resumed his journey and delivered the sketches to Wellington's HQ in Brussels, where it was pieced together. There was no time to redraw the different sections, so the pieces were pasted together with overlaps and backed onto canvas material. It was then passed to Wellington via Oldfield and Carmichael Smyth. At this point Wellington is reported to have made his mark on the map, by drawing pencil lines to reflect troop positions. He then handed it to Sir William De Lancey (his Quartermaster General), who made arrangements accordingly. The purpose of the pencil lines is disputed and there are two schools of thought on the matter. The first is that Wellington made the marks to indicate his intended troop positions to De Lancey. The second is that the marks were made for the benefit of a Prussian military liaison officer, to indicate to the Prussians where his line would be and where he wished them to arrive.

At the battle itself, De Lancey carried the map on his person, reportedly in his jacket pocket. He was mortally wounded by a cannon ball which hit him the back. Wellington was very close by when this had happened, and in his account of the battle reports De Lancey's last words: 'Pray tell them to leave me and let me die in peace'.

De Lancey wounded at Waterloo. Sketch by the Dutch painter J.W. Pieneman for his painting 'De Slag by Waterloo'. Source: Wikimedia Commons.

De Lancey's newly married wife was brought from Brussels to nurse him for several days before he succumbed to his wounds. After De Lancey had fallen, the map was recovered by Brigade Major Oldfield. He then passed it back to Carmichael Smyth.

For many years it was suggested that the dark area at the top of the map was the stain of De Lancey's blood, a story popularised by Sir Walter Scott. However, modern science has shown it to be the result of a 19th century attempt at conserving the map.

A copy of the map was made in 1846, often referred to as the Plymouth Map, and this is now held by the British Library. In the same year, Oldfield added an explanatory note to the left of the map, which I quoted above.

The map is drawn in iron gall ink, black ink, graphite pencil, grey wash, green wash, and red pigment. It is backed on paper which in turn has been backed on linen. The map shows signs of abrasion. The wrinkles date from the time it was originally assembled. For the Waterloo bicentenary in June 2015, the Museum redisplayed the map in a way which highlighted its significance but also protected it from deterioration. At this time, the Oldfield note was removed.

The Ferraris maps

In addition to the Waterloo Map, Wellington possessed copies of the Ferraris maps. It is not known to what extent he used the Ferraris maps or to what extent they influenced the survey work undertaken for the Waterloo Map. British soldiers (and sappers in particular) have a history of distrusting native mapping but some use and influence would have been inevitable.

Between 1771 and 1778 Joseph de Ferraris produced a secret series of

maps of the then Austrian Netherlands for the Hapsburgs. The maps were made on a scale of 1:11,250 and formed a collection of 275 manuscript and hand coloured maps, 0.90 by 1.40 metres each. These were accompanied by twelve volumes of handwritten commentaries relating to topics of economic and military interest (rivers, bridges, forests, possibilities for military camps...). Three original sets of these manuscript maps remain: in Vienna, in The Hague and in Brussels. The use of colour and of hill shading make them works of art. Sheet 61 is Hal (south west of Brussels), 76 is Brussels, 77 is Uccle (south of Brussels), 78 is Braine d'Alleud (covering Waterloo), 79 is Nivelles (to the south), 80 is Seneffe (covering Quatre Bras), 81 is Charleroi (near the French border), 95 is Wavre, 96 is Court St Etienne (to the south), 97 is Gembloux (to the south) and 98 is Fleurus (covering Ligny).

In 1777 and 1778, Ferraris produced a version for public sale - 25 maps printed at the smaller scale of 1:86,400, which is not a tactical scale.

The Ferraris maps were much used during the French Revolutionary and Napoleonic Wars. When the French invaded in 1792–3, they took 400 copies of the map from a Brussel's printer and seller. In 1794 they took the engraving plates to France so they could produce more maps for their own use and to prevent any enemy from acquiring copies. Louis Capitaine, a French engineer, copied it and in 1797 produced two versions: a secret one with 69 sheets and a smaller scale version on six sheets, which was sold to the public. Capitaine's main concern was to rearrange the maps so that they formed a unity with the maps of France by Cassini in order to portray the southern Netherlands as an integral part of France. He made only a few and minor revisions to what was on the maps.

During the campaign Wellington had a copy of the six sheet version. It is believed that Blücher also had a copy of the six sheet version. Napoleon carried a copy of the Capitaine maps (of which sheets 11 to 18 covered the campaign area) while Gourgaud, his aide, carried a copy of the Ferraris maps. Whichever the version used, apart from a handful of updatings and corrections, the information basically dated from the 1770s. To give two examples. Coal mines with their supporting infrastructure which had developed around Charleroi in the interval between the map's drafting and 1815 were missing. Quatre Bras was shown as Trois Bras.

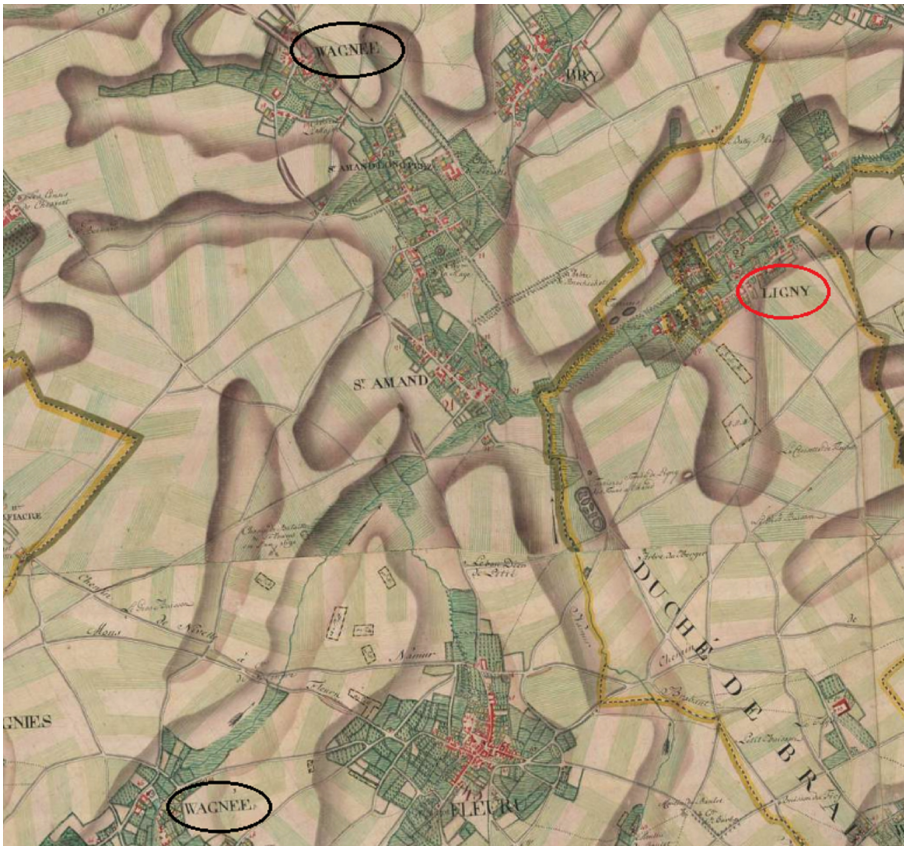
Impact of inadequate maps

Considering that Napoleon was well aware of the dangers of inadequate maps in his campaigns, it is surprising that he fought the Waterloo campaign with maps which were both outdated and lacking in detail. Napoleon made use of a topographical map when planning his campaign and of his topographical expert, General Simon Bernard, during it. Indeed, he spent much of the day of Waterloo observing the battle at a table with maps spread out on it.

Nevertheless, old maps with inadequate detail were used during the Waterloo campaign by all sides.

I will give three examples where I think either inadequate maps and/or inadequate map reading had an impact on the course and result of the campaign.

The 1st Corps of d'Erlon was ordered by Napoleon to march from Quatre Bras to Ligny to help defeat Blücher, but this corps never arrived at the right spot: d'Erlon had been ordered to march to Wagnelée but he marched his men to Wangenies, which is 5 miles further to the south. Both are called Wagnée on the map. The arrival of a large body of men not on the Prussian flank but in the French rear served to upset Napoleon's plans and give a breathing space to Blücher. If two locations with similar names had not



Map 2: The Ligny area with the two Wagnées on the Ferraris map. Source: https://maps.arcanum.com.

been confused, Blücher could have been defeated more quickly and more utterly at Ligny than he in fact was. The cause of this confusion remains unclear. Were the orders illegible because of bad handwriting? Was d'Erlon not good at map reading? What is clear is that D'Erlon spent the day marching between the two battlefields without his men firing a shot at either.

Blücher's Prussians were heavily defeated at Ligny. But their fierce resistance plus the d'Erlon debacle meant that they were not routed, that their retreat was covered by night and that they lived to fight another day. They fell back to the north, to Wavre - although their lines of communication extended eastwards towards Namur. It has been argued that the Prussians took this rather surprising decision (which misled the French about their retreat) because Wavre was the only name they could read on their map by candle light when withdrawing from Ligny.

An error on the Ferraris-Capitaine map caused some confusion in the French army: the road leading to Wellington's centre was drawn at the east side of the farm of Mont-Saint-Jean, while in reality it is on the west side. The same road passes on the east side of the farm of La Haye Sainte, as was correctly drawn on the map. It has been argued that because of this error, Napoleon and his staff mixed up the two locations at the beginning of the battle.

To conclude. All the mapping available to all the sides in the campaign was inadequate. The various versions of the Ferraris maps available used by all the combatants – including the Capitaine versions used by Napoleon - were outdated and lacking in detail. In addition to the Ferraris maps, Wellington had the Waterloo Map. Though it was of smaller scale and less detailed than the Ferraris maps, it was much more current - so current in fact that it was unfinished. Wellington's forces thus possessed a composite map of the theatre of operations which had been surveyed recently (and which emphasised relief and roads) plus the Ferraris maps, while Napoleon's forces possessed the Ferraris maps and the Capitaine maps derived from them (both seriously outdated). I believe that Wellington's knowledge of the theatre of operations and of the battlefields of Quatre Bras and Waterloo was superior to that of Napoleon because his mapping and his use of it were better, enabling him to read and use the ground to advantage. Along with Napoleon's arrogance, poor staff work, inadequate subordinate commanders and the inclement weather (which are often cited), I believe that Wellington's superior knowledge of the ground and better use of it may fairly be said to be another reason for his famous and improbable victory over Napoleon at Waterloo.

Map 3: The battlefield at Waterloo. The village is just off the top edge of the map. Source: Royal Library of Belgium, https://www.cartesius.be.

Paul Hesp - MY GUY FAWKES MAP
Tracking a World War II action

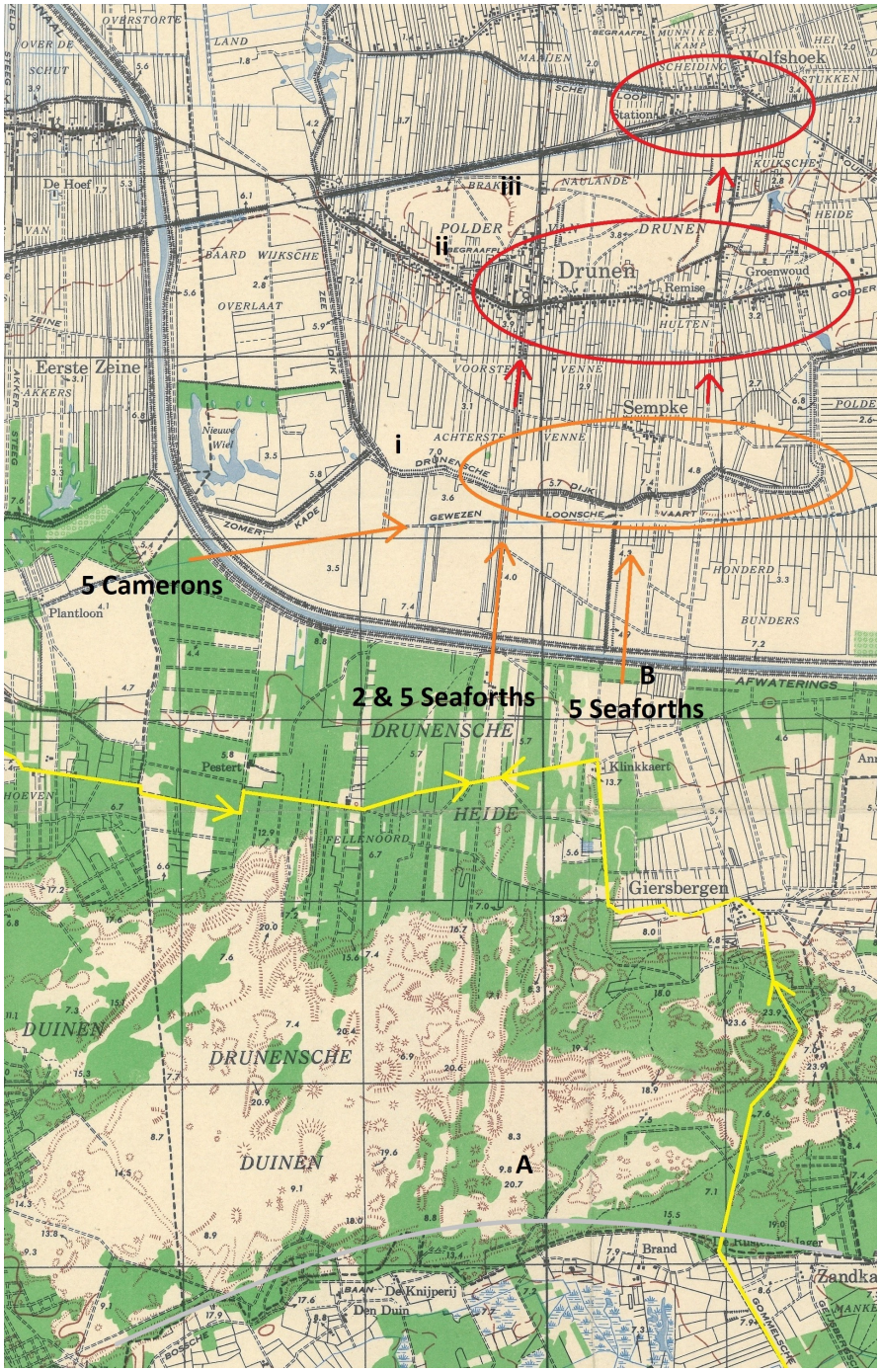
Old topographic maps help us to revisit the sites of historical events. The liberation of a village in the southern Netherlands in 1944 can be followed step-by-step with the help of an Allied 1:25,000 map.

My second-hand topographic map collection focuses on maps of areas I'm familiar with. Comparing an old large-scale map with a recent one can be as absorbing a pastime as reading a novel.

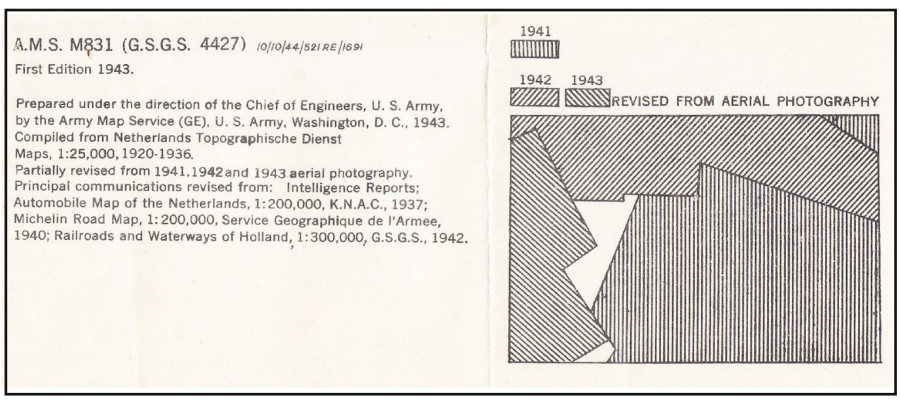
One of my maps was made by the U.S. Army Map Service in 1943. Map 1, a fragment of it, shows an area of heath, dunes and woodland in the province of North Brabant, the Loonse and Drunense Duinen, separated from the myriad ditches of the open polder landscape along the Meuse by the *Afwateringskanaal*, a drainage canal running west to the river from the town of Den Bosch. The map, based on pre-war Dutch maps (see Figure 1), is a typical wartime product: it reproduces essential information but dispenses with the sophisticated design of the originals, of which Map 2 gives some idea.

Desert by the polder

The Netherlands: a country of boggy meadows stretching to the horizon. Yet it is also a country with mini-deserts. In a distant past, Rhine



Map 1: Fragment of the 1:25,000 map used for operation Guy Fawkes, with the approach in yellow, phase 1 of the advance in orange and phase 2 in red. Dyke: i; Langstraat lateral road: ii; Railway line: iii. Grey: German position overrun on 28 October. A, B: photo locations. Source: CC-BY Kadaster.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First Edition 1943.

Prepared under the direction of the Chief of Engineers, U. S. Army, by the Army Map Service (GE), U. S. Army, Washington, D. C., 1943. Compiled from Netherlands Topographische Dienst Maps, 1:25,000, 1920-1936. Partially revised from 1941, 1942 and 1943 aerial photography. Principal communications revised from: Intelligence Reports; Automobile Map of the Netherlands, 1:200,000, K.N.A.C., 1937; Michelin Road Map, 1:200,000, Service Geographique de l'Armee, 1940; Railroads and Waterways of Holland, 1:300,000, G.S.G.S., 1942.

1941
1942 1943 REVISED FROM AERIAL PHOTOGRAPHY

Figure 1: The sources for the A.M.S. map. The sheet was printed in the field a few weeks before Guy Fawkes.

Map 2: Fragment of the area covered by Map 1 on a Dutch 1:25,000 map from the 1920s. Source: CC-BY Kadaster.

and Meuse deposited huge quantities of coarse sand. Where early farmers exhausted the thin soil, wind erosion turned the fields into *zandverstuivingen*, sand-drifts with dunes up to 20-25 metres high. In the 19th century systematic tree planting was undertaken to ring-fence and reclaim the sands. Nothing much but pine thrived there, but the shelterbelts did stimulate the slow colonisation of the sands by native oak and birch. The straight lines of hillocks through the sands on Map 2 are remains of such shelterbelts.

Around the turn of the last century, two types of use for these otherwise unproductive areas emerged: recreation and army training. The Netherlands being a densely populated country, areas where no live firing took place could serve both purposes. The Drunense Duinen was one of these, and I remember observing Russians disguised as dog walkers from my steadily crumbling slit trench. But there was actual fighting in the area as well.

Operation Guy Fawkes

In autumn 1944, 2nd British Army cleared the south of the Netherlands up to the river Meuse. Den Bosch was liberated on 26 October, Tilburg, just south of the sands, a day later. An improvised defence line along the southern edge of the sands was overrun on 28 October. But the 20 kilometres of the *Afwateringskanaal* and the dyke which protected the village of Drunen before the canal was dug were ready-made obstacles to a continued advance.

Photo A: "October 29… Patrols sent out across the sand-dunes in the direction of the canal reported nothing." (Borthwick 2001, p. 201). (© author)

The objective of Operation Guy Fawkes was to clear the area beyond the canal, securing bridgeheads across the Langstraat lateral road and the railway line at Drunen. The woods surrounding the dunes provided an ideal jumping-off point: there was a dense network of relatively firm tracks and tree cover right up to the canal.

The attack was planned for November 5 - it was evidently assumed that the code name would mean nothing to the enemy. In the event, the operation took place on November 4, as the troops involved would be needed to stop a German counterattack elsewhere. These troops were the 5th Seaforth Highlanders, the 2nd Seaforth Highlanders and the 5th Queen's Own Cameron Highlanders. The brief sketch of the action which follows is based on the description of the operation in Borthwick 2001. The operation order reprinted in the book has map references for Map 1, so the troop movements can easily be traced.

The battalions, with other troops to their right, were to cross the canal in three places. All bridges had been blown, so portable assault boats were brought up. These had to be carried over the embankment, down to the water and paddled across, where the northern embankment formed the first German defence line. This tricky operation was covered by tanks, flame throwers and machine guns while artillery pounded the village.

Photo B: "A little pumping station stood a few rounds of armour-piercing and then went up in smoke." (Borthwick 2001, p.204) The canal with the present-day pumping station. (© author)

The first wave of troops went over at dusk "without a casualty in seven minutes flat" (Borthwick, p. 205). The dyke was the next German line of defence, and breaching it required crossing a kilometre of flat, open farmland. Resistance, however, proved minimal. The day's final objectives, Groenewoud on the eastern outskirts of Drunen and the rail and road crossings at Wolfshoek, were reached late in the evening, and a link up with troops coming from Den Bosch along the Langstraat was made. Casualties among the Scots were just a few wounded while the Germans lost over a hundred men plus a field kitchen, which "fed two hundred men on the soup alone" (Borthwick, loc. cit.). But Drunen suffered heavy damage, thirty-two civilians were killed and the local GP, who did not react to a Scottish sentry's challenge, was shot (Didden and Swarts p. 221).

This is where it happened

The sands were just a small-unit training ground and are now a national park; as a consequence, there has been little change. You can still follow the route of the Highland battalions to the start line on the same tracks. The polder country between canal and dyke remains largely agricultural, but behind the dyke Drunen has spread over the fields and ditches. The village centre was rebuilt in retro post-war reconstruction style; you must know a bit about 20th century Dutch architecture to get an idea of the damage done. The local cuisine has shifted from German to Dutch, Indonesian, Chinese and Italian cooking.

Whole libraries give us a general picture of the campaign to liberate Western Europe. But topographic maps are indispensable for pinpointing and exploring the sites of local actions: 'this is where it happened'.

Sources

Army Map Service (GE), U.S. Army: Holland 1: 25,000, sheet 10 S.E. Washington, D.C. 1943.

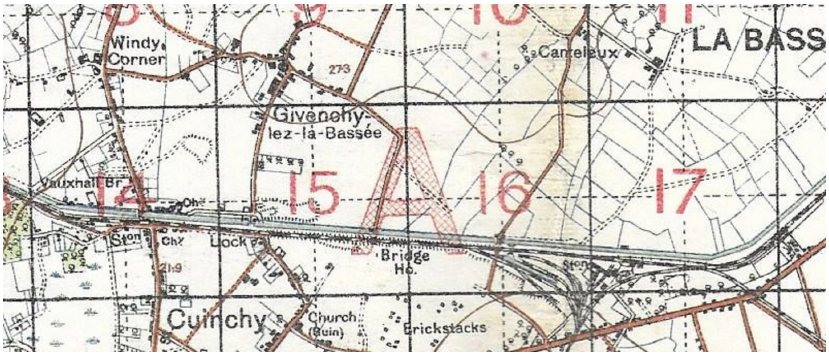
Netherlands Cadastre, Land Registry and Mapping Agency: https://topotijdreis.nl

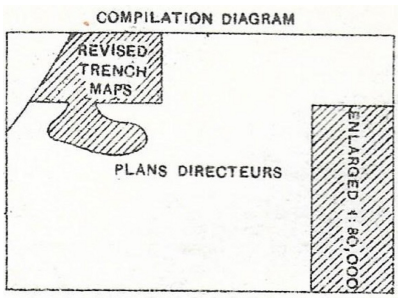
Borthwick, Alistair: *Battalion – A British Infantry Unit's Actions from El Alamein to the Elbe. 1942-1945*. Bâton Wicks, London 2001, p. 201-205.

Didden, Jack and Maarten Swarts: *Provinciestad in Oorlogstijd - Waalwijk en Omgeving 1939-1945*. De Zwaardvisch, Drunen 1992, p. 218-221.

Sgts. A.C. Gross and R. Watkins of the Army Film and Photographic Unit captured part of Operation Guy Fawkes on film (Imperial War Museum cat. no. A 70 190-2 and 3).

Notice Board





I have a 1:40,000 map, sheet 36c of a series covering NW France/SW Belgium based on French maps, with English names added ('Windy Corner', 'Brickstacks', 'Vauxhall Bridge', etc.). It was surveyed by No. 1 Survey Section, R.E. in 1915. No other info. Can anyone tell me more about production of these maps?

Paul Hesp (Paul.Hesp@drei.at)